Annual Report
Fiscal Year 2003
of the Secretary of the Army
On Civil Works Activities
(1 October 2002 - 30 September 2003)

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

REPLY TO
ATTENTION OF

July 29, 2004

Honorable Richard B. Cheney
President of the Senate
Washington, D.C. 20510-0010

Dear Mr. President:

I am submitting the Annual Report on Civil Works Activities for Fiscal Year 2003, in accordance with Section 8 of the Rivers and Harbors Act of 1888 and Section 925(b) of the Water Resources Development Act of 1986.

This field report contains narrative summaries and statistics on water resources development projects of the Army Corps of Engineers where there has been activity between October 1, 2002, and September 30, 2003.

Very truly yours,

John Paul Woodley, Jr.

John Paul Woodley, Jr.
Assistant Secretary of the Army
(Civil Works)

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Honorable J. Dennis Hastert
Speaker of the House of Representatives
Washington, D.C. 20515-6501

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Navigation

1. AUNT LYDIA'S COVE, CHATHAM, MA

Location. Aunt Lydia's Cove is located in Chatham Harbor, Chatham, Massachusetts. The cove is located on the "elbow" of Cape Cod approximately 90 miles southeast of Boston, Massachusetts. (See National Ocean Service Coast Survey Chart 13248.)

Existing project. Provides for an entrance channel 8 feet deep and 100 feet wide for a length of 900 feet and a 9.5-acre anchorage also to a depth of 8 feet. Work was completed in June 1995. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. The Chatham Municipal Fish Pier is the only terminal facility in Aunt Lydia's Cove. Initially constructed in 1945, the pier is used to offload catch, access boats, load supplies and perform some repairs. Two independent fish companies lease space at the pier's main packing facility where fish are offloaded, packed in ice and shipped to various distributors. The pier provides diesel fuel, gasoline, parking and restroom facilities. Transient and recreational boaters use the pier for loading, offloading, and refueling. This facility is adequate for existing commerce.

Operations during fiscal year. Maintenance: Dredging of the Federal channel was performed by the Government-owned dredge CURRITUCK from June 1 to June 20, 2003. About 49,715 cubic yards of sand were removed and placed in a near shore disposal area southeast of the dredging area and outside the outer bar. A minor amount of material was placed at a near shore area off Andrews Harding Beach. Plant rental cost was $192,240. Associated costs included $20,000 for the Waterways Experiment Station's continuing evaluation of coastal processes related to dredging, hired labor costs of $29,920 for performing and plotting pre- and after- dredge surveys and $11,516 for project coordination and management.

2. BELFAST HARBOR, ME

Location. Belfast Harbor is located at the mouth of the Passagasaweag River along the northwest side of Penobscot Bay, about 25 miles north of Rockland Harbor, Maine. (See National Ocean Service Coast Survey Chart 13309.)

Previous project. For details see Annual Report for 1897.

Existing project. Provides for a channel 15 feet deep and 220 feet wide, extending about 1,000 feet from deep water in Penobscot Bay to the wharves on the south side of Belfast Harbor. The project also includes two anchorage areas on the east and west sides of the channel, 8 and 13 feet deep respectively. Dredging was completed in 1897. (See Table 1-B for Act authorizing the existing project.)

Terminal facilities. There are nine wharves located along the south side of Belfast Harbor below the highway bridge. None of these wharves are publicly owned. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: A continuing contract for maintenance dredging of the 15-foot channel and 8-foot east anchorage area was awarded on September 28, 2002. Work was performed from November 15, 2002 to April 14, 2003. A total of 94,000 cubic yards of material was removed by mechanical dredge and disposed of at the Rockland Disposal Site, about 30 miles away. Total contract cost, including modifications, was $1,247,076. A lobster survey and report was conducted for $25,000 as a condition of State approvals. Hired labor costs were $126,154 for supervision and administration, $57,102 for project coordination and management, $78,923 for surveys, $1,800 for engineering support, $2,050 for safety, and $2,018 for contract processing.

3. BOSTON HARBOR, MA

Location. Boston Harbor includes all expanse of tidewater lying within a line from Point Allerton to Point Shirley and extending from that line westward to the mainland. This comprises an area of about 47 square miles, exclusive of the islands. (See National Ocean Service Coast Survey Charts 13270 and 13272.)

Previous project. For details see the Annual Reports for 1915, 1917, and 1938.

Existing project. Completed work at Boston Harbor, adopted in 1825 and supplemented by enactments through 1958, provides for the improvement of the harbor proper and its approaches - Fort Point Channel, Reserved Channel, Chelsea River and Weir River. For a more detailed description see page 3 of the Annual Report for 1974. These improvements were completed in May 1966 with the construction of the Chelsea River 35-foot channel and maneuvering basin. New work involves deepening the Mystic River and Reserved Channels from 35 to 40 feet and the Chelsea River Channel from 35 to 38 feet; widening and deepening to 40 feet the Inner Confluence Area which provides access to the Mystic and Chelsea River Channels; and widening at the entrance to the Reserved Channel. The proposed project would increase the navigational efficiency and safety of harbor operations and reduce tidal delays for larger vessels. New work was completed in December 2001. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work. A Project Cooperation Agreement was signed on February 13, 1998 between the Corps and the Massachusetts Port Authority for the new work. Consistent with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must pay 25 percent of the costs allocated to deep draft navigation during construction; reimburse an additional ten percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction (partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas); relocate utilities necessary for construction of the project; and deepen berthing areas at the terminals of project beneficiaries.

Terminal facilities. There are 156 wharves and piers in the harbor, not including Mystic, Weymouth-Fore, and Town Rivers, which are reported elsewhere. Of the terminals, 28 are publicly owned, 13 are open to public use, 73 have mechanical-handling facilities, and 70 have railroad connections. Facilities are considered adequate for existing commerce. For a full description of channel facilities in Chelsea River, refer to House Document 350, 87th Congress, 2nd session. (See Port Series No. 3, Part 2, Port of Boston, MA dated 1967.)

Operations during fiscal year. New work: A contract for improvement dredging was awarded May 18, 1998. Work began in August 1998 and was completed in December 2001, except for backfilling of the McArdle Bridge cable trench, which was completed in June 2002. Final contract amount was $41,961,717, of which $18,109,638 was for navigation improvement work. Meetings were held with the project sponsor to review their costs of lands, easements, rights-of-way, and utility relocations (LERR), and to discuss final project cost sharing.

Maintenance: Maintenance dredging was performed in conjunction with improvement work. Final contract amount for maintenance work was $18,085,157. An adjustment of $-57,590 was made to previously reported expenditures to reflect final apportionment of contract costs. In addition to the recently completed maintenance work, $68,646 was expended developing plans and specifications for proposed maintenance dredging of the 40-foot Main Ship and North Channels. Maintenance work was advertised for bids on June 3, 2003, but the solicitation was postponed until next FY due to funding constraints.

4. BRIDGEPORT HARBOR, CT

Location. Bridgeport Harbor is located on the north shore of Long Island Sound, about 51 miles east of New York City. (See National Ocean Service Coast Survey Chart 12369.)

Previous project. For details see the Annual Reports for 1915 and 1938.

Existing project. For a description of the completed improvements see the Annual Report for 1668. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work. There is no reasonable prospect that required cooperation will be forthcoming from local interests for the breakwaters at Black Rock Harbor and the Burr and Cedar Creek anchorages. For further details see the Annual Report for 1968.

Terminal facilities. There are 35 waterfront facilities serving the port of Bridgeport. Three wharves are owned by the City of Bridgeport. (See Port and Terminal Facilities of Southern New England No. 4, revised in 1952.) Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Contract costs of $103,499 were incurred for additional sampling and testing of entrance channel sediment to re-evaluate its suitability for unconfined open water disposal. Hired labor costs in association with proposed maintenance dredging of the Federal project included $1,503 for completing the Preliminary Environmental Assessment, $9,542 to initiate economic evaluation efforts as part of the Dredged Material Management Plan (DMMP), and $8,318 project management including coordination with EPA for the suitability determination

5. CAMDEN HARBOR, ME

Location. Camden Harbor is located on the west side of Penobscot Bay about 8 miles north of Rockland, Maine. (See National Ocean Service Coast Survey Chart 13307.)

Existing project. Provides for a 14-foot outer harbor and a 10-foot inner harbor. Work was completed in 1911. For authorizing Legislation, see the Annual Report for 1960.

Local cooperation. None required.

Terminal facilities. There are eight wharves on the inner harbor, six of which are used for handling general supplies, one for pleasure craft and one is equipped with marine railway used for building and repairing boats. There is one wharf on the outer harbor. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A contract for maintenance dredging of the channels was awarded on September 28, 2002. Dredging began in November 2002 and was completed in January 2003. A total of 13,090 cubic yards of material were removed by mechanical dredge and

placed in open water at the Rockland Disposal Site. Contract costs were $381,919. A study to evaluate disposal impacts on lobsters was conducted for $25,0000 as a condition of State approvals. Hired labor costs were $32,428 for after-dredge surveys, $19,735 for contract supervision and administration, $345 for contract processing, and $21,252 for project coordination and management.

6. CAPE COD CANAL, MA

Location. This waterway is a sea level canal; extending from the head of Buzzards Bay, Massachusetts, easterly to a point on Cape Cod Bay about 15 miles southeast of Plymouth Harbor, Massachusetts. (See National Ocean Service Coast Survey Chart 13246.)

Existing project. For a description of existing project see the Annual Report for 1975. Navigational improvements were completed in April 1963, with completion of the East Boat Basin extension. Initial recreational development consists of public use facilities at various locations, which were completed in February 1965. Improvements to public use facilities at the East Boat Basin were completed in May 1974. Construction of public use facilities at Bourne Scenic Park were completed in May 1976. Cape Cod Canal is crossed by two high-level highway bridges and a vertical-lift railroad bridge. Major rehabilitation of Bourne Highway Bridge was completed in December 1965 and major rehabilitation of the Sagamore Highway Bridge was completed in 1982. Minor rehabilitation of the stone breakwater was completed in October 1963. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work. Local interests must also bear 50 percent of future recreational development in accordance with the 1965 Federal Water Project Recreation Act.

Terminal facilities. There are seven terminals on the canal, of which three are privately owned. Four are used for receipt and freezing of fish and two are used for receipt and storage of oil. The seventh terminal is the State pier, which is owned by the Commonwealth of Massachusetts, and is located on the north bank of the canal at Bourne Neck. Terminals are adequate for existing commerce.

Operations during fiscal year. Major rehabilitation: A contract for Phase I rehabilitation of the Buzzards Bay Railroad Bridge was awarded on August 4, 2000. Phase I work involves repairing or replacing steel members and painting of the superstructure. Work began in April 2001 and was about 98 percent complete at FY end with total contractor earnings of $14,020,013. A contract for Phase II rehabilitation work was awarded on June 28, 2002. Phase II work involves replacing the counterweight cables, trunion bearings, electrical control system and main switchboard. This work required the bridge to be inoperable for a 90-day shut down period. Despite adverse weather conditions, the replacement of the operating system was successfully completed during the 90-day shutdown period, which extended from March 2, 2003 through June 1, 2003. The lift span was usable for rail traffic on June 2, 2003. The contractor worked double shifts and some weekends to meet this aggressive schedule. At the end of the FY about 98 percent of Phase II work was complete with contractor earnings of $12,977,614.

Maintenance: The cost of operation and maintenance work at the Cape Cod Canal totaled $8,815,292. Operation and maintenance work included $5,006,947 for navigation features, $1,502,377 for recreational facilities, $128,915 for natural resources, and $193,000 for the Buzzards Bay Railroad Bridge. Other costs include $65,412 for general real estate activities, $23,750 for contract audit, $169,429 for inspection of the Bourne and Sagamore Highway Bridges, $75,180 for engineering and design, $161,000 for security plan, $100,000 for force protection, $1,470 for safety support, $164,177 for pre- and after-dredge surveys, $30,500 for contract administration, $18,755 for sampling and testing, and $56,870 for supervision and inspection of contracts, including those described below. A contract to repair docks and mooring dolphins was awarded on September 8, 2000. Work began in late September 2000 and was completed in February 2002. Contractor had no earnings this FY and final payment is still pending. A contract for concrete and pavement repairs on the Bourne and Sagamore Highway Bridges was awarded on September 27, 1999. Work began in October 1999 and was about 90 percent complete at FY end. Contractor earnings total $2,640,239, none of which was earned this FY. Final contract payment is still pending. A contract for deck repairs and paving of the Bourne and Sagamore Highway Bridges was awarded March 31, 2000. Work began in April 2000, but was terminated for the convenience of the Government on September 10, 2001. Negotiations are still underway with the contractor to determine final contract amount. A contract for maintenance dredging of the Cape Cod Canal was awarded on August 8, 2002. Work began in September 2002 and was completed on November 15, 2002. A total of 117,000 cubic yards of material was dredged. Contractor earnings this FY were $1,107,510 for a total contract cost of $2,307,508. A contract for sandblasting and painting the Bourne Highway Bridge was awarded on September 20, 2003. Work had not begun by FY end.

7. COCHECO RIVER, NH

Location. The Cocheco River is located about 9 miles northwest of Portsmouth, New Hampshire. (See National Ocean Service Coast Survey Chart 13285.)

Existing project. Provides for a 7-foot tidewater channel 60 to 75 feet wide (7.5 feet deep and 50 feet wide in rock), extending from the confluence of the Cocheco and Piscataqua Rivers to the head of navigation at the Upper Narrows in Dover, New Hampshire. Work was completed in 1906. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. The channel is used primarily by recreational craft based at a marina located near the head of the waterway.

Operations during fiscal year. Maintenance: Hired labor costs incurred in association with the proposed maintenance dredging of the Federal project included $5,000 for continued work on an environmental assessment; $125,300 for preparation of plans and specifications; and $30,000 for project coordination and management.

8. GREEN HARBOR, MA

Location. Green Harbor is located within the town of Marshfield on the west side of Massachusetts Bay, about 30 miles southeast of Boston, Massachusetts, and 9 miles north of Plymouth Harbor, Massachusetts. (See National Ocean Service Coast Survey Chart 13253.)

Existing project. For a description of the existing project see the Annual Report for 1995. Construction was completed in October 1969. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. The major terminal facility is the Town Pier in the village of Brant Rock. The facility is an earth-filled bulkhead with landing and parking area about 290 feet wide, extending 210 feet into harbor. A marina service is south of the Town Pier; and a facility for recreational craft has been developed on the south side of the harbor near the head of navigation.

Operations during fiscal year. Maintenance: Dredging of the entrance channel was performed by the Government-owned dredge CURRITUCK from May 13 to 31, 2003. About 23,890 cubic yards of sand and cobbles were removed and placed in a near shore site off of Green Harbor Beach. Plant rental cost was $239,410. Associated hired labor costs included $20,400 for performing and plotting pre- and after-dredge hydrographic surveys, and $34,772 for project coordination and management.

9. HARBOR OF REFUGE, BLOCK ISLAND, RI

Location. The Block Island Harbor of Refuge is located on the east side of Block Island, about 13 miles southwest from Point Judith Harbor, Rhode Island, and about 25 miles southeasterly from Stonington Harbor, Connecticut. (See National Ocean Survey Chart 13217.)

Existing project. For a description of the existing project, see the Annual Report for 1967. The project was completed in 1916 except for dredging of two 15-foot anchorages in the outer harbor west of the entrance channel, which were deauthorized in November 1986. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. None required.

Terminal facilities. There are two wharves in the harbor, both steel sheet pile bulkhead, which comprise the southern and eastern limits of the basin. Total docking space amounts to 500 feet. No mechanical-handling facilities are available. One wharf, owned by the town and open to the public, is considered inadequate for present general needs of boating in the harbor. There is limited room for expansion of terminal facilities.

Operations during fiscal year. Maintenance: Work consisted of investigations in anticipation of repairing the east bulkhead of the harbor's Inner Basin. Associated contract costs for this work consisted of $11,200 for geotechnical explorations. Hired labor costs associated with this effort consisted of $8,500 for a topographic survey; $18,300 for preliminary engineering; and $13,800 for project coordination and management.

10. KENNEBEC RIVER, ME

Location. The Kennebec River flows from Moosehead Lake in northern Maine about 150 miles southerly and discharges into the Atlantic Ocean at Popham Beach in Phippsburg, about 25 miles east of Portland, Maine. (See National Ocean Service Coast Survey Chart 13298.)

Previous project. For details see the Annual Reports for 1915 and 1938.

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1992.

Local cooperation. None required.

Terminal facilities. Wharves suitable for landing or loading are at Bath, Woolwich, Richmond, Randolph, Gardiner, Hallowell and Augusta. Rail connections are

available at some wharves. Depths range from 12 to 25 feet. Many facilities are equipped with a mechanism for handling passengers and freight. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A solicitation for emergency maintenance to clear restrictive shoals in the Doubling Point and North Sugarloaf Island reaches of the 27-feet deep Federal channel for the USS CHAFEE, a US Navy Destroyer, was issued on September 19, 2003. Bids were opened on September 26, 2003 and a continuing contract for $534,625 was awarded to Great Lakes on September 26, 2003. Notice to proceed was issued on September 29, 2003 and Great Lakes mobilized the hopper-dredge PADRE ISLAND from Sabine, Texas. Dredging had not begun by FY end. Contract costs associated with mobilization of the dredge were $105,800. Hired labor costs included $24,974 for performing and plotting a pre-dredge survey, $300 for preparations of plans and specifications and $1,200 for contract processing.

11. KENNEBUNK RIVER, ME

Location. The Kennebunk River flows about 15 miles southeasterly along the border of Kennebunk and Kennebunkport, two popular summer resort communities on the coast of Maine. The river empties into the Atlantic Ocean about 30 miles southwest of Portland, Maine (See National Ocean Service Coast Survey Chart 13286.)

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1977. The project was completed in December 1968, with completion of rock removal at the entrance to the west channel. Extension of the west jetty was completed in April 1965. Dredging and sand fences were completed in November 1965.

Local cooperation. Fully complied with for completed work.

Terminal facilities. There is one landing available to the public, the other 21 are private and include 2 yacht clubs, a hotel and 2 boatyards. Marine railway facilities include two 15-ton and one 10-ton capacity lifts. There are 4 berths and 10 moorings. Open storage, boat building, repairs, and supplies are available for pleasure and commercial craft. Public landing of granite block construction has unloading facilities used by fishing craft to transfer catches. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Hired labor costs incurred in association with the proposed maintenance dredging of the Federal project were $3,238 for project coordination and management, $3,386 for continued work on the environmental assessment, $6,500 for preparation of plans and specifications, $1,815 for construction review of plans and specifications, and $159 for contract processing.

12. LITTLE HARBOR, NH

Location. Little Harbor is located on the west side of Portsmouth Harbor between New Castle Island and the New Hampshire mainland. (See National Ocean Service Coast Survey Chart 13278.)

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1976.

Local cooperation. None required.

Terminal facilities. One dock owned by Wentworth Hotel, but not available to public. Tentative State plans include a small boat landing and shore facilities.

Operations during fiscal year. Maintenance: Eelgrass monitoring was conducted at three sites (Little Harbor 2.5 acres, Kittery Point 1.5 acres, and Pierces Island 1.5 acres) to determine if specific replanting goals were met. Final monitoring results determined that these goals were met and that additional replanting is not required. Costs to conduct monitoring activities were $14,000 under a contract with the Waterways Experiment Station and $27,317 for in-house labor.

13. NARRAGUAGUS RIVER, ME

Location. The Narraguagus River originates in Eagle Lake and flows southeasterly for about 49 miles to Narraguagus Bay and the Atlantic Ocean. (See National Ocean Service Coast Survey Chart 13324.)

Previous projects. For details see the Annual Report for 1907.

Existing project. Provides for a channel 11 feet deep and 150 feet wide from deep water in Narraguagus Bay to Wyman, then 9 feet deep and 100 feet wide to Milbridge, and then 6 feet deep and 100 feet wide to the landing downstream from the Route 1A Highway Bridge. The project includes three 6-foot anchorage areas adjacent to the 6-foot channel in Milbridge, widening at the turn in Wyman, and a turning basin near the landing in Milbridge. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. There are four major wharves along the Narraguagus River. One is on the east bank, a short

distance downstream of the Route 1A Highway Bridge, two are on the west bank in Milbridge, and the fourth is near the mouth of the river at Wyman. All are privately owned and in fair condition. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Work this FY consisted of continued investigations in preparation for proposed maintenance dredging of the Federal channels. Hired labor costs included $5,755 for project management and completion of an environmental assessment, $14,960 for surveys and drawings, $250 for contract administration, and $14,249 for preparation of plans and specifications. Contract costs of $3,224 were incurred for final payment on a subsurface exploration contract completed in the prior FY. Work next FY will include solicitation of bids and award of a contract for the first phase of maintenance dredging of the project.

14. NEWBURYPORT HARBOR, MA

Location. Newburyport Harbor is located at the mouth of the Merrimack River, about 4 miles south of the Massachusetts and New Hampshire state line and about 48 miles north of Boston, Massachusetts. (See National Ocean Service Coast Survey Chart 13282.)

Existing project. See the Annual Report for 1994 for a description of the existing project. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. Facilities extending along the south bank of the Merrimack River below the Route 1 highway bridge include several marinas, a yacht club, public landing and a commercial fish pier. There are 4 marinas and one town pier located along the north side of the river. Terminal facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Work consisted of investigations in anticipation of maintenance dredging of the Federal project. A sampling and testing contract was conducted at a possible near shore disposal site for $2,200. Hired labor costs included $879 for administration of the sampling and testing contract and $2,488 to determine the estimated cost for pumping the dredged sand onto a nearby beach.

15. NEW HAVEN HARBOR, CT

Location. New Haven Harbor is located on the north shore of Long Island Sound, about 75 miles east of New York City. (See National Ocean Survey Chart 12371.)

Previous project. For details, see Annual Reports for 1915 and 1938.

Existing project. A main channel 35 feet deep, 400 to 800 feet wide, from Long Island Sound to Tomlinson Bridge; two anchorage basins below Tomlinson Bridge of 16 and 15-foot depths; a pile-and-riprap dike about 4,200 feet long, to contract tidal flow at Fort Hale Bar; a channel 12 feet deep and 100 to 150 feet wide, from southwest corner of 16-foot anchorage basin via City Point and West Haven Wharf front to Kimberly Avenue Bridge; thence 12 feet deep and prevailing width of 75 feet up West River to about 600 feet upstream of Kimberly Avenue Bridge, and an anchorage basin six feet deep in West River opposite Mars Wharf; a channel 100 feet wide and 12 feet deep from 15-foot anchorage basin toward Brewery Street, about 300 feet; a channel in Quinnipiac River 22 feet deep and 250 to 400 feet wide to a point about 1,000 feet above Ferry Street, thence 16 feet deep and 200 feet wide to Grand Avenue, with turning basin 22 feet deep, 200 to 800 feet wide, and 700 feet long at mouth of Mill River; a channel up Miller River 12 feet deep, 200 feet wide to junction of two branches above Chapel Street, thence to Grand Avenue, 100 feet wide in East Branch and generally 125 feet wide in West Branch; and removal of certain obstructive rocks in Morris Cove. Existing project was completed in 1961. The 22-foot channel and turning basin is to be restudied. Estimated cost (1960) of this portion is $980,000. For authorizing legislation, see the Annual Report for 1995.

Local cooperation. Fully complied with for completed work.

Terminal facilities. The Port of New Haven is served by 24 waterfront facilities; most are within city limits of New Haven. Improved waterways within port area along which facilities are located include West River, Main Harbor, West and East Branches of the Mill River, and Quinnipiac River channels. Facilities are all privately owned and operated with the exception of City Wharf and the U.S. Coast Guard Wharf. Depths alongside piers and wharves range from 35 to zero feet at mean low water. Some of the facilities have rail connections and all are accessible by paved streets. Facilities are adequate for existing commerce. (For further details see Ports of Southern New England No. 4, revised 1983.)

Operations during fiscal year. Maintenance: A contract for maintenance dredging of the Federal channel was awarded on November 26, 2002. Work commenced on January 6, 2003 and continued until January 31, 2003 when work was discontinued due to environmental restrictions. The contractor removed 252,224 cubic yards of material and is scheduled to return next FY to complete maintenance work. Contract costs totaled $1,402,426. Hired labor costs included $20,980 for project management and coordination,

$89,144 for pre- and after- dredge surveys, $18,776 for a subsurface survey to investigate under channel utility lines, and $43,822 for supervision and administration of the dredging contract.

16. NORWALK HARBOR, CT

Location. Norwalk Harbor is located on the north shore of Long Island Sound, about 10 miles east of New York City. (See National Ocean Survey Chart 12368.)

Previous project. For details, see Annual Reports for 1915 and 1938.

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1973. The project was completed in 1950.

Local cooperation. Fully complied with for completed work.

Operations during fiscal year. Maintenance: Work consisted of investigations in preparation of proposed maintenance dredging of the Federal project. Contract costs included $68,640 for boring and sampling work at a possible in-river location for construction of a confined aquatic disposal cell, and $6,176 for physical and chemical testing of the samples. Hired labor costs associated with this project were $7,419 for geotechnical engineering, $32,215 for surveys, $40,370 for project coordination and management, $16,349 for preparation of plans and specifications, $461 for construction review of plans and specifications, $1,324 for contract processing and $208 for safety.

17. PENOBSCOT RIVER, ME

Location. The Penobscot River drains a large number of lakes and small streams in north, central and eastern Maine, then flows southerly about 100 miles through the middle of the state to Penobscot Bay, about 90 miles northeast of Portland, Maine. (See National Ocean Service Coast Survey Chart 13309.)

Previous projects. For details see the Annual Reports for 1915, 1938 and 1949.

Existing project. Provides for a channel 22 feet deep and 350 feet wide between Bucksport and Winterport, 15 feet deep near Stearns Mill and Crosby's Narrows with some widening and straightening of the channel in these areas, and 14 feet deep and 100 to 300 feet wide at Bangor Harbor. The existing project was completed in 1913. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. The riverfront at Bangor has 12 wharves, most of which are timber crib with stone ballast. Eleven wharves have railroad connections. On the east side of the river opposite Bangor, there is one water terminal, a coal handling plant having mechanical appliances and three petroleum products storage plants. At South Brewer there is a large pulp and paper plant, which has water connections, oil pumping and storage facilities. A number of private wharves are open to the public at moderate charges. At Bucksport along the north side of the river there are three important terminals, one a coal handling plant and two used by a large paper manufacturing plant which has terminal facilities for receipt and storage of oil products and pulpwood. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Hired labor costs of $1,004 were incurred for work on identifying possible in-river disposal sites for proposed maintenance dredging.

18. PLYMOUTH HARBOR, MA

Location. Plymouth Harbor is located about 45 miles south of Boston, Massachusetts. Its outer anchorage, the "Cow Yard," is common to Plymouth, Duxbury, and Kingston, Massachusetts. (See National Ocean Service Coast Survey Chart 13253.)

Previous projects. For details see the Annual Reports for 1915 and 1938.

Existing project. Provides for riprap along sections of Long Beach damaged by the storm of November 1898 and restoring the Eel River to its former course; a channel 18 feet deep and 200 feet wide, increased at the entrance and on curves, from the bay to the town wharves, a distance of about 2.5 miles, with a suitable turning basin at the inner end; a channel 15 feet deep and 150 feet wide extending northwesterly about 0.3 miles from the State Pier with a 15-foot turning basin 300 feet square at its northwesterly end; maintenance of the area dredged by the Commonwealth of Massachusetts to 18 feet deep connecting the 15-foot and 18-foot channels in the vicinity of the State Pier; a rubble stone breakwater extending 1,400 feet easterly thence 2,100 feet southeasterly from the town wharf; an 8-foot anchorage, 60 acres in area, inside the breakwater; and recreational development to provide for sport fishing from the breakwater, consisting of a stone causeway about 360 feet long extending from the westerly end of the breakwater to land, a guardrail along the top of the breakwater, a footbridge spanning the navigation opening through the breakwater, parking and sanitary facilities. Construction of the 8-foot anchorage was completed in 1967. Construction

of the breakwater along with rehabilitation of Long Beach Dike was completed in 1971. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. There are 3 wharves of pile and timber construction; one is owned by the State, one by the town and one by the Plymouth Yacht Club. The State and town wharves are open to the public. In addition there are two boatyards with marine railway facilities along the waterfront, equipped for boat building and repairs. Local interests maintain the existing public landings open to all on equal terms and provide all necessary mooring facilities in the anchorage. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Hired labor costs incurred in connection with proposed repairs to the Long Beach Dike included $15,600 for topographic surveys, $22,800 for preparation of contract plans and specifications, and $22,800 for project coordination and management. Construction activities proposed for this FY were deferred pending receipt of local permits by the town.

19. POINT JUDITH POND AND HARBOR OF REFUGE, RI

Location. Point Judith marks the southwestern entrance to Narragansett Bay. The harbor lies in shallow bight west of the point, about 14 miles southwest of Newport Harbor, RI, and 33 miles east of New London Harbor, CT. Point Judith Pond is a shallow salt pond, lying inland of the beach, with a length north and south of about four miles. A small artificial opening through the beach and sand dunes connects this pond to the ocean. (See National Ocean Surveys Charts 13218 and 13219.)

Previous project. For details see Annual Report for 1948.

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1977. All work for the project authorized prior to 1949 was completed in 1950. Breakwaters were completed in 1914 and dredging of shoals in project area was done in 1921. The main and east shore arm breakwaters had deteriorated and required restoration to project design. Reconstruction of the east arm breakwater and main breakwater dock facilities were completed in 1962. Rehabilitation required for remainder of breakwater restoration was completed in October 1963. The extension of the 15-foot channel was completed in April 1977.

Local cooperation. Fully complied with for completed work.

Terminal facilities. Consist of one town wharf of steel sheet pile bulkhead construction, which comprises southern and eastern limits of basin. Total docking space amounts to 500 feet. No mechanical handling facilities are available. Wharf is owned by the town and open to the public. State of Rhode Island maintains two State piers, one in Galilee and one in Jerusalem, each having about 500 feet of berthing space. A facility comprising a bulkhead with 15 finger piers provides berthing space of about 4,000 linear feet. This facility is used for receipt of fish and fish products. Mechanical handling facilities including fish pumps, are available for discharge of cargo. In addition, there are approximately ten small privately owned wharves used in the fishing business and passenger traffic. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Work consisted of investigations in anticipation of maintenance dredging and repairs to the stone breakwaters. Contract costs associated with this project consisted of $29,000 for a SHOALS survey of the breakwater, and $43,000 for sampling and testing of sediments to be dredged from the Federal channels and anchorage. Hired labor costs associated with the maintenance dredging work consisted of $3,500 for development of an Environmental Assessment and $14,900 for project coordination and management.

20. PORTLAND HARBOR, ME

Location. Portland Harbor is located on the southwestern coast of Maine, about 100 miles northeast of Boston, Massachusetts. (See National Ocean Service Coast Survey Chart 13292.)

Previous projects. For details see the Annual Reports for 1915 and 1936.

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1978. The project was completed in 1966, except for ledge removal that was completed in 1968.

Local cooperation. Fully complied with for completed work.

Terminal facilities. There are 37 waterfront facilities, seven of these facilities are publicly owned; the U.S. Government owns four, the State of Maine owns two, and the City of South Portland owns one. Mechanical-handling facilities are available at 24 wharves and railroad connections have been made to 27 wharves. The facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: The contractor who performed the last maintenance dredging work, which was completed in FY 1999, submitted a request for equitable adjustment based on contract delays and final contract quantities. Based on contract settlement, an adjustment of $80,815 was made to previous expenditures. Hired labor costs included $6,940 for contract settlement, $47,800 for project condition surveys and $17,900 for project coordination and management.

21. PROVIDENCE RIVER AND HARBOR, RI

Location. The Providence River originates in Providence, Rhode Island at the junction of two small streams, the Woonasquatucket and Moshassuck Rivers. It then flows southerly about a mile to the head of Providence Harbor at Fox Point where it is joined by the Seekonk River and continues southerly another 8 miles to Narragansett Bay. (See National Ocean Service Coast Survey Charts 13224 and 13225.)

Previous projects. For details see the Annual Reports for 1915, 1936, and 1938.

Existing project. Provides for a channel 16.8 miles long and 40 feet deep, generally 600 feet wide from deep water in Narragansett Bay just south of Prudence Island Light to the turn below Field Point at Providence, thence up to 1,700 feet wide to Fox Point. The existing 40-foot channel was completed in January 1976. Dredging of a 30-foot channel, 150 feet wide from the upper end of the existing project to India Point at the mouth of the Seekonk River was deauthorized in November 1986. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Local interests have yet to provide berthing areas commensurate to channel depths.

Terminal facilities. There are 27 water terminal facilities serving the port of Providence, Rhode Island. Three-fourths of all facilities have railway connections. The City of Providence owns four of these facilities and the State of Rhode Island owns two others. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: A contract for maintenance dredging of the Federal project was awarded on December 20, 2002 to Great Lakes Dredge and Dock Company. Work was initiated on April 12, 2003 and was continuing at FY end. Costs incurred for maintenance dredging of 1,374,851 cubic yards of material was $14,228,871 ($14,107,510 Federal, $1,345,530 Non-Federal). Additional costs incurred were $332,113 for supervision and administration of the contract, $209,398 for pre-dredge and progress surveys, $98,516 for overall project management, $82,410 for environmental review and management of water quality monitoring contract, $30,766 for development of monitoring plan, $290,869 for water quality monitoring, $1,026 for review of plans and specifications by the Safety Office, $78,457 for offshore disposal site surveys by the DAMOS program, $1,539 for contract management of DAMOS contract, $1,323 for internet connection for Providence Field office, $69,708 for preparation of plans and specifications, and $10,517 to monitor P&W railroad property adjacent to dredging area; $2,579 for the independent Technical Review of the plans and specifications; $45,000 to develop web site for maintenance activities; $489 to print copies of the Final Environmental Impact Statement; $242 for Stenographer costs at a Public Hearing; $6,985 for Contracting Division; $2,050 for travel associated with the work.

22. ROCKLAND HARBOR, ME

Location. Rockland Harbor is located on the westerly side and near the mouth of Penobscot Bay, about 80 miles northeast of Portland, Maine. (See National Ocean Service Coast Survey Chart 13307.)

Previous projects. Adopted by the River and Harbor Act of June 3, 1896. For details see Annual Report for 1906.

Existing project. Provides for a breakwater extending 4,346 feet southerly from Jameson Point, a short approach channel 18 feet deep and 200 feet wide, and three branch channels 14 feet deep and 100 to 150 feet wide with turning basins. The breakwater was completed in 1904. The channels and turning basins were completed in 1959. (See Table 1-B at end of chapter for Acts authorizing the existing project).

Local cooperation. Fully complied with for completed work.

Terminal facilities. About 15,000 feet of waterfront has been developed with over 20 wharves. Wharf construction varies from timber cribs filled with stones or earth, to granite faced fills with wooden-pile additions. The Rockland Port District has constructed a public pier and terminal at the entrance to Lermond Cove. Ships using this terminal include ferries and supply ships servicing the Penobscot Bay islands. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: A contract for maintenance dredging of the channels was awarded in September 2002. Work began in January 2003 and was completed in March 2003. A total of 33,107 cubic yards of material was removed by mechanical dredge and placed in open water at the Rockland Disposal Site. Contract costs were $831,255. A study to evaluate disposal impacts to

lobsters was conducted for $25,000 as a condition of State approvals. Hired labor costs included $62,815 for after-dredge surveys, $75,351 for contract supervision and administration, $2,010 for contract processing and $18,128 for project coordination and management.

23. SALEM HARBOR, MA

Location. Salem Harbor is located on the north shore of Massachusetts Bay, about 12 miles north of the entrance to Boston Harbor, Massachusetts. (See National Ocean Service Coast Survey Charts 13275 and 13276.)

Previous projects. For details see Annual Report of 1915.

Existing project. Provides for a channel 32 feet deep and generally 300 feet wide, widened to 400 feet at bends and at the inner end, extending about 1.5 miles from deep water in the outer harbor to a point about 1,500 feet from Salem Terminal wharf, where it joins locally dredged approach channel of same depth leading to wharf. Project also provides for a channel 10 feet deep in South River, 300 feet wide and gradually narrowing to 50 feet wide at the upstream end of Pickering Wharf, and for a branch channel on the east side of Derby Wharf, 8 feet deep, 100 feet wide, and about 700 feet long, which widens into a basin of the same depth, 500 feet long and 200 feet wide. Existing project was completed in November 1967. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Terminal facilities. The extensively developed waterfront of Salem Harbor and the South River is about 1 mile in extent and includes 9 wharves owned by private interests. The Salem Terminal is the largest of these and serves the New England Power Company's generating station. It is also the principal terminal for receipt and distribution of coal and petroleum products in Salem and tributary area. The Navy uses one of the two wharves owned by the National Park Service as a training center. Nine other wharves in the harbor are outside of the extensively developed area.

Operations during fiscal year. Maintenance: Work consisted of continued investigations in preparation for maintenance dredging of the Federal channels. Hired labor costs included $10,200 for surveys and drawings, $4,263 for project management, $374 for completion of an environmental assessment, $723 for contract administration and $20,827 for preparation of plans and specifications. Contract costs were $25,394 for a utility survey of the main channel. Work next FY will include solicitation of bids and award of a contract for maintenance dredging of the project.

24. SAUGUS RIVER, MA

Location. The mouth of the Saugus River is located along the western shore of Lynn Harbor in Broad Sound, about 5 miles northeast of Boston Harbor, Massachusetts. The river forms the boundary between the communities of Saugus and Lynn, Massachusetts. (See National Ocean Service Coast Survey Chart 13275.)

Existing project. Provides for an entrance channel 80 to 150 feet wide and 18,400 feet long from deep water in Broad Sound, through the Western Channel of Lynn Harbor and upstream in the Saugus River to the harbor area and commercial facilities. The first 17,700 feet of the channel is 8 feet deep and extends to the uppermost commercial shore facilities. The final 700 feet of the channel is 6 feet deep and provides access to the uppermost anchorage. The project also provides for 2 anchorage areas, both 6 feet deep and totaling 4.3 acres, to accommodate the commercial fleet. Construction of the project was completed in March 2001. (See Table 1-B for Act authorizing the project.)

Local cooperation. A Project Cooperation Agreement was signed on May 22, 2000 between the Corps and the Commonwealth of Massachusetts Department of Environmental Management. The project sponsor must provide all lands, easements, rights-of-way, and perform all relocations determined by the Government to be necessary for project construction; provide 10 percent of total General Navigation Feature (GNF) costs during construction; reimburse an additional 10 percent of total GNF costs within a period not to exceed 30 years following completion of construction (partially offset by a credit allowed for the value of lands, easements, rights-of-way, and relocations); and deepen and maintain all berthing areas and local access channels commensurate with project features.

Terminal facilities. General Electric and a few marinas and yacht clubs line the eastern shore of the Saugus River. The western bank includes Refuse Energy Systems Company (RESCO), the Atlantic Lobstermen's Cooperative, a public landing and a few yacht clubs, marinas and boat yards. Most local fishermen moor their vessels opposite the town landing above the Fox Hill (Route 107) Bridge. Some fishermen, whose residences line the shore on both sides upstream of the town landing, berth their vessels at their own docks and floats during loading and off-loading operations conducted at higher tidal stages. There are about 20 such facilities along the river's edge. Facilities are considered adequate for present harbor activities.

Operations during fiscal year. New Work: Final project costs were distributed between the Federal and non-Federal accounts.

25. SCITUATE HARBOR, MA

Location. Scituate Harbor is located on the Atlantic coast about 14 miles southeast of the entrance to Boston Harbor and 33 miles northwest of the Massachusetts Bay entrance to the Cape Cod Canal. (See National Ocean Service Coast Survey Chart 13269.)

Previous projects. For details see the Annual Reports of 1931 and 1938.

Existing project. For description of the existing project and authorizing legislation see the Annual Report for 1995.

Local cooperation. Fully complied with for completed work.

Terminal facilities. There are three wharves, one formerly used for the receipt of coal and lumber, one owned by the town and used as a public landing, and one used as a yacht pier. None of these wharves have any railroad connections or elaborate freight-handling machinery, but each has good highway facilities. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Work included repairs to the north and south breakwaters as well as maintenance dredging of channels and anchorages. A contract for the repair of the north and south breakwaters was awarded September 21, 2002. Repair work began in March 2003 and was completed in August 2003. Contract costs were $1,396,051 for breakwater repairs. The contract for maintenance dredging was awarded on June 19, 2002. Work began in September 2002 and was completed in February 2003. A mechanical dredge was used to remove shoal material, which was disposed of in open water at the Massachusetts Bay Disposal Site. About 137,725 cubic yards of material were removed this FY for a total of 234,953 cubic yards under the contract. Contractor earnings for maintenance dredging this FY were $1,321,504, bringing the total contract cost to $2,392,762. Hired labor costs associated with maintenance dredging and breakwater repairs were $62,687 for after-dredge surveys, $123,952 for contract supervision and administration, $3,858 for contract processing, $23,739 for project coordination and management, and $55,801 to evaluate dredging impacts to eelgrass beds.

26. SEEKONK RIVER, PROVIDENCE, RI

Location. The India Point Railroad Bridge is located at the mouth of the Seekonk River in Providence, Rhode Island.

Existing project. Provides for the removal of the abandoned India Point Railroad Bridge at a currently estimated cost of $1,400,000. Removal of the bridge was completed in February 2002. (See Table 1-B for Acts authorizing the project.)

Local cooperation. A Project Cooperation Agreement was signed on December 21, 2000 between the Corps and the City of Providence, Rhode Island. The City must transfer title of the bridge to the United States and provide 50 percent of construction costs. Revenue derived from the sale of scrap from the bridge shall be credited toward the non-Federal share of project costs. A Memorandum of Agreement was signed on September 26, 2000 between the Corps and the Rhode Island State Historic Preservation Office, stipulating the Corps will market the India Point Railroad Bridge for reuse.

Operations during fiscal year. New work: The costs of lands, easements, and rights-of-way provided by the project sponsor for project construction were still under review at FY end.

27. SESUIT HARBOR, MA

Location. Sesuit Harbor is located on the north shore of Dennis in Barnstable County, about 85 miles southeast of Boston, Massachusetts. (See National Ocean Service Coast Survey Chart 13250.)

Existing project. Provides for a channel 6 feet deep and 100 feet wide from deep water in Cape Cod Bay to a point opposite the Dennis Yacht Club, thence reducing in width to 80 feet at the entrance to the inner harbor basin, for a total channel length of 2,400 feet. Project was completed in August 1982. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Operations during fiscal year. Maintenance: Dredging of the entrance channel was performed by the Government-owned dredge CURRITUCK from June 21 to 28, 2003. About 13,495 cubic yards of sand were removed and placed east of the entrance channel in a near shore area off of Cold Storage Beach. Plant rental cost was $85,400. Hired labor costs were $18,100 for project condition surveys, $19,550 for performing and plotting pre- and after- dredge surveys, and $14,200 for project coordination and management.

28. UNION RIVER, ME

Location. Union River connects a series of lakes and ponds in east central Maine, flows about 50 miles in a southerly direction, and discharges into Union River Bay

just west of Mount Desert Island. (See National Ocean Service Coast Survey Chart 13312.)

Existing project. The existing project consists of a channel 6 feet deep by generally 100 to 125 feet wide, widened up to 150 feet at the mouth and in the bends, extending about 3.75 miles upriver from deep water in Union River Bay to a 5.4 acre turning basin of the same depth at the wharves at Ellsworth. (See Table 1-B for Acts authorizing the existing project.)

Local cooperation. None required.

Terminal facilities. Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Work under contract for maintenance dredging of two project areas to a depth of 5 feet, awarded in September 2002, began on November 1, 2002 and was completed on January 3, 2003. After-dredge surveys from work in FY 2002 found that the outer channel cleared by work under a previous contract had experienced a bank failure that had deposited considerable material into the channel. A large boulder shoal was also identified in the upper channel through the narrows. Environmental restrictions to protect the Atlantic salmon and other fish species limited work to the period of November 1 through April 15. Due to the discovery of ledge within the channel limits, channel widths were reduced through the upper channel reaches.

A total of 7,103 cubic yards of material and 195 tons of boulders were removed during the FY, including 5,471 cubic yards of material from the outer channel, and 1,632 cubic yards of material and 195 tons of boulders from the upper channel, between November 2002 and January 2003. Material in the outer channel consisted of sawdust and fine-grained material, while material in the upper channel consisted of mixed sand, gravel and boulders. All material was removed using an excavator, and disposed in open water in Union River Bay west of Tuppers Ledge.

Dredging of municipal mooring areas by the City of Ellsworth, adjacent to the Federal turning basin, began in January 2003, was suspended due to heavy ice in February, resumed in April and was completed in May 2003. Surveys conducted in July 2003 indicated displacement of municipal dredged materials into the Federal basin limits. Remedy of this situation is being pursued under the City's Federal permit.

Contract costs for maintenance dredging during the FY were $470,400. Hired labor costs incurred in association with maintenance dredging of the Federal project were $51,085 for performing and plotting pre-dredge and progress surveys, $2,841 for project coordination and management, $42,822 for supervision and inspection, and $275 for contract administration.

29. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645, as amended (preauthorization).

(See Table 1-I)

Mitigation of damages caused by Federal navigation projects pursuant to Section 111, Public Law 90-483 as amended (preauthorization).

(See Table 1-J)

Beach Erosion Control

30. POINT BEACH, MILFORD, CT

Location. The city of Milford is located in south-central Connecticut along the northern shore of Long Island Sound. Point Beach is a residential subdivision located in Milford about 75 miles northeast of New York City and 10 miles southwest of New Haven, Connecticut.

Existing project. The proposed project involves raising the first floor of 58 shorefront and backshore residential structures above the estimated 100-year flood elevation. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on January 14, 1997 between the Corps and the Connecticut Department of Environmental Protection. This agreement was amended on September 18, 2000 to reflect the increased Federal cost limitation. The project sponsor must pay 35 percent of all costs allocated to storm damage reduction, assume all costs above the Federal cost limitation of $3,000,000 and assume all costs for the maintenance and repair of the project after completion.

Operations during fiscal year. New work: A contract to elevate residential structures was awarded on March 29, 2001. Work began in May 2001 and was about 90 percent complete at FY end with total contractor earnings of $2,498,624.

31. INSPECTION OF COMPLETED BEACH EROSION CONTROL PROJECTS

No beach inspections were conducted in FY 2003.

32. BEACH EROSION CONTROL WORK UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103, Public Law 87-874, as amended (preauthorization).

(See Table 1-K)

Shoreline erosion control development and demonstration program activities pursuant to Section 227, Public Law104-303, (preauthorization).

Federal costs for FY were $77,053 for design of a shoreline erosion control demonstration project at the mouth of the Blackwater River in Seabrook, New Hampshire.

Flood Control

33. BLACKSTONE RIVER BASIN, MA AND RI

Works covered by this plan include a dam and reservoir on West River and local protection works at three cities on Blackstone River. Flood Control Act of 1944 authorized plan for a reservoir on West River and local protection works at Worcester, Massachusetts, and Woonsocket and Pawtucket, Rhode Island, substantially in accordance with House Document 624, 78th Congress, 2nd session. Flood Control Act of 1960 authorized a local flood protection project at lower Woonsocket, Rhode Island, substantially in accordance with Senate Document 87, 85th Congress, 2nd Session. Local protection nonstructural project authorized in 1982 for Belmont Park section of Warwick, Rhode Island, along the Pawtuxet River. Streambank protection projects on the Blackstone River in Millbury, Massachusetts, and on the Clear River in Burrillville, Rhode Island, were authorized in 1985. (See Table 1-N for projects comprising the authorized plan.)

33A. WEST HILL DAM, MA

Location. West Hill Dam is located on the West River in Massachusetts, about three miles above its confluence with Blackstone River and 2.5 miles northeast of Uxbridge, Massachusetts. (See Geological Survey maps Blackstone, MA and RI, Milford, MA, and Grafton, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant structures was initiated in June 1959 and completed in June 1961. Construction of recreational facilities was completed in June 1967. Major rehabilitation of the dam was completed in July 2003.

Local cooperation. Section 3, Flood Control Act of 1944 applies.

Operations during fiscal year. Major rehabilitation: A contract to rehabilitate West Hill Dam was awarded June 8, 2001. Work began in July 2001 and was completed in July 2003. Contractor earnings total $12,323,010 with final payment pending completion of minor punch list items.

Maintenance: Ordinary operation and maintenance activities were conducted.

34. CHARLES RIVER (NATURAL VALLEY STORAGE AREAS), MA

Location. The Charles River extends inland from Boston Harbor southwesterly toward the Massachusetts-Rhode Island border and is some 80 miles long with a watershed covering 307 square miles.

Existing project. For a description of the existing project and authorizing legislation, see the Annual Report for 1995. Land acquisition was completed in 1990.

Local cooperation. Local interests are required to prevent modifications or alteration of existing roadways, utilities, bridges, culverts, and any other improvements that might affect the drainage characteristics of the natural storage areas; adopt and enforce regulations to restrict development of flood plain lands; and operate and maintain the existing dams along the Charles River. Local assurances were provided by the Commonwealth of Massachusetts.

Operations during fiscal year. Maintenance: Hired labor costs for ordinary maintenance activities, project surveillance and inspection, and land use administration were $230,940.

35. CONNECTICUT RIVER BASIN, VT, NH, MA AND CT

Location. Works covered by this project are a series of dams and reservoirs located on tributaries of the Connecticut River in Vermont, New Hampshire and Massachusetts, within a radius of 230 miles from Hartford, Connecticut, and local protection works at several cities in the basin.

Existing project. Flood Control Act of 1936, as amended by Act of May 25, 1937, authorized construction of ten reservoirs on tributaries of Connecticut River in accordance with plans in House Document 412, 74th Congress, 2nd session, as the same may be revised upon further investigation of 1936 flood. Flood Control Act of 1938 approved a general comprehensive plan for control of floods and other purposes in Connecticut River Valley, as set forth in House Document 455, 75th Congress, 2nd

session, and authorized $11,524,000 for construction of local flood protection projects in the plan. Act of October 15, 1940, modified Act of June 18, 1938, to provide additional protection at East Hartford, CT, as set forth in House Document 653, 76th Congress, 3rd session. Act of August 18, 1941, modified comprehensive plan approved in 1938 to include improvements recommended in House Document 653, 76th Congress, 3rd session, and House Document 724, 76th Congress, 3rd session, with such further modifications as may be found justifiable in discretion of Secretary of the Army and Chief of Engineers. Latter Act also authorized to be appropriated additional $6 million for local protection works and $10 million for reservoirs. Act of October 26, 1942, further modified plan by including construction of Gully Brook conduit at Hartford, CT. Flood Control Act of 1944 authorized expenditure of $30 million in addition to previous authorization for comprehensive plan approved in 1938 and modified plan by directing specific consideration of an alternative plan of Vermont State Water Conservation Board instead of Williamsville Reservoir in West River Basin, VT; directing consultation with affected States during course of investigations and transmission of proposal and plans to each affected State for written views and recommendations for reservoir projects heretofore authorized for construction at Cambridgeport, Ludlow, South Tunbridge, and Gaysville, and resubmission of projects or modifications for construction of Sugar Hill site. Flood Control Act of 1950 modified project for flood control at Hartford, CT, authorized by Flood Control Act of 1938, as amended to include Folly Brook dike and conduit. Flood Control Act of 1954 modified plan for flood control in Connecticut River Basin to provide for construction of a reservoir on Otter Brook at South Keene, NH, in lieu of any reservoir or reservoirs heretofore authorized. This Act further modified plan for West River Basin of Connecticut River in Vermont to consist of three reservoirs at Ball Mountain, The Island, and Townshend sites, in lieu of plan of eight reservoirs authorized in Flood Control Act of 1944. Flood Control Act of 1958 modified plan for flood control in Connecticut River Basin to include construction of Littleville Reservoir on Middle Branch of Westfield River, MA, and Mad River Reservoir on Mad River, above Winsted, CT. Flood Control Act of 1960 included authorization in Connecticut River Basin of plan for flood protection on Chicopee River, MA, substantially in accordance with House Document 434, 86th Congress; plan for flood protection on Westfield River, MA, substantially in accordance with Senate Document 109, 86th Congress; plan for flood control and related purposes on Farmington River, Connecticut, substantially in accordance with House Document 443, 86th Congress. Flood Control Act of 1968 included authorization in Connecticut River Basin of plan for construction of Beaver Brook Reservoir, on Beaver Brook in Keene, NH, substantially in accordance with Senate Document 60, 90th Congress; and plan for protection on Park River, Connecticut, substantially in accordance with Senate Document 43, 90th Congress. Flood Control Act of 1970 deauthorized the construction of a reservoir at Claremont, NH. The Water Resources Development Act of 1976 deauthorized the construction of Gaysville Lake, VT project. Flood control projects at Cambridgeport Lake, Brockway Lake, Victory Lake, South Tunbridge Lake, Ludlow Lake and The Island Lake, Vermont; Honey Hill Lake, West Canaan Lake, and the Alternative to Sugar Hill Reservoir, NH, were deauthorized in August 1977 in accordance with Section 12 of the Water Resources Development Act of 1974. The authorization for Beaver Brook Lake, NH project expired in April 1978 due to lack of local cooperation. Local protection projects at Gardner, MA, West Springfield, MA, Hartford, VT, Wethersfield, CT, and Keene, NH authorized and constructed in accordance with Section 205 of 1948 Flood Control Act. Emergency streambank erosion control projects at Brownsville, VT; Conway, MA; Huntington, MA; Charlestown, NH; North Stratford, NH; Colchester, CT; Middletown, CT; Milford, CT; Simsbury, CT; and two projects in Leominster, MA authorized in accordance with Section 14 of the 1946 Flood Control Act were completed. (See Table 1-M at end of chapter for reservoirs and local protection works for Connecticut River Basin.) The Water Resources Development Act of 1986 modified the comprehensive plan for the control of flood-waters in the Connecticut River Basin, Vermont, New Hampshire, Massachusetts, and Connecticut, authorized by Section 5 of the Act of June 22, 1936 (49 Stat. 1572) by authorizing the design, construction, operation, and maintenance of facilities at Townshend Dam, West River, VT to enable upstream migrant adult Atlantic salmon to bypass that dam and Ball Mountain Dam, VT, and to provide at both Townshend and Ball Mountain Dams facilities as necessary for the downstream passage of juvenile Atlantic salmon. This work was completed in February 1993.

35A. BALL MOUNTAIN LAKE, VT

Location. The Dam is on West River, 29 miles above its junction with Connecticut River at Brattleboro, Vermont. It is two miles north of Jamaica, VT. (See Geological Survey map for Londonderry, VT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1994. Construction of the dam and appurtenant works was initiated in May 1957 and completed in November 1961. Cost of work was $10,448,000 for construction and $350,000 for lands and damages, a total of $10,798,000. Construction of recreation facilities was initiated in June 1975 and completed in June 1977. Fish passage facility work began in June 1992 and was completed in February 1993. The project is a unit of comprehensive plan for flood control and other purposes in Connecticut River Basin.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A contract to build an accessible hiking trail was awarded on May 2, 2003. Work began in July 2003 and was about 80 percent complete at FY end with contractor earnings of $144,478.

35B. BARRE FALLS DAM, MA

Location. The Dam is on Ware River in the Town of Barre, Massachusetts, 31.9 miles above confluence of Ware and Swift Rivers. It is 13 miles northwest of Worcester, MA. (See Geological Survey maps for Barre, MA and Wachusett Mountain, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in May 1956 and completed in May 1958.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35C. BIRCH HILL DAM, MA

Location. Dam is on Millers River, 27.3 miles above its junction with the Connecticut River. It is 1.3 miles east of South Royalston, Massachusetts and 7.5 miles northwest of Gardner, MA. (See Geological Survey maps for Royalston and Winchendon, MA-NH and Templeton, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in June 1940 and completed in February 1942.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests have contributed $32,000 as their required 50 percent cost sharing of recreational development in accordance with 1965 Federal Water Project Recreation Act.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities.

35D. COLEBROOK RIVER LAKE, CT

Location. Colebrook River Dam is located in the Town of Colebrook, Litchfield County, Connecticut, on the West Branch of the Farmington River about 3.9 miles upstream from its confluence with the Still River at Riverton, Connecticut, and about 1.5 miles upstream from Goodwin (Hogback) Dam. (See Geological Survey map for Winsted, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in May 1965 and completed in June 1969. Construction of recreation facilities was initiated in August 1969 and completed in June 1970.

Local cooperation. A water supply contract was signed by the Hartford Connecticut Metropolitan Water District. Repayment is being made in accordance with provisions of the 1958 Water Supply Act.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A contract to repair the Old Route 8 and Service Bridges was awarded on September 11, 2003. Work had not begun by FY end.

35E. CONANT BROOK DAM, MA

Location. Site is in south central part of Massachusetts in Town of Monson. Damsite, across Conant Brook, is about two miles southeast of the community of Monson, MA. (See Geological Survey map for Monson, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam, highway relocations, and appurtenant works was initiated in June 1964 and completed in December 1966.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35F. KNIGHTVILLE DAM, MA

Location. Dam is on Westfield River, 27.5 miles above its confluence with Connecticut River. It is four miles north of the Town of Huntington, Massachusetts, and about 12 miles west of the City of Northampton, MA. (See Geological Survey map for Westhampton, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in August 1939 and completed in December 1941.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35G. LITTLEVILLE LAKE, MA

Location. Dam is on Middle Branch of Westfield River, one mile above its confluence with main stem of Westfield River and 25.2 miles above confluence of Westfield River with Connecticut River, in the Town of Chester, Massachusetts. (See Geological Survey map for Chester, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated under a multi-component contract in June 1962 and completed in September 1965.

Local cooperation. Section 2, Flood Control Act of June 28, 1938, and Title III, Water Supply Act of 1958 apply and were fully complied with.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35H. NORTH HARTLAND LAKE, VT

Location. Dam is on Ottauquechee River, 1.5 miles above its junction with Connecticut River, and one-mile northwest of North Hartland, Vermont. Reservoir extends upstream 5.5 miles. (See Geological Survey map for Hanover NH-VT.)

Existing project. For a description of completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam was initiated in June 1958 and completed in June 1961.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35I. NORTH SPRINGFIELD LAKE, VT

Location. North Springfield Dam is located in the Town of Springfield, Vermont, on the Black River, about 8.7 miles above its junction with the Connecticut River, and about three miles northwest of Springfield, Vermont. (See Geological Survey maps for Ludlow, Vermont, and Claremont, New Hampshire.)

Existing project. For a description of completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam was initiated in May 1958 and completed in November 1960.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35J. OTTER BROOK LAKE, NH

Location. Otter Brook Dam is located on Otter Brook, about 2.4 miles upstream from its junction with the Branch, which flows about 2.5 miles to the Ashuelot River at Keene, New Hampshire. (See National Ocean Survey maps for Keene, NH-VT, and Monadnock, NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in September 1956 and completed in August 1958.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35K. SURRY MOUNTAIN LAKE, NH

Location. Dam is on Ashuelot River, 34.6 miles above its junction with Connecticut River and five miles north of Keene, New Hampshire. (See Geological Survey maps for Keene and Bellows Falls, NH-VT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in August 1939 and completed in June 1942. Additional recreational facilities were completed in September 1969 and 1980.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A contract to paint the spillway bridge was awarded September 10, 2002. Work began the following month and was completed on November 1, 2002. Final contract amount was $149,694.

35L. TOWNSHEND LAKE, VT

Location. Townshend Lake Dam is located on the West River, about 19.1 miles above its junction with the Connecticut River at Brattleboro, Vermont, and about two miles west of Townshend, Vermont. The reservoir extends upstream about four miles. (See Geological Survey maps for Saxtons River, VT, and Londonderry, VT.)

Existing project. For a description of completed improvements and authorizing legislation see the Annual Report for 1994. Townshend Lake Reservoir is operated as a unit of a coordinated system for flood control in Connecticut River Basin. Construction of the dam and appurtenant works was initiated in November 1958 and completed in June 1961. Additional recreational facilities were completed in October 1969 and September 1971. Fish passage facility work began in June 1992 and was completed in February 1993.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35M. TULLY LAKE, MA

Location. Tully Lake Dam is located on the East Branch of Tully River, about 3.9 miles above its junction with the Millers River. The dam lies about one mile north of Fryville, Massachusetts, and 3.5 miles north of Athol, MA. (See Geological Survey map for Royalston, MA-NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam was initiated in March 1947 and completed in September 1949.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must also bear 50 percent of future recreational development, in accordance with 1965 Federal Water Project Recreational Act.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

35N. UNION VILLAGE DAM, VT

Location. Union Village Dam is located on the Ompompanoosuc River, about four miles above its junction with the Connecticut River. The dam lies about one-fourth mile north of Union Village, Vermont, and 11 miles north of White River Junction, Vermont. (See Geological Survey maps for Strafford, VT and Mount Cube, NH-VT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam was initiated in March 1947 and completed in June 1950.

Local Cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

36. FAULKNER ISLAND, CT

Location. Faulkner Island is located in Long Island Sound about 3 miles south of Guilford, Connecticut. Faulkner Lighthouse is located about 35 feet from the cliff edge along the eastern side of the island.

Existing project. Provides for the construction of shoreline protection measures along the east side of the island adjacent to Faulkner Lighthouse. Construction of Phase I shoreline protection was initiated in September 2000 and completed in April 2001. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Memorandum of Understanding (MOU) was signed September 14, 1998, between the Corps and the U.S. Fish and Wildlife Service. The island is owned and operated by the U.S. Fish and Wildlife Service as a National Wildlife Refuge. In accordance with the MOU, the U.S. Fish and Wildlife Service must agree to maintain the project after completion.

Operations during fiscal year. New work: U.S. Fish and Wildlife Services continued to monitor the effectiveness of Phase I work and will continue to assess its impacts on tern nesting over the next few years. Findings will help determine if additional shoreline protection is needed and the best way to accomplish this work. FY 2003 work included coordination with U.S. Fish and Wildlife Services.

37. FOX POINT BARRIER, RI

Location. The Fox Point Barrier is located on the Providence River at Fox Point, in the City of Providence, Rhode Island.

Existing project. For description of completed project see the Annual Report for 1974. Construction of the barrier was completed in January 1966. The Water Resources Development Act of 1999 directs the Secretary to undertake necessary repairs to the barrier as identified in the Condition Survey and Technical Assessment dated April 1998, with Supplemental dated August 1998. Necessary repairs include overhauling pumps, replacing tainter gate roller chains, cleaning and painting tainter gates and repairing lower guide bearing diffuser cracks. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work. A Project Cooperation Agreement was signed on April 8, 2002 between the Corps and the City of Providence. The City must provide 35 percent of total repair costs and assume all costs in excess of Federal appropriations, which total $1,950,000 to date.

Operations during fiscal year. Major rehabilitation: The Assistant Secretary of the Army for Civil Works approved the Decision Document on October 23, 2001. The City of Providence initiated repair work in January 1998 and was about 80 percent complete at FY end. Reimbursements by the Corps to the City of Providence for eligible repair work total $1,249,369, including $254,641 this FY.

38. HOUSATONIC RIVER BASIN, CT AND MA

Seven flood control reservoirs on tributaries of the Naugatuck River, principal tributary of the Housatonic River, and three local protection projects have been specifically authorized as part of an overall plan for flood control in the Housatonic River Basin. The Naugatuck and Housatonic Rivers converge 12 miles above mouth of Housatonic River. A project for emergency snagging and clearing of the Blackberry River, a tributary of the Housatonic River, was authorized under authority contained in Section 208 of the 1954 Flood Control Act. Emergency streambank protection projects at: Alford, Green River, MA; Hoosic River, Williamstown, MA; Sheffield, MA; Salisbury, CT; and Squantz Pond, Fairfield, CT were authorized under authority provided by Section 14 of the 1946 Flood Control Act. Projects for local flood protection for: West Branch, Torrington, CT; East Branch, Torrington, CT; Mad River, Waterbury (Woodtick Area), CT; Pittsfield, MA; and Waterbury-Watertown, CT, were authorized under authority provided by Section 205 of the 1948 Flood Control Act. (See Table 1-P at end of chapter on dams, reservoirs, and local protection projects for Housatonic River Basin.)

38A. BLACK ROCK LAKE, CT

Location. Damsite is on Branch Brook, about two miles upstream from its confluence with Naugatuck River, in the Towns of Thomaston and Watertown, Connecticut. (See Geological Survey map for Thomaston, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Road relocation was completed in November 1967. Construction of the dam and appurtenant works was initiated in July 1967 and completed in July 1971.

Local cooperation. Section 2, Flood Control Act of 1938 applies. State legislation requires local interests to establish encroachment lines downstream of dam to permit efficient reservoir operation.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A contract to repair and paint the service bridges at Black Rock and Hop Brook Lakes was awarded on April 5, 2002. Work began in May 2002 and was completed in October 2002. Final contract amount was $407,480, of which $212,815 was for work at Black Rock Lake.

38B. HANCOCK BROOK LAKE, CT

Location. Dam is on Hancock Brook, in the Town of Plymouth, Connecticut, about 3.4 miles above its confluence with Naugatuck River. (See Geological Survey map for Waterbury, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant structures was initiated in July 1963 and completed in August 1966.

Local cooperation. Section 2, Flood Control Act of 1938 applies. State legislation requires local interests to establish encroachment lines downstream of dam to permit efficient reservoir operation.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

38C. HOOSIC RIVER, SYNDICATE ROAD, WILLIAMSTOWN, MA

Location. The Town of Williamstown is located in the northwest corner of Massachusetts, approximately 20 miles north of Pittsfield, Massachusetts. The erosion site is located along the Hoosic River off Syndicate Road.

Existing project. Provides for the construction of approximately 300 linear feet of stone slope protection along the western bank of the Hoosic River adjacent to Syndicate Road. The project will protect two main sewer interceptor lines from erosion damage. Project was completed in August 2002. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed August 30, 2001 between the Corps and the Massachusetts Department of Environmental Management. The project sponsor must provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and perform all relocations determined by the Government to be necessary for project construction. The project sponsor must also pay a minimum cash contribution of 5 percent of total project costs during construction; pay an additional cash contribution during construction so that the total contribution including lands equals 35 percent of total project costs; assume all costs in excess of the Federal statutory cost limitation of $1,000,000; and bear all costs for maintenance and repair of the project after completion.

Operations during fiscal year. New work: Sponsor provided documentation of real estate administrative costs associated with project construction. There costs were under review at FY end.

38D. HOP BROOK LAKE, CT

Location. Damsite is on Hop Brook, in city of Waterbury and towns of Middlebury and Naugatuck, Connecticut, about 1.4 miles upstream of confluence of Naugatuck River and Hop Brook. (See Geological Survey map for Waterbury, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant structures was initiated in December 1965 and completed in December 1968. Construction of a public use facility was completed in November 1973. Construction of an additional restroom was completed in 1980.

Local cooperation. Section 2, Flood Control Act of 1938 applies. State legislation requires local interests to establish encroachment lines downstream of dam to permit efficient reservoir operation.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

38E. NORTHFIELD BROOK LAKE, CT

Location. Dam is on Northfield Brook, about 1.3 miles upstream from its confluence with Naugatuck River, in town of Thomaston, Connecticut. (See Geological Survey map for Thomaston, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of dam and appurtenances was initiated in May 1963 and completed in October 1965. Construction of recreation facilities was initiated in November 1966 and completed in August 1967.

Local cooperation. Section 2, Flood Control Act of 1938 applies. State legislation requires local interests to establish encroachment lines downstream of dam to permit efficient reservoir operation.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

38F. THOMASTON DAM, CT

Location. On Naugatuck River, about 30.4 miles above its junction with Housatonic River, and about 1.6 miles north of Thomaston, Connecticut. Reservoir extends upstream about 6.4 miles. (See Geological Survey map for Thomaston, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in May 1958 and completed in November 1960.

Local cooperation. Section 3, Flood Control Act of 1944 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

39. MERRIMACK RIVER BASIN, NH AND MA

Works covered by comprehensive plan are on Merrimack River and its tributaries in New Hampshire and Massachusetts. Flood Control Act of 1936 authorized construction of a system of flood control reservoirs in Merrimack River Basin for reduction of flood heights in Merrimack Valley. Flood Control Act of 1938 approved general comprehensive plan for flood control and other purposes as approved by Chief of Engineers pursuant to preliminary examinations and surveys authorized by Act of June 22, 1936, and modified project to provide in addition to construction of a system of flood control reservoirs, related

flood control works which may be found justified by the Chief of Engineers. All operations pertaining to flood control in Merrimack River Basin are now carried on under and reported under projects for individual units of comprehensive plan referred to above. No further expenditures are contemplated under general project for flood control in Merrimack River Basin. For final cost and financial summary, see The Annual Report for 1946.

A comprehensive plan for development of water resources of the North Nashua River Basin, a principal tributary of the Merrimack River, was authorized by 1966 Flood Control Act substantially in accordance with Senate Document 113, 89th Congress. Plan provides for construction of coordinated system of four reservoirs and three local protection projects for flood protection, water supply, recreation and allied purposes. Water Resources Development Act of 1986 deauthorized two of the reservoirs and one of the local protection projects.

The 1966 Flood Control Act also authorized construction of Saxonville local protection project substantially in accordance with Senate Document 61, 89th Congress. Emergency streambank protection projects at Amesbury, Massachusetts, two in Leominster, MA and two in Lancaster, MA were authorized under authority provided by Section 14 of the 1946 Flood Control Act. (See Table 1-Q at end of chapter for reservoirs and related flood control works for Merrimack River Basin.)

39A. BLACKWATER DAM, NH

Location. Dam is on Blackwater River, 8.2 miles above confluence with Contoocook River, and 118.8 miles above mouth of Merrimack River. It is in the town of Webster, New Hampshire, just above village of Swetts Mills, NH, 18 miles by highway northwest of Concord, NH. (See Geological Survey maps for Penacook and Mount Kearsarge, NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Project is complete except for construction of public facilities. Construction of the dam and appurtenant works was initiated in May 1940 and completed in November 1941.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A contract for concrete repairs was awarded on September 17, 2002. Work began in October 2002 and was completed in September 2003. Contractor earnings total $573,415 with final contract payment still pending at FY end.

39B. EDWARD MACDOWELL LAKE, NH

Location. Edward MacDowell Dam is located on Nubanusit Brook, a tributary of the Contoocook River, about one-half mile upstream from the village of West Peterborough, New Hampshire, and about 14 miles east of Keene, New Hampshire. (See Geological Survey map for Peterboro and Monadnock, NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in March 1948 and completed in March 1950.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

39C. FRANKLIN FALLS DAM, NH

Location. Franklin Falls Dam is located on the Pemigewasset River, a main tributary of the Merrimack River, about 2.5 miles upstream of Franklin, New Hampshire. (See Geological Survey maps for Penacook and Holderness, NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in November 1939 and completed in October 1943.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

39D. HOPKINTON-EVERETT LAKES, NH

Location. Hopkinton Dam is on Contoocook River, 17.3 miles above its junction with Merrimack River and about one-half mile upstream from village of West Hopkinton, New Hampshire. Everett Dam is on Piscataquog River, 16 miles above its junction with Merrimack River, and about 1.3 miles southeast of village of East Weare, NH. Two interconnecting canals were provided to enable the two reservoir areas to function as one. (See Geological Survey map for Hillsboro, NH, and Concord, NH.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of two dams and appurtenant

works was initiated in November 1959 and completed in December 1962. Construction of recreation facilities was initiated in November 1974 and completed in September 1975.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must also bear 50 percent of future recreational development in accordance with 1965 Federal Water Project Recreation Act.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted. A purchase order to replace the control tower roofs at Hopkinton and Everett Dams was awarded on September 5, 2002. Work began the last week of September 2002 and was completed in November 2002. Final contract amount was $66,085.

39E. NORTH NASHUA RIVER, LANCASTER, MA

Location. The Town of Lancaster is located in Worcester County in north central Massachusetts, approximately 40 miles west of Boston, Massachusetts and 18 miles north of Worcester, Massachusetts. The erosion site is located along the North Nashua River adjacent to State Highway Route 70.

Existing project. Provides for the construction of approximately 500 linear feet of stone slope protection along the stream bank of the North Nashua River adjacent to State Highway Route 70. Project was completed in August 2000. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work.

Operations during fiscal year. New work: Received additional sponsor funds and financially closed out project.

40. NEW BEDFORD, FAIRHAVEN AND ACUSHNET, MA

Location. Main harbor barrier is across New Bedford and Fairhaven Harbor in vicinity of Palmer Island. Supplemental dikes and walls are provided in Clark Cove area of New Bedford and Fairhaven. (See Geological survey maps for New Bedford North, New Bedford South, Marion, and Sconticut Neck, MA and National Ocean Service Coast Survey Charts 13230, 13070 and 13218.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the barrier and appurtenances was initiated in October 1962 and completed in January 1966. Construction of the pumping station was initiated in October 1962 and completed in June 1964.

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance: The cost of operation and maintenance work at the New Bedford Hurricane Barrier totaled $1,029,087. Hired labor costs of $186,000 were incurred for operation, maintenance, tidal watches and Reservoir Control Center support. Costs incurred for maintenance work were $35,146. A contract to rehabilitate the sector gates and replace timber fenders was awarded on April 8, 2003. Work began on May 20, 2003 and was about 65 percent complete by FY end with contractor earnings of $690,000. Cost associated with the contract included $41,510 for engineering and design, $72,831 for supervision and inspection, and $3,000 for contract administration.

41. PLEASANT POINT, PERRY, ME

Location. The Town of Perry is located in Washington County along the coast of northeastern Maine about 126 miles east of Bangor, Maine and 20 miles south of Calais, Maine.

Existing project. Provides for the construction of approximately 800 linear feet of stone slope protection along an eroding section of shoreline on Pleasant Point. Project was completed in June 1987. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. Fully complied with for completed work. For a description of items of local cooperation see the Annual Report for 1987.

Operations during fiscal year. New work: Inspection of the project revealed that some of the stone slope protection has been displaced. The rate of displacement is greater than expected because much of the stone used in construction of the project was not in accordance with specifications in terms of weight and configuration. Efforts were initiated to estimate the cost to repair and project and determine the extent of Corps participation based on possible construction deficiency.

42. QUONSET POINT, DAVISVILLE, RI

Location. Quonset Point is located in east central Rhode Island along the west shore of Narragansett Bay in the village of Davisville and Town of North Kingstown, about 15 miles south of Providence, Rhode Island.

Existing project. Provides for the construction of two elevated water storage towers and relocation of 6,000 feet of sewer line. Construction of the water towers was completed in September 1998 and work on the sewer line was

completed in July 1998. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. For description of local cooperation, see Annual Report for 2001.

Operations during fiscal year. New work: Awaiting additional sponsor funds to financially close out project.

43. ROUGHANS POINT, REVERE, MA

Location. The city of Revere is a coastal community located in Suffolk County about five miles northeast of Boston, Massachusetts. Roughans Point is a low-lying, ocean front neighborhood of Revere. The area has 55 acres and about 300 structures, mostly residential homes.

Existing project. Project consists of 3,125 feet of stone revetment to dissipate incoming waves, prevent overtopping and stabilize existing facilities along the shoreline. The revetment extends from a point about 250 feet south of Eliot Circle southerly to a point 200 feet south of the intersection of Winthrop Parkway and Leverett Avenue. The project also provides for "backwater" protection by raising the ground elevation one-foot at the intersection of Bennington Street and State Road and installing a sluice gate on the 42-inch drain from the Roughans area to Sales Creek. Interior drainage improvements consist of a new intake structure at the existing pump station and a new gravity drain with a sluice gate. Project was completed in November 2001. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed April 25, 1997 between the Corps and the Commonwealth of Massachusetts Department of Environmental Management. The project sponsor must provide without cost to the United States all lands, easements, rights-of-way, and relocations necessary for construction of the structural elements of the project, including ponding areas, borrow areas, and disposal areas for excavated material; hold and save the United States free from damages due to construction, operation, and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors; bear all costs of operation, maintenance and replacements; pay an amount in cash to bring the total non-Federal share to 35 percent of project costs allocated to storm damage reduction.

Operations during fiscal year. New work: A contract to construct the stone revetment project was awarded September 17, 1997. Work began in December 1997 and was completed in September 2000. Final contract amount was $7,897,464. A contract to upgrade the existing pump station was awarded June 15, 2000. Work began in July 2000 and was completed in November 2001. Final contract amount was $548,020.

44. SAINT JOHN RIVER BASIN, ME

Location. The project is located in Aroostook County in northern Maine, and lies within the Saint John River Basin.

Existing project. The project involves a research and demonstration program of cropland irrigation and soil conservation techniques for increasing potato yield and quality. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Local Cooperation Agreement (LCA) for a two-year research and demonstration program was signed on April 22, 1991 between the Corps and the Maine Aroostook Water and Soil Management Board. The project sponsor must obtain all interests in real estate as determined by the Government and the project sponsor to be necessary for project implementation. The Government will reimburse the project sponsor 65 percent of project costs as work is accomplished, up to the Federal cost limit of $300,000. The LCA was amended on June 6, 1994 to include a third year of research and demonstration at an estimated Federal cost of $252,000.

Operations during fiscal year. New work: Efforts have been deferred for the last few years as the Aroostook Water and Soil Management Board has not requested any further research at the University of Maine's farm in Presque Isle, Maine.

45. STAMFORD, CT

Location. The Stamford Hurricane Barrier is located in Fairfield County on the north shore of Long Island Sound, about 30 miles east of New York City and 20 miles southwest of Bridgeport, Connecticut. (See Geological Survey map for Stamford, CT.)

Existing project. For a description of the completed improvements and authorizing legislation, see the Annual Report for 1974. Project was completed in 1969. Local interests still owe a substantial amount based on claims settlements, including interest payment under the Contract Disputes Act.

Local cooperation. Fully complied with except for $662,000 outstanding which is local share of final claims settlement including interest payment.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46. THAMES RIVER BASIN, CT, RI, AND MA

Works covered by this plan are a series of dams and reservoirs on tributaries of Thames River in Massachusetts and Connecticut, within a radius of 45 miles from Norwich, CT, and a channel enlargement on Shetucket River where it discharges into Thames River at Norwich. Flood Control Act of August 18, 1941, approved plan for a system of reservoirs and channel improvements in Thames River Basin in accordance with House Document 885, 76th Congress, 3rd session, and authorized $6 million for initiation and partial accomplishment of project. Flood Control Act of December 22, 1944, authorized completion of approved plan. Flood Control Act of July 14, 1960, authorized project for West Thompson Reservoir, substantially as recommended in Senate Document 41, 86th Congress, 2nd session. Local flood protection project for West River, New Haven, CT was authorized under authority provided by Section 205 of the 1948 Flood Control Act. (See Table 1-P on reservoirs and local protection projects, Thames River Basin, for projects comprising approved plan.)

46A. BUFFUMVILLE LAKE, MA

Location. Dam is on Little River, 1.3 miles above its junction with French River, and eight miles northeast of Southbridge, MA. Reservoir extends upstream about 1.7 miles northerly and 1.9 miles southerly. (See Geological Survey maps for Webster, MA and CT, and Leicester, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in September 1956 and completed in June 1958.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46B. EAST BRIMFIELD LAKE, MA

Location. Dam is on Quinebaug River, 64.5 miles above its confluence with Shetucket River, and one-mile southwest of the village of Fiskdale, Massachusetts. (See Geological Survey maps for Whales, MA and CT, Southbridge, MA and CT, East Brookfield, MA, and Warren, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see Annual Report for 1975. Construction of the dam and appurtenant works was initiated in May 1958 and completed in June 1960.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46C. HODGES VILLAGE DAM, MA

Location. Dam is on French River, 15 miles above its confluence with Quinebaug River, at Hodges Village in the Town of Oxford, Massachusetts, about five miles north of Webster, MA. (See Geological Survey maps for Webster, MA, and CT, Leicester, MA, Worcester South, MA, and Oxford, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works, initiated in March 1958, was completed in December 1959. Major rehabilitation of the dam was initiated in October 1997 and completed in July 2000.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46D. MANSFIELD HOLLOW LAKE, CT

Location. Dam is at Mansfield Hollow, Connecticut, on Natchaug River, 5.3 miles above its confluence with Willimantic River. It is four miles northeast of the City of Willimantic, CT. (See Geological Survey maps for Spring Hill and Willimantic, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of dam, initiated in 1949, was completed in May 1952.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46E. WEST THOMPSON LAKE, CT

Location. Dam is on Quinebaug River, in the Town of Thompson, Connecticut. Site is in the village of West Thompson, two miles upstream from the City of Putnam, CT. (See Geological Survey map, for Putnam, CT.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual

Report for 1975. Construction of dam, road relocation, and appurtenances was initiated in August 1963 and completed in October 1965. Initial phase of recreation facilities was completed in May 1976.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

46F. WESTVILLE LAKE, MA

Location. Dam is on Quinebaug River, 56.7 miles above its confluence with Shetucket River, in the Towns of Sturbridge and Southbridge, Massachusetts, and 1.3 miles west of center of Southbridge. (See Geological Survey maps for Southbridge, MA and RI, and East Brookfield, MA.)

Existing project. For a description of the completed improvements and authorizing legislation see the Annual Report for 1975. Construction of the dam and appurtenant works was initiated in April 1960 and completed in August 1962.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Maintenance: Ordinary operation and maintenance activities were conducted.

47. TOWN BROOK, QUINCY AND BRAINTREE, MA

Location. The project is located in the City of Quincy and the Town of Braintree on the south side of Massachusetts Bay, along the eastern shore of Massachusetts, seven miles south of Boston in Norfolk County. The watershed is approximately 4.5 square miles.

Existing project. Project provides for the construction of a 12-foot diameter, 4,060-foot long, concrete lined tunnel in bedrock approximately 140 to 180 feet below ground, intake and outlet structures, and improvements to the Town River downstream of the outlet shaft. The tunnel and its appurtenances will be supplemented by reconstruction of the Old Quincy Reservoir Dam, located at the headwaters of Town Brook. Reconstruction work includes a new spillway and outlet structure. The project includes $6,100,000 in approved credit for compatible work that has been accomplished by the project sponsor. Dam safety measures at Old Quincy Dam, which are estimated at $9,000,000, are a non-Federal responsibility. Construction of the project was completed under three separate contracts. Town River improvements were completed in December 1994, the tunnel was completed in January 1997, and reconstruction of Old Quincy Reservoir Dam was completed in December 2002. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Local Cooperation Agreement (LCA) was signed on July 7, 1992 between the Corps and the Metropolitan District Commission (MDC). The MDC is required to provide all lands, easements, and rights-of-way; pay all cost for dam safety measures at Old Quincy Dam to insure its structural integrity; pay a cash contribution for the costs allocated to flood control so that the total contribution of local interests is equal to 25 percent of costs allocated to flood control; and bear all costs of operation, maintenance, and replacements. In addition, local interests must do the following: prescribe and enforce regulations to prevent encroachment on both the improvements and unimproved channels, and manage all project-related channels to preserve capacities for local drainage as well as for project functions.

Operations during fiscal year. New work: A contract for reconstruction of Old Quincy Dam was awarded September 25, 1998. Work began in February 1999 and was completed in December 2002. Contractor earnings total $9,961,560 with final payment pending completion of minor punch list items.

48. VERMONT DAMS REMEDIATION, VT

Location. The ten dams to be evaluated are located throughout the State of Vermont.

Existing project. Authorizes the Corps to evaluate the structural integrity of ten dams in the State of Vermont and to carry out measures to modify, repair, restore or remove dams determined to pose an imminent and substantial risk to public safety. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Design Agreement was signed on November 4, 2002 between the Corps and the State of Vermont Department of Environmental Conservation, Agency of Natural Resources. The non-Federal sponsor must contribute 35 percent of the cost for design of dam remediation work.

Operations during fiscal year. New work: A delivery order was issued under New York District's existing Indefinite Delivery Indefinite Quantities (IDIQ) contract on August 6, 2003 to evaluate the structural integrity of Lake Sadawga and Dufresne Pond Dams.

49. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

In accordance with provisions of the Flood Control Act of 1936, as amended, local flood protection works constructed with Federal funds are transferred to local interests to operate and maintain. To insure compliance with regulations prescribed for their operation and maintenance, regular inspections of the following projects were made during the FY at a total cost of $156,251:

CONNECTICUT: October 02 – New London, Pawcatuck; May 03 – East Hartford; August 03 – Stamford, September 03 – Ansonia, Derby.

MAINE: October 02 – Ogunquit (Marginal Way), Standish (Sebago Lake).

MASSACHUSETTS: October 02 – Riverdale, Saxonville; November 02 – New Bedford-Fairhaven, Northhampton, Springfield; December 02 – Charles River Dam; May 03 – Charles River Dam, Chicopee, Chicopee Falls, Fitchburg, Gardner, Huntington, New Bedford-Fairhaven, Three Rivers, West Springfield; July 03 – Leominster, Leominster (sewer line), Ware; September 02 – Holyoke.

NEW HAMPSHIRE: October 02 – Keene (Ashuelot River), Keene (Beaver Brook); November 02 – North Stratford, West Stuartstown.

RHODE ISLAND: May 03 – Lower Woonsocket, Providence.

VERMONT: No inspections in FY 2003.

50. FLOOD CONTROL RESERVOIR OPERATIONS

A coordinated system of flood control dams, all of which have flood control as primary storage available with recreation and/or water supply as secondary storage in most of the projects, has been established in five major flood producing basins in New England. During periods of flood flows, regulation of reservoirs is fully coordinated within each basin dependent upon its location in the watershed, its available storage capacity and origin of the flood. In addition to flood control releases; water supply, flow augmentation and hydropower releases were made from selected reservoirs. Winter pools are maintained at many projects to submerge the flood control gates and keep them from freezing.

During FY 2003 only one significant event occurred, between March 28-31, 2003, requiring reservoir regulation activities within the Connecticut and Merrimack River Basins. Cumulative damages prevented due to Corps dams and local flood protection projects was approximately $41 million, of which about $12 million was attributed to Corps dams and $29 million to local flood protection projects.

CONNECTICUT RIVER BASIN

Regulation for canoe and kayak activities occurred during FY 2003 at Otter Brook in March and April; Birch Hill, Tully, Littleville and Knightville in April; Ball Mountain and Townshend in April and September; and at Surry Mountain in May. The Hartford MDC controlled releases for hydropower from Colebrook Lake during non-flood periods of FY 2003.

MERRIMACK RIVER BASIN

Blackwater Dam was regulated for canoe races in April 2003.

THAMES RIVER BASIN

Regulation for canoe and kayak activities occurred during FY 2003 at East Brimfield in April and at Mansfield Hollow Lake in June. East Brimfield also supplied small releases for low flow augmentation to American Optical Co. during the summer months.

51. HURRICANE BARRIER OPERATIONS

Five hurricane barriers are situated along the southern coast of New England, protecting coastal communities from tidal flooding associated with hurricanes and severe coastal storms. The Corps operates the navigational elements of the Stamford, Connecticut and the New Bedford/Fairhaven, Massachusetts barriers. The hurricane barriers at Fox Point, Rhode Island; Pawcatuck, Connecticut; and New London, Connecticut are operated by the local communities. A brief resume of operations for the FY follows:

STAMFORD BARRIER. The barrier gates were operated on 11 occasions for coastal storms during FY 2003. Total damages prevented were $450,000.

NEW BEDFORD BARRIER. During FY 2003, the New Bedford Barrier was operated on 12 different occasions resulting in a total of $348,000 in damages prevented.

FOX POINT HURRICANE BARRIER. The Fox Point Hurricane Barrier was not operated during FY 2003, as tides did not reach damaging levels.

PAWCATUCK HURRICANE BARRIER. No operations occurred at the Pawcatuck Hurricane Barrier during FY 2003, as tides did not reach damaging levels.

NEW LONDON HURRICANE BARRIER. The New London Hurricane Barrier was not operated during FY 2003, as tides did not reach damaging levels

52. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205. Public Law 80-858, as amended (preauthorization).

(See Table 1-L)

Snagging and clearing activities pursuant to Section 208 of the 1954 Flood Control Act.

(None)

Emergency Bank Protection activities pursuant to Section 14 of the 1946 Flood Control Act (preauthorization).

(See Table 1-M)

Emergency flood control activities--repair, flood fighting, and rescue work (Public Law 99, 84th Cong., and antecedent legislation.)

Federal costs for FY were $265,815 for disaster preparedness and $42,791 for emergency operations.

Environmental

53. LEBANON, NH

Location. The City of Lebanon is located in west central New Hampshire along the Connecticut River and state border with Vermont.

Existing project. Environmental infrastructure project, consisting of twelve functional portions, to eliminate combined sanitary waste and storm water systems. Phase I was completed in November 2002. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on June 24, 2002 between the Corps and the City of Lebanon, New Hampshire. The sponsor must provide 35 percent of total project costs.

Operations during fiscal year. New work: The Corps awarded a contract for construction of the second functional portion of the project on July 29, 2002. Work began in September 2002 and was about 50 percent complete at FY end with contractor earnings of $1,739,056.

54. LONSDALE DRIVE-IN, LINCOLN, RI

Location. The project is located along the Blackstone River in the Town of Lincoln, Rhode Island, about 5 miles north of Providence, Rhode Island. The site is within the Blackstone River Valley National Heritage Corridor

Existing project. Restoration measures involve the demolition and removal of movie screens, concession stand and associated structures; removal of asphalt and gravel base; excavation of about 7 acres of the site to create emergent marsh and open water habitat; seeding the remaining 7 acres of the site with a mix of perennial grasses native to New England to create grassland habitat; and planting a variety of trees and shrubs to provide shelter and nesting habitat for songbirds. The project includes a 3-year monitoring period to ensure establishment of uplands and wetlands vegetation. Restoration work was completed in August 2003. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on May 16, 2002 between the Corps and the State of Rhode Island, Department of Environmental Management. The project sponsor must provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and perform all relocations determined by the Government to be necessary for project construction; pay a cash contribution in the amount necessary to bring the non-Federal share of study and project costs including lands to 25 percent; and bear all operation, maintenance and repair costs of the project after completion.

Operations during fiscal year. New work: A contract for restoration of Lonsdale Drive-in was awarded on January 30, 2003. Work began in March 2003 and was completed in August 2003. Contractor earnings totaled $1,570,270 at FY end. The contractor is required to monitor the project for the first two growing seasons to ensure establishment of uplands and wetlands vegetation.

55. NINIGRET & CROSS MILLS PONDS, CHARLESTOWN, RI

Location. The Town of Charlestown is located along the south coast of Rhode Island in Washington County. The specific areas of restoration are located in and adjacent to the breachway in Ninigret Pond and at the junction of Cross Mills Pond with an unnamed outlet stream that discharges into Ninigret Pond.

Existing project. Project involves dredging about 40 acres of tidal shoal area in Ninigret Pond and planting eelgrass to restore aquatic habitat. Eelgrass will be transplanted to dredged areas by removing plugs from

nearby healthy donor beds or through direct seeding techniques. A 3.5-acre sediment basin would be dredged to prevent future shoaling restored aquatic habitat. The project also includes construction of a concrete lined bypass channel with two fish ladders from Ninigret Pond to Cross Mills Pond. Restoring the migratory pathway of herring and other anadromous species to Cross Mills Pond will allow passage to about 20 acres of spawning habitat. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on May 28, 2003 between the Corps and the State of Rhode Island, Coastal Resources Management Council. The project sponsor must provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and perform all relocations determined by the Government to be necessary for project construction; pay a cash contribution in the amount necessary to bring the non-Federal share of study and project costs including lands to 35 percent; and bear all operation, maintenance and repair costs of the project after completion.

Operations during fiscal year. New work: Completed preparation of project plans and specifications and continued to work with the sponsor to acquire all necessary lands for project construction.

56. PRESUMPSCOT RIVER (SMELT HILL DAM), FALMOUTH, ME

Location. Smelt Hill Dam is located in southwestern Maine, along the Presumpscot River in the Town of Falmouth. The dam is located at the head-of-tide, about one mile upstream from the mouth of the river.

Existing project. Provides for the complete removal of Smelt Hill Dam. The project will restore about 7 miles of warm-water habitat to riffles and pools, and provide unimpeded passage of anadromous fish through this reach of the river. Removal of Smelt Hill Dam was completed in November 2002. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on June 6, 2002 between the Corps and the State of Maine Department of Marine Resources. The project sponsor must provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and perform all relocations determined by the Government to be necessary for project construction; pay a cash contribution in the amount necessary to bring the non-Federal share of study and project costs including lands to 25 percent; and bear all operation, maintenance and repair costs of the project after completion.

Operations during fiscal year. New work: A contract for removal of Smelt Hill Dam was awarded on August 19, 2002. Work began the next month and was completed in November 2002. Final contract amount was $311,718.

57. SAGAMORE MARSH, CAPE COD CANAL, MA

Location. Sagamore Marsh is located in southeastern Massachusetts in the Towns of Bourne and Sandwich, approximately 50 miles southeast of Boston, Massachusetts. The marsh lies on the north side of the Cape Cod Canal, near the canal's east end.

Existing project. Provides for enlarging culverts beneath Scussett Beach and Cape Cod Canal Service Roads, installing sluice gates and excavating channels to increase tidal flows. Tidal flushing of Sagamore Marsh was restricted in the 1930s when the Cape Cod Canal was widened. Restoration of about 50 acres of salt marsh and estuarine habitat was completed in August 2002. (See Table 1-B for Act authorizing the existing project.)

Local cooperation. A Project Cooperation Agreement was signed on September 22, 1999 between the Corps and the Commonwealth of Massachusetts Department of Environmental Management. The project sponsor must provide all lands, easements, rights-of-way, including suitable borrow and dredged material disposal areas, and perform all relocations determined by the Government to be necessary for project construction; pay a cash contribution in the amount necessary to bring the non-Federal share of study and project costs including lands to 25 percent; and bear all operation, maintenance and repair costs of the project after completion.

Operations during fiscal year. New work: A contract for restoration of the salt marsh was awarded on January 10, 2000. Work began in May 2000 and was completed in August 2002. Final contract amount was $1,597,312. The project includes three years of monitoring, which began this FY.

58. ENVIRONMENTAL RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Project modifications for the improvement of the environment pursuant to Section 1135, Public Law 99-662, as amended (preauthorization).

(See Table 1-N)

Aquatic ecosystem restoration activities pursuant to Section 206, Public Law 99-662, as amended (preauthorization).

(See Table 1 - O)

General Investigations

59. SURVEYS

Costs for the FY for surveys from regular funds were $1,322,503 of which $508,524 was for one navigation study; $109,545 for five special studies; $480,139 for one comprehensive study; and $224,295 for coordination studies.

60. COLLECTION AND STUDY OF BASIC DATA

The District Engineer is the U.S. member on the Saint Croix River Board of Control. Annual inspections are made of conditions on the Saint Croix River and basic hydrologic information is compiled. A report of operations and development in the basin was prepared in cooperation with Canadian counterparts. Total costs for the FY were $20,281. Total costs to September 30, 2003 are $465,975.

The Gulf of Maine Council on the Marine Environment was established in 1989 under an agreement signed by the Governors of Maine, New Hampshire and Massachusetts, and the Premiers of Nova Scotia and New Brunswick. The Council was tasked under this agreement to develop consistent policies, initiatives and programs designed to protect and conserve the shared natural resources of the Gulf of Maine. In April 1993, the Council requested the New England District Engineer to participate in this international program as an "observer" to the Council. In this capacity, the District Engineer is expected to attend Council meetings and support their initiatives to the extent possible. In addition to the District Engineer's direct participation, a representative of the Corps is a member of the Working Group to the Council, which implements directives of the Council. The Corps representative on the Working Group is assisting the Habitat Sub-Group to establish policies, set priorities and identify lead agencies for implementing habitat restoration projects in the Gulf of Maine. This effort includes investigating potential habitat restoration sites eligible for Corps participation under Sections 1135 and 206, and for coordination of input from other Federal agencies. Total costs for the FY were $7,040. Total costs to September 30, 2003 are $158,445.

Flood plain studies comprise compilation and dissemination, upon responsible local request, of information on floods and potential flood damages. Studies identify areas subject to inundation by floods of various magnitudes and frequencies, and provide general criteria for guidance in the conservation and limited use of flood plain areas, along with engineering advice in planning to ameliorate the flood hazard. Total costs for the FY were $170,455. Total costs to September 30, 2003 are $11,112,800.

The April 1987 flood was one of the largest of recent times in New England, resulting in spillway discharge at six Corps flood control reservoirs. Comprehensive hydrologic analysis of this flood event is needed for future planning and design studies, as well as reservoir operation. Fiscal year 2003 funds were used to continue hydrologic analysis of the 1987 flood within the Merrimack River Basin. Total costs for the FY were $3,989. Total costs to September 30, 2003 are $145,970.

61. PLANNING, ENGINEERING AND DESIGN

(None.)

62. PRECONSTRUCTION ENGINEERING AND DESIGN

Pre-construction Engineering and Design costs were $183,611 for work on the Muddy River, Massachusetts flood control and ecosystem restoration project.

TABLE 1-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
1.	Aunt Lydia's Cove Chatham, MA	New Work Approp.	65,000	-	-	-	1,110,048
		Cost	74,295	-	-	-	1,110,048
		Maint. Approp.	293,000	415,600	285,000	258,500	1,318,100
		Cost	293,183	415,940	284,690	259,205	1,318,084
	(Contributed Funds)	New Work Contrib.	-81,813	-	-	-	102,206

		Cost	-2,607	-	-	-	102,206
	(Contributed	New Work					
	Funds - Other)	Contrib.	-408	-	-	-	62,292
		Cost	42	-	-	-	62,292
2.	Belfast Harbor, ME	New Work					
		Approp.	-	-	-	-	61,561
		Cost	-	-	-	-	61,561
		Maint					
		Approp.	1,500	7,100	61,800	1,533,500	1,907,057
		Cost	1,500	7,100	50,293	1,543,197	1,905,246
3.	Boston Harbor, MA	New Work					
		Approp.	2,508,000	2,800,000	-46,000	-	40,390,974 [3]
		Cost	4,637,416	2,967,815	129,910	1,460	40,388,124 [3]
		Maint.					
		Approp.	846,300	1,156,200	459,500	130,100	32,230,749 [4]
		Cost	1,519,318	1,115,666	508,733	131,857	32,224,690 [4]
	(Contributed	New Work					
	Funds)	Contrib.	1,073,272	869,000	125,000	-	5,331,272
		Cost	2,087,725	583,834	394,958	76,178	5,217,556
	(Contributed	New Work					
	Funds - Other)	Contrib.	1,041,728	86,000	225,000	-	6,336,503
		Cost	1,903,782	148,533	56,928	204,195	6,173,557
4.	Bridgeport Harbor, CT	New Work					
		Contrib.	-	-	-	-	4,491,119
		Cost	-	-	-	-	4,491,119
		Maint.					
		Approp.	84,700	142,939	147,300	293,800	2,855,366
		Cost	84,660	139,060	140,162	230,602	2,781,111
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	147,887
		Cost	-	-	-	-	147,887
5.	Camden Harbor, ME	New Work					
		Contrib.	-	-	-	-	102,400
		Cost	-	-	-	-	102,400
		Maint.					
		Approp.	-	53,700	15,100	481,900	747,189
		Cost	-	53,700	15,100	480,679	745,968
6.	Cape Cod Canal, MA	New Work					
		Approp.	-	-	-	-	21,798,322 [1,2]
		Cost	-	-	-	-	21,798,322 [1,2]
		Maint.					
		Approp.	11,506,000	9,514,605	9,417,542	8,746,000	209,745,029
		Cost	11,552,227	9,506,907	9,354,993	8,815,292	209,727,442
		Minor Rehab.					
		Approp.	-	-	-	-	390,677
		Cost	-	-	-	-	390,677

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
		Major Rehab.					
		Approp.	1,168,000	4,407,000	8,330,000	16,231,000	56,745,000
		Cost	243,910	4,612,864	8,909,282	16,201,326	56,576,383
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	115,432
		Cost	-	-	-	-	115,432
7.	Cocheco River, NH	New York					
		Approp.	-	-	-	-	119,089
		Cost	-	-	-	-	119,089
		Maint.					
		Approp.	130,800	99,930	82,700	185,900	1,164,389

		Cost	130,557	100,697	73,241	195,416	1,164,357
8.	Green Harbor, MA	New Work					
		Approp.	-	-	-	-	254,512
		Cost	-	-	-	-	254,512
		Maint.					
		Approp.	334,500	372,166	208,100	321,800	6,047,304
		Cost	334,713	372,745	208,081	321,796	6,047,281
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	158,341
		Cost	-	-	-	-	158,341
9.	Harbor of Refuge,	New Work					
	Block Island, RI	Approp.	-	-	-	-	576,856
		Cost	-	-	-	-	576,856
		Maint.					
		Approp.	599,000	100	19,500	60,700	3,562,524
		Cost	598,832	200	12,045	65,455	3,559,753
10.	Kennebec River, ME	New Work					
		Approp.	-	-	-	-	1,599,940
		Cost	-	-	-	-	1,599,940
		Maint.					
		Approp.	20,800	451,565	567,700	130,600	5,674,053
		Cost	20,800	451,351	567,254	125,600	5,668,248
11.	Kennebunk River, ME	New Work					
		Approp.	-	-	-	-	261,417
		Cost	-	-	-	-	261,417
		Maint.					
		Approp.	5,000	41,600	8,300	79,600	1,598,657
		Cost	4,633	42,100	8,300	77,798	1,596,833
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	88,917
		Cost	-	-	-	-	88,917
12.	Little Harbor, NH	New Work					
		Approp.	-	-	-	-	133,227
		Cost	-	-	-	-	133,227
		Maint.					
		Approp.	152,600	1,382,300	78,000	48,200	2,087,736
		Cost	152,403	1,382,684	75,399	50,917	2,087,596
13.	Narraguagus River, ME	New Work					
		Approp.	-	-	-	-	821,144
		Cost	-	-	-	-	821,144
		Maint.					
		Approp.	4,500	54,800	145,700	64,300	441,079
		Cost	4,500	54,800	136,254	73,716	441,049
14.	Newburyport Harbor, MA	New Work					
		Approp.	-	-	-	-	565,224
		Cost	-	-	-	-	565,224

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
		Maint.					
		Approp.	11,700	-600	54,300	33,800	6,961,330
		Cost	12,046	-	51,056	37,091	6,961,307
		Major Rehab.					
		Approp.	-	-	-	-	1,415,524
		Cost	-	-	-	-	1,415,524
	(Contributed	New Work					
	Funds, Other)	Contrib.	-	-	-	-	80,357
		Cost	-	-	-	-	80,357
15.	New Haven Harbor, CT	New Work					
		Approp.	-	-	-	-	4,773,246 [33]

		Cost	-	-	-	-	4,773,246 [33]
		Maint.					
		Approp.	14,500	237,800	174,500	1,609,800	19,159,032
		Cost	14,500	237,800	174,500	1,609,702	19,158,895
16.	Norwalk Harbor, CT	New Work					
		Approp.	-	-	-	-	531,129
		Cost	-	-	-	-	531,129
		Maint.					
		Approp.	30,800	142,800	132,700	181,600	4,406,727
		Cost	30,800	142,800	132,700	178,511	4,403,638
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	34,500
		Cost	-	-	-	-	34,500
17.	Penobscot River, ME	New Work					
		Approp.	-	-	-	-	501,020
		Cost	-	-	-	-	501,020
		Maint.					
		Approp.	-	133,400	119,600	900	1,339,075
		Cost	-	133,400	112,270	8,204	1,339,050
18.	Plymouth Harbor, MA	New Work					
		Approp.	-	-	-	-	2,127,218
		Cost	-	-	-	-	2,127,218
		Maint.					
		Approp.	65,300	137,324	18,000	54,000	1,803,463
		Cost	65,688	137,677	11,002	61,229	1,803,434
		Major Rehab.					
		Approp.	-	-	-	-	894,475
		Cost	-	-	-	-	894,475
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	541,611
		Cost	-	-	-	-	541,611
		Maint.					
		Contrib.	-	-	-	-	400
		Cost	-	-	-	-	400
19.	Point Judith Pond and	New Work					
	Harbor of Refuge, RI	Approp.	-	-	-	-	2,714,510
		Cost	-	-	-	-	2,714,510
		Maint.					
		Approp.	65,300	137,324	18,000	115,800	8,301,834
		Cost	65,688	137,677	11,002	114,206	8,300,240
		Major Rehab.					
		Approp.	-	-	-	-	1,926,000
		Cost	-	-	-	-	1,926,000
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	17,587
		Cost	-	-	-	-	17,587

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
20.	Portland Harbor, ME	New Work					
		Approp.	-	-	-	-	9,588,710
		Cost	-	-	-	-	9,588,710
		Maint.					
		Approp.	51,800	-2,200	363,200	90,400	11,451,439
		Cost	52,879	-2,274	300,667	153,455	11,451,353
	(Contributed	New Work					
	Funds)	Contrib.	-5,647	-	-	-	54,353
		Cost	208	-	-	-	54,353
21.	Providence River and	New Work					
	Harbor, RI	Approp.	-	-	-	-	25,417,022

		Cost	-	-	-	-	25,417,022
		Maint.					
		Approp.	1,573,500	916,443	925,368	14,056,595	25,454,828
		Cost	1,580,494	918,505	871,016	14,108,898	25,452,070
	(Contributed	Maint.					
	Funds)	Contrib.	-	-	-	3,200,000	3,200,000
		Cost	-	-	-	1,345,530	1,345,530
22.	Rockland Harbor, ME	New Work					
		Approp.	-	-	-	-	1,948,462 [32]
		Cost	-	-	-	-	1,948,462 [32]
		Maint.					
		Approp.	-	37,700	52,400	1,007,600	1,635,478
		Cost	-	37,700	43,647	1,016,059	1,635,185
23.	Salem Harbor, MA	New Work					
		Approp.	-	-	-	-	1,693,202
		Cost	-	-	-	-	1,693,202
		Maint.					
		Approp.	26,100	23,070	141,600	66,900	1,102,997
		Cost	25,730	23,928	141,052	67,381	1,102,839
24.	Saugus River, MA	New Work					
		Approp.	645,000	2,344,313	71,454	87,086	3,879,853
		Cost	649,331	2,349,203	74,536	87,086	3,879,853
		Maint.					
		Approp.	-	-	-	14,600	14,600
		Cost	-	-	-	14,600	14,600
	(Contributed	New Work					
	Funds)	Contrib.	110,000	280,000	-	-	390,000
		Cost	11,678	346,718	18,421	-87,092	289,725 [34]
	(Contributed	New York					
	Funds-Other)	Contrib.	-	272,840	-	-	272,840
		Cost	-	130,314	2,245	-	132,559
25.	Scituate Harbor, MA	New Work					
		Approp.	-	-	-	-	379,851
		Cost	-	-	-	-	379,851
		Maint.					
		Approp.	2,400	80,000	1,391,000	2,980,000	5,595,579
		Cost	2,400	80,261	1,382,784	2,987,591	5,594,623
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	69,976
		Cost	-	-	-	-	69,976
26.	Seekonk River,	New Work					
	Providence, RI	Approp.	-	-	-	-	900,000
		Cost	119,056	196,776	450,555	1,773	898,966
	(Contributed	New Work					
	Funds)	Contrib.	-	588,500	120,000	79,673	788,173
		Cost	-	42,590	660,626	4,828	708,044

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
27.	Sesuit Harbor, MA	New Work					
		Approp.	-	-	-	-	226,306
		Cost	-	-	-	-	226,306
		Maint.					
		Approp.	63,400	202,300	94,400	137,200	1,698,806
		Cost	63,625	202,480	94,372	137,272	1,698,796
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	124,588
		Cost	-	-	-	-	124,588
28.	Union River, ME	New Work					
		Approp.	-	-	-	-	146,855
		Cost	-	-	-	-	146,855
		Maint.					
		Approp.	81,300	1,119,064	1,073,000	589,800	3,231,855
		Cost	75,506	1,123,232	1,070,994	593,423	3,231,830
30.	Point Beach, Milford, CT	New Work					
		Approp.	8,000	421,181	785,000	655,000	2,271,284
		Cost	4,378	422,764	775,088	644,290	2,246,346
	(Contributed	New Work					
	Funds)	Contrib.	-	350,000	700,000	-	1,150,000
		Cost	-	114,390	476,105	329,936	1,020,431
33A.	West Hill Dam, MA	New Work					
		Approp.	-	-	-	-	2,306,902 [6]
		Cost	-	-	-	-	2,306,902 [6]
		Maint.					
		Approp.	981,000	668,609	571,300	628,312	12,553,919
		Cost	979,224	672,317	574,332	629,855	12,553,372
		Major Rehab.					
		Approp.	-	2,500,000	10,070,000	697,000	13,267,000
		Cost	-	2,362,455	10,176,649	696,451	13,235,556
34.	Charles River	New Work					
	(Natural Valley	Approp.	-	-	-	-	8,606,000
	Storage Areas), MA	Cost	-	-	-	-	8,606,000
		Maint.					
		Approp.	251,000	200,542	232,000	233,000	3,591,885
		Cost	255,250	201,068	230,940	230,584	3,588,376
35A.	Ball Mountain	New Work					
	Lake, VT	Approp.	-	-	-	-	11,107,842 [7]
		Cost	-	-	-	-	11,107,842 [7]
		Maint.					
		Approp.	867,000	1,134,695	976,469	967,190	17,389,077
		Cost	903,174	1,134,907	972,347	967,726	17,384,020
35B.	Barre Falls Dam, MA	New Work					
		Approp.	-	-	-	-	1,967,819
		Cost	-	-	-	-	1,967,819
		Maint.					
		Approp.	506,000	540,409	506,889	596,180	11,357,538
		Cost	494,453	550,135	506,108	595,583	11,353,235
35C.	Birch Hill Dam, MA	New Work					
		Approp.	-	-	-	-	4,815,679 [8]
		Cost	-	-	-	-	4,815,679 [8]
		Maint.					
		Approp.	674,000	551,456	561,220	600,000	12,629,726
		Cost	659,078	558,777	569,568	593,921	12,615,209
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	32,000 [9]
		Cost	-	-	-	-	32,000 [9]

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
35D.	Colebrook River Lake, CT	New Work					
		Approp.	-	-	-	-	14,263,971
		Cost	-	-	-	-	14,263,971
		Maint.					
		Approp.	420,000	401,542	496,352	718,700	8,916,121
		Cost	413,939	401,857	501,433	719,300	8,914,817
35E.	Conant Brook Dam, MA	New Work					
		Approp.	-	-	-	-	2,950,530
		Cost	-	-	-	-	2,950,530
		Maint.					
		Approp.	192,000	201,384	165,484	207,680	3,431,245
		Cost	194,023	201,350	162,143	211,879	3,430,716
35F.	Knightville Dam, MA	New Work					
		Approp.	-	-	-	-	3,415,640 [10]
		Cost	-	-	-	-	3,415,640 [10]
		Maint.					
		Approp.	718,000	690,161	624,406	914,400	13,841,413
		Cost	537,847	740,820	729,090	937,892	13,838,334
35G.	Littleville Lake, MA	New Work					
		Approp.	-	-	-	-	7,013,412
		Cost	-	-	-	-	7,013,412
		Maint.					
		Approp.	398,000	439,209	627,876	622,600	9,903,112
		Cost	395,871	443,229	516,802	729,042	9,898,375
35H.	North Hartland Lake, VT	New Work					
		Approp.	-	-	-	-	7,312,225 [11]
		Cost	-	-	-	-	7,312,225 [11]
		Maint.					
		Approp.	509,000	562,794	521,509	812,500	12,193,046
		Cost	513,299	563,421	510,869	819,448	12,187,791
35I.	North Springfield Lake, VT	New Work					
		Approp.	-	-	-	-	6,831,526 [12]
		Cost	-	-	-	-	6,831,526 [12]
		Maint.					
		Approp.	623,000	843,846	822,315	778,530	17,382,848
		Cost	626,182	847,218	787,168	790,327	17,359,355
35J.	Otter Brook Lake, NH	New Work					
		Approp.	-	-	-	-	4,360,448 [13]
		Cost	-	-	-	-	4,360,448 [13]
		Maint.					
		Approp.	478,000	530,509	852,108	818,000	12,349,914
		Cost	480,159	531,558	823,271	833,007	12,335,758
35K.	Surry Mountain Lake, NH	New Work					
		Approp.	-	-	-	-	2,833,610 [14]
		Cost	-	-	-	-	2,833,610 [14]
		Maint.					
		Approp.	500,000	451,991	664,165	889,000	12,899,847
		Cost	505,234	452,200	645,031	904,625	12,895,889
35L.	Townshend Lake, VT	New Work					
		Approp.	-	-	-	-	8,540,545 [15]
		Cost	-	-	-	-	8,540,545 [15]
		Maint.					
		Approp.	1,077,000	765,647	690,970	893,900	15,938,935
		Cost	989,028	859,661	684,307	894,784	15,932,029
35M.	Tully Lake, MA	New Work					
		Approp.	-	-	-	-	1,666,752 [16]
		Cost	-	-	-	-	1,666,752 [16]

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
		Maint.					
		Approp.	427,000	516,262	562,538	536,500	11,286,025
		Cost	412,733	525,724	567,720	536,332	11,285,126
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	40,000 [9]
		Cost	-	-	-	-	40,000 [9]
35N.	Union Village	New Work					
	Dam, VT	Approp.	-	-	-	-	4,095,160 [17]
		Cost	-	-	-	-	4,095,160 [17]
		Maint.					
		Approp.	515,000	446,302	584,464	685,000	11,011,759
		Cost	516,206	447,490	537,933	712,839	10,992,134
36.	Faulkner Island, CT	New Work					
		Approp.	-	1,650,000	-	-	3,168,000
		Cost	366,697	2,277,637	16,566	3,518	3,168,000
37.	Fox Point Barrier, RI	New Work					
		Approp.	-	-	-	-	11,112,801
		Cost	-	-	-	-	11,112,801
		Major Rehab.					
		Approp.	-	444,000	866,000	300,000	1,610,000
		Cost	-	32,899	1,246,156	307,427	1,586,483
	(Contributed	New Work					
	Funds)	Contrib.	-	-	-	-	3,679,500 [5]
		Cost	-	-	-	-	3,679,500 [5]
38A.	Black Rock Lake,	New Work					
	CT	Approp.	-	-	-	-	8,182,300
		Cost	-	-	-	-	8,182,300
		Maint.					
		Approp.	446,000	309,436	645,000	394,740	7,879,757
		Cost	453,619	304,355	650,277	395,011	7,878,938
38B.	Hancock Brook	New Work					
	Lake, CT	Approp.	-	-	-	-	4,178,911
		Cost	-	-	-	-	4,178,911
		Maint.					
		Approp.	232,000	258,122	213,810	266,300	3,901,166
		Cost	234,876	255,750	210,896	271,004	3,900,098
38C.	Hoosic River, Syndicate Road,	New Work					
	Williamstown, MA	Approp.	56,000	50,100	219,000	-	337,100
		Cost	55,340	54,081	217,145	762	335,739
	(Contributed	New Work					
	Funds)	Contrib.	-	-	121,000	-	121,000
		Cost	-	-	120,583	-	120,583
38D.	Hop Brook Lake,	New Work					
	CT	Approp.	-	-	-	-	6,151,562 [18]
		Cost	-	-	-	-	6,151,562 [18]
		Maint.					
		Approp.	827,000	802,639	1,031,526	921,900	19,179,890
		Cost	831,829	790,809	1,036,881	932,243	19,177,732
38E.	Northfield Brook	New Work					
	Lake, CT	Approp.	-	-	-	-	2,850,512 [19]
		Cost	-	-	-	-	2,850,512 [19]
		Maint.					
		Approp.	309,000	363,860	282,000	353,760	6,944,328
		Cost	328,898	346,641	291,359	361,804	6,943,736
38F.	Thomaston Dam,	New Work					
	CT	Approp.	-	-	-	-	14,282,112
		Cost	-	-	-	-	14,282,112

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
		Maint. Approp.	1,028,000	674,051	555,000	659,000	14,158,393
		Cost	1,030,589	663,827	559,702	664,518	14,157,367
39A.	Blackwater Dam, NH	New Work Approp.	-	-	-	-	1,319,746 [20]
		Cost	-	-	-	-	1,319,746 [20]
		Maint. Approp.	532,000	524,164	579,293	1,179,000	9,804,551
		Cost	532,762	524,189	578,881	1,179,191	9,804,310
39B.	Edward MacDowell Lake, NH	New Work Approp.	-	-	-	-	2,014,253 [21]
		Cost	-	-	-	-	2,014,253 [21]
		Maint. Approp.	518,000	442,414	464,676	625,000	10,169,659
		Cost	518,869	442,445	464,458	620,446	10,164,887
39C.	Franklin Falls Dam, NH	New Work Approp.	-	-	-	-	7,950,487 [22]
		Cost	-	-	-	-	7,950,487 [22]
		Maint. Approp.	579,000	1,015,972	888,037	777,000	16,385,095
		Cost	581,465	1,016,019	887,721	775,212	16,382,976
39D.	Hopkinton-Everett Lakes, NH	New Work Approp.	-	-	-	-	21,452,440 [23]
		Cost	-	-	-	-	21,452,440 [23]
		Maint. Approp.	1,316,000	1,197,884	1,429,102	1,460,100	25,362,678
		Cost	1,318,170	1,197,964	1,294,178	1,578,739	25,346,187
39E.	North Nashua River, Lancaster, MA	New Work Approp.	143,000	10,000	-	-4,378	253,751
		Cost	141,428	11,161	1,670	-3,343	253,751
	(Contributed Funds)	New Work Contrib.	112,000	-	-	3,097	115,097
		Cost	69,204	41,422	1,128	3,343	115,097
40.	New Bedford, Fairhaven, and Acushnet, MA	New Work Approp.	-	-	-	-	11,510,088
		Cost	-	-	-	-	11,510,088
		Maint. Approp.	280,000	369,968	353,510	1,027,000	9,550,099
		Cost	282,978	367,693	351,260	1,029,087	9,546,144
	(Contributed Funds)	New Work Contrib.	-	-	-	-	6,513,763 [24]
		Cost	-	-	-	-	6,513,763 [24]
41.	Pleasant Point, Perry, ME	New Work Approp.	-	-	-	5,000	194,000
		Cost	-	-	-	3,793	192,793
42.	Quonset Point, Davisville, RI	New Work Approp.	-111,071	-	-	-40,000	2,248,929
		Cost	-82,898	-	-	-37,384	2,248,647
	(Contributed Funds)	New Work Contrib.	-	-	-	-	1,082,000
		Cost	85,314	-	-	37,384	1,082,000
43.	Roughans Point, Revere, MA	New Work Approp.	-	30,000	-400,000	-	7,838,779
		Cost	54,153	26,823	-396,179	1,114	7,837,878
	(Contributed Funds)	New Work Contrib.	-	144,329	400,000	-	3,544,329
		Cost	398,580	243,191	675,739	26,490	3,446,780

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
44.	Saint John River Basin, ME	New Work Approp.	-	-	-65,000	-	452,000
		Cost	563	-	-	-	447,943
45.	Stamford, CT	New Work Approp.	-	-5,000	-	-	9,901,300
		Cost	-	-	-	-	9,900,639
		Maint. Approp.	340,000	361,831	378,964	397,000	9,180,986
		Cost	364,678	362,275	380,025	392,360	9,174,956
	(Contributed Funds)	New Work Contrib.	-	-	-	-	3,367,970 [25]
		Cost	-	-	-	-	3,367,453 [25]
	(Contributed Funds - Other)	New Work Contrib.	-	-	-	-	210,000
		Cost	-	-	-	-	209,969
46A.	Buffumville Lake, MA	New Work Approp.	-	-	-	-	2,998,603 [26]
		Cost	-	-	-	-	2,998,603 [26]
		Maint. Approp.	497,000	446,224	806,008	717,933	10,333,181
		Cost	491,053	452,218	805,370	718,052	10,330,453
46B.	East Brimfield Lake, MA	New Work Approp.	-	-	-	-	7,057,043 [27]
		Cost	-	-	-	-	7,057,043 [27]
		Maint. Approp.	421,000	345,426	312,247	405,000	8,330,112
		Cost	421,231	345,906	312,163	402,519	8,325,982
46C.	Hodges Village Dam, MA	New Work Approp.	-	-	-	-	4,461,268 [28]
		Cost	-	-	-	-	4,461,268 [28]
		Maint. Approp.	457,000	473,007	434,523	546,100	13,019,577
		Cost	452,400	478,231	434,447	544,684	13,016,480
		Major Rehab. Approp.	966,000	-20,000	-	-	18,416,000
		Cost	990,409	5,297	-	-	18,416,000
46D.	Mansfield Hollow Lake, CT	New Work Approp.	-	-	-	-	6,447,164 [29]
		Cost	-	-	-	-	6,447,164 [29]
		Maint. Approp.	521,000	379,280	447,058	642,700	10,131,637
		Cost	520,460	376,302	451,033	642,266	10,130,139
46E.	West Thompson Lake, CT	New Work Approp.	-	-	-	-	7,001,220 [30]
		Cost	-	-	-	-	7,001,220 [30]
		Maint. Approp.	518,000	559,912	903,223	567,275	12,118,407
		Cost	521,555	554,912	905,612	569,268	12,117,608
46F.	Westville Lake, MA	New Work Approp.	-	-	-	-	5,684,683 [31]
		Cost	-	-	-	-	5,684,683 [31]
		Maint. Approp.	432,000	372,265	464,516	555,000	9,729,840
		Cost	432,485	369,635	463,984	556,107	9,725,478
47.	Town Brook, Quincy and Braintree, MA	New Work Approp.	1,286,000	324,000	18,000	-	33,193,740
		Cost	1,368,752	367,922	59,701	8,334	33,181,599

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
	(Contributed Funds)	New Work Contrib.	670,000	-	109,785	-	4,129,785
		Cost	426,902	191,681	153,852	116,561	4,086,717
	(Contributed Funds - Other)	NewWork Contrib.	3,674,889	-	382,000	60,000	9,411,889
		Cost	2,485,128	1,381,558	554,485	462,029	9,017,339
48.	Vermont Dams Remediation, VT	New Work Approp.	-	-	68,000	41,000	109,000
		Cost	-	-	6,876	16,972	23,848
	(Contributed Funds)	NewWork Contrib.	-	-	-	75,000	75,000
		Cost	-	-	-	3,232	3,232
53.	Lebanon, NH	New Work Approp.	-	457,000	280,000	1,065,000	1,802,000
		Cost	-	50,304	505,496	1,082,236	1,638,035
	(Contributed Funds - Other)	NewWork Contrib.	-	-	130,000	460,000	590,000
		Cost	-	-	-	407,864	407,864
54.	Lonsdale Drive-In, Lincoln, RI	New Work Approp.	27,000	43,800	128,000	1,335,000	1,633,800
		Cost	32,272	48,879	127,115	1,324,483	1,622,334
	(Contributed Funds)	New Work Contrib.	-	-	-	448,090	448,090
		Cost	-	-	-	368,053	368,053
55.	Ninigret & Cross Mills Pond, Charlestown, RI	New Work Approp.	-	-	1,000	199,000	200,000
		Cost	-	-	585	199,159	199,744
	(Contributed Funds)	New Work Contrib.	-	-	-	1,113,267	1,113,267
		Cost	-	-	-	-	-
56.	Presumpscot River (Smelt Hill), Falmouth, ME	New Work Approp.	43,000	54,600	322,400	146,000	661,000
		Cost	79,913	57,413	312,856	145,700	650,168
	(Contributed Funds)	New Work Contrib.	-	-	450	-	450
		Cost	-	-	-	-	-
57.	Sagamore Marsh, Cape Cod Canal, MA	New Work Approp.	1,220,000	194	-3,000	24,000	1,843,694
		Cost	1,089,129	124,226	800	22,095	1,836,008
	(Contributed Funds)	New Work Contrib.	380,500	229,500	-	-	610,000
		Cost	144,600	399,481	53,616	10,350	608,048

TABLE 1-A (Continued) COST AND FINANCIAL STATEMENT

[1] Excludes $ 6,138,157 from Public Works Funds and $4,849,740 from Emergency Relief Funds.
[2] Includes $389,929 Code 711 funds and $511,089 Code 713 funds.
[3] Excludes $935,303 Emergency Relief Funds and $1,030,806 Public Works Funds.
[4] Excludes $17,767 Contributed Funds.
[5] Excludes $245,000 expended for land condemnation.
[6] Includes $18,310 Code 711 funds.
[7] Includes $504,062 Code 711 funds and $67,066 for fish passage facility.
[8] Includes $618,469 Code 711 funds and $32,000 Code 713 Funds.
[9] Recreational cost sharing.
[10] Includes $199,303 Code 711 funds.
[11] Includes $229,436 Code 711 funds.
[12] Includes $59,536 Code 711 funds.
[13] Includes $364,688 Code 711 funds.
[14] Includes $470,077 Code 711 funds.
[15] Includes $245,168 Code 711 funds and $1,117,494 for fish passage facility.
[16] Includes $3,695 Code 711 funds and $115,138 Code 713 funds.
[17] Includes $88,931 Code 711 funds.
[18] Includes $143,538 Code 711 funds.
[19] Includes $20,000 Code 711 funds.
[20] Includes $2,881 Code 711 funds.
[21] Includes $6,432 Code 711 funds.
[22] Includes $4,671 Code 711 funds.
[23] Includes $179,727 Code 711 funds.
[24] Excludes $146,020 expended to date for land condemnation.
[25] Excludes $199,410 expended to date for land condemnations.
[26] Includes $71,943 Code 711 funds.
[27] Includes $207,700 Code 711 funds.
[28] Includes $6,255 Code 711 funds and $40,353 Code 713 funds.
[29] Includes $68,717 Code 711 funds.
[30] Includes $315,420 Code 711 funds.
[31] Includes $67,667 Code 711 funds.
[32] Excludes about $225,000 expended by local interest in terminal and transfer facilities.
[33] Includes $290,877 National Industrial Recovery Funds and $59,207 Public Works Funds.
[34] Excludes $96,730 expended by the Town of Saugus for divers to assist in the location and removal of channel obstructions.

TABLE 1-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	AUNT LYDIA'S COVE, CHATHAM, MA (See Section 1 of Text.)	
July 14, 1960 as amended	Entrance channel 100 feet wide by 900 feet long and 9.5 acre anchorage area, both 8 feet deep.	P.L. 86-645, Section 107. Authorized by the Chief of Engineers August 31, 1994.
September 19, 1890	**BELFAST HARBOR, ME** (See Section 2 of Text.)	
	Main channel 15 feet deep, 220 feet wide, and anchorage areas east and west side 8 and 13 feet deep respectively.	H. Doc. 81, 51st Cong. 1st sess.
	BOSTON HARBOR, MA (See Section 3 of Text.)	
March 2, 1825	Preservation of islands and seawalls.	
June 14, 1880	Weir River (Nantucket Beach Channel) 9.5 ft. deep. 100 ft. wide to Steamboat Wharf at Nantasket.	Annual Report, 1881, p. 518
August 5, 1886	Fort Point Channel. [1]	H. Ex. Doc. 206,48th Cong., 2nd sess., Annual Report, 1885, p. 543.
September 19,1890	Weir River (Nantucket Beach Channel) 9.5 ft. deep. 150 ft. wide to Steamboat Wharf at Nantasket.	Annual Report, 1890, p. 503
July 25, 1892	Weir River (Nantucket Beach Channel) from mouth of Weir River to Steamboat Wharf at Nantasket Beach 12 ft. deep, 150 ft. wide.	Annual Report, 1893, p. 769
	Channel 15 feet deep from Long Island to Nixes Mate Shoal (Nixes Mate to Nubble Channel).	Annual Report, 1887, p.517
July 13, 1892	Channel 27 feet from Nantasket Roads to President Roads.	Annual Report, 1893, p. 766
June 3, 1896	Dredge Chelsea River Channel to 18 feet.	H. Ex. Doc. No. 162,53rd Cong., 3rd sess., Annual Report, 1895, p. 648
March 3, 1899	For 30-foot channel from sea to President Roads through Broad Sound by less direct route than 35 and 40-foot channels.	H. Doc. 133, 55th Cong., 2nd sess. Annual Report, 1898, p. 886.
June 13, 1902	For 35-foot channel from sea to Boston Naval Shipyard. Chelsea and Charles River Bridges.	H. Doc. 119, 56th Cong., 2nd sess. Annual Report, 1901, p. 1096
	Elimination from project of removal of Finns Ledge at outer entrance.	Authorized by Chief of Engineers. March 11, 1913.
July 25, 1912	Dredge Chelsea River channel 25 ft.	H. Doc. 272, 62nd Cong., 2nd sess.[2]
August 8, 1917	Depth of 40 feet (45 feet in rock) in Broad Sound Channel.	H. Doc. 931, 63rd Cong., 2nd sess.[2]
August 30, 1935 [3]	Present project dimensions of channel from President Roads to Commonwealth pier No. 1, East Boston and anchorage area north side of President Roads.	H. Doc. 244, 72nd Cong., 1st sess.[2]
Do.	Present project dimensions of that part of approach channel to U.S. Navy dry-dock No.3 at South Boston between Main Ship Channel and U.S. harbor line.	Rivers and Harbors Committee Doc. 29, 74th Cong., 1st sess. [2]
August 26, 1937	Chelsea River, channel 30 feet deep.	Rivers and Harbors Committee Doc. 24, 75th Cong., 1st sess. [2]
October 17, 1940	Reserved channel 30 feet deep.	H. Doc. 225, 76th Cong., 1st sess. [2]
September 7, 1940	Abandons seaplane channel authorized in 1940 River and Harbor Act (H.Doc.262,76th Cong., 1st sess.)	Public Law 420,78th Cong.
March 2, 1945	Extension of 40-foot channel.	H. Doc. 733, 79th Cong., 2nd sess.
July 24, 1946	Extension of President Roads anchorage.	H. Doc. 244, 80th Cong., 1st sess. [2]
July 3, 1958	Reserved channel 35 feet deep, 430 feet wide, extending one	H. Doc. 349, 84th Cong., 2nd sess.[2]
October 23, 1962	Chelsea River Channel and Maneuvering Basin 35 feet deep.	H. Doc. 350, 87th Cong., 2nd sess. [2]
January 1, 1990	Deauthorizes 1945 Act.	Federal Register Volume 55, No. 194, October 5, 1990.
November 28, 1990	Deepen Mystic River and Reserved Channels to 40 feet; Chelsea River Channel to 38 feet; widen and deepen Inner Confluence Area to 40 feet; mark Presidents Roads Channel and expand Presidents Roads Anchorage from 353 to 420 acres.	Section 101, Public Law 101-640.

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
October 31, 1992	Deauthorizes portion of the 35-foot channel in Boston Inner Harbor lying easterly of the Charlestown waterfront authorized in 1902 River and Harbor Act.	Section 116(2), P.L. 102-580
October 12, 1996	Deauthorizes portion of the 35-foot Chelsea River Channel authorized in the 1962 Act.	Section 364(12), P.L. 104-303
October 12, 1996	Deauthorizes portion of the 40-foot Reserved Channel authorized in the 1990 Act.	Section 364(16), P.L. 104-303
	BRIDGEPORT HARBOR, CT (See Section 4 of Text.)	
July 4, 1836	Fayerweather Island seawall.	
March 3, 1899	Shore protection of Fayerweather Island.	Annual Report, 1899, page 1173
March 2, 1907	West breakwater and present project dimensions of east breakwater.	H. Docs. 275 and 521, 59th Cong., 2nd sess.
March 2, 1919	Present project depths of 18-and 12-foot anchorage basins.	H. Doc. 898, 63rd Cong., 2nd sess.
July 3, 1930	25-foot entrance channel, 25-foot anchorage and an 18-foot channel through Johnsons River, present project dimensions of channels through Poquonock River, Yellow Mill Pond, Black Rock Harbor and Cedar Creek.	H. Doc. 281,71st Cong., 2nd sess.
August 26, 1937	25-foot channel through main harbor, and present Project location and extent of 18- and 12-foot anchorage basins.	H. Doc. 232, 75th Cong., 1st sess.
March 2, 1945	30-foot channel; elimination of 12-foot anchorage.	H. Doc. 819, 76th Cong., 3rd sess.
July 24, 1946	30-foot turning basin and 15- and 9-foot channels in Johnsons River	H. Doc. 680, 79th Cong., 2nd sess. [4]
July 3, 1958	Present depth and extend of main channel, and turning Basin south and southeast of Cilco Terminal; Black Rock Harbor breakwater; Burr and Cedar Creek anchorage. Upper Johnsons River anchorage; lower Johnsons River anchorage.	H. Doc. 136, 85th Cong.
November 2, 1979	Deauthorizes the removal of rock in Yellow Mill Pond authorized in the 1930 Act.	H. Doc. 157, 96th Cong., 1st sess.
November 17, 1986	Deauthorizes construction of two rubble-mound breakwaters at the entrance to Black Rock Harbor and dredging a 28-acre anchorage 6 feet deep in Burr and Cedar Creeks at the head of Black Rock Harbor authorized In the 1958 Act.	Sec, 1002, P. L. 99-662
October 12, 1996	Deauthorizes two-acre anchorage area at the head of the Johnsons River authorized in the 1958 Act, and portion of the Johnsons River navigation channel authorized in the 1946 Act.	Section 364 (2) (A) & (B), P.L. 104-303
August 17, 1999	Deauthorizes a 2.4-acre anchorage area, 9 feet deep , and an adjacent 0.6-acre anchorage area, 6 feet deep, located on the west side of the Johnsons River authorized in the 1958 Act.	Section 365 (a) (1), P.L. 106-53
	CAPE COD CANAL, MA (See Section 6 of Text.)	
January 21, 1927 (Section 2)	Purchase canal from Boston, Cape Cod & New York Canal Co., in accordance with contract dated July 29, 1921, executed by that company.	H. Doc. 139, 67th Cong., 2nd sess.
Included in Public Works Administration program, September 6, 1933	Construct three bridges and widen canal to 250 feet.	H. Doc. 795, 71st. Cong., 3rd sess.

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
June 26, 1934 (Permanent Appropriations Repeal Act)	Operation and care of works of improvement provided for the funds from War Department appropriations for rivers and harbors.	Do.
Included in Public Works Administration program, April 29, 1935	Construct a mooring basin.	Do.
Included in Emergency Relief Program, May 28, 1935.	Dredging and bank protection.	Do.
August 30, 1935	Existing project for main canal adopted.	Rivers and Harbor Committee Doc. 15, 74th Cong., 1st sess.
March 2, 1945	Channel and turning basin 15-feet deep in Onset Bay.	H. Doc. 431, 77th Cong., 1st sess.
July 3, 1958	Extend East Boat Basin for an area of about 4.3 acres to a depth of eight feet.	H. Doc. 168, 85th Cong., 1st sess.
August 17, 1999	Authorizes Secretary to pay up to $300,000 for alternate transportation during rehabilitation of the Railroad Bridge.	Section 536, P.L. 106-53.
	COCHECO RIVER, NH (See Section 7 of Text.)	
September 19, 1890	Provides for a 3 mile long tidewater channel 7 feet deep and 60 to 70 feet wide.	H. Doc. 74, 51st Cong. 1st sess.
October 12, 1996	Deauthorizes portion of 1890 Act and directs maintenance dredging of the remaining project.	Section 365(18), P.L. 104-303
	GREEN HARBOR, MA (See Section 8 of Text.)	
July 14, 1960 as amended	Channel six feet deep, 100 feet wide from deep water to head of navigation; anchorage near town pier; sealing, rebuilding in part and extension of existing west jetty.	Section 107, P.L. 86-645 Authorized by the Chief of Engineers December 15, 1965.
August 17, 1999	Deauthorizes portion of the 6-foot channel and turning basin, and redesignates portion of 6-foot channel as an anchorage area.	Section 365 (a)(11) & (d), P.L. 106-53.
	HARBOR OF REFUGE, BLOCK ISLAND, RI (See Section 9 of Text.)	
July 11, 1870	Main breakwater.	Annual report 1868, p. 785 and S. Misc. Doc. 81, 40th Cong., 2nd sess.
August 2, 1882	Repairs to basin walls and cliff protection east of harbor.	S. Ex. Doc.26, 47th Cong., 1st sess.
August 5, 1886	Breakwater enclosing inner harbor.	S. Doc. 27, 48th Cong., 2nd sess. and Annual Report 1885, p. 610
June 3, 1896	Raising crest of main breakwater and making it sandtight.	H. Doc. 83, 54th Cong., 1st sess.
July 25, 1912	Rebuilding basin walls and present project dimensions of dredged area.	H. Doc. 828, 60th Cong., 1st sess.
November 17, 1986	Deauthorizes two 15-foot anchorages in the outer harbor authorized by the River and Harbor Act of 1912. Inner Harbor.	Section 1002, P.L. 99-662.
	NARRAGUAGUS RIVER, ME (See Section 13 of Text.)	
October 23, 1962	Channel 11 feet deep and 150 feet wide from deep water to Wyman, thence 9 feet deep and 100 feet wide to Milbridge with widening opposite Milbridge for an anchorage, and thence 6 feet deep and 100 feet wide to proposed town landing with widening near landing for an anchorage.	H. Doc. 530, 87th Cong., 2nd sess.

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	NEWBURYPORT HARBOR, MA (See Section 14 of Text.)	
June 14, 1880	Construction of rubble stone jetties.	
June 25, 1910	Dredging the bar at the entrance to harbor.	Annual Report for 1910, p. 59.
March 2, 1945	Dredging channel from deep water to wharves and a widened turning basin.	H. Doc. 703, 76th Cong., 3rd sess.
November 17, 1986	Deauthorizes uncompleted portions of the 1945 Act.	Section 1002, P. L. 99-662.
October 31, 1992	Deauthorizes small portion of 1910 Act.	Section 116(3), P.L. 102-580
	PENOBSCOT RIVER, ME (See Section 17 of Text.)	
July 5, 1884	Widening channel at Bangor and Crosby's Narrows.	S. Ex. Doc. 44, 48th Cong., 1st sess. Annual Rpt. 1884, p. 475
August 11, 1888	Dredging between Winterport and Bucksport.	H. Ex. Doc. 133, 50nd Cong., 1st sess. Annual Rpt. 1888, p. 425
July 31, 1892	Widening the channel at Bangor.	H. Ex. Doc. 37, 52nd Cong., 1st sess. Annual Rpt. 1892, p. 553
March 2, 1907	Further widening of the harbor at Bangor.	H. Doc. 739, 59th Cong., 1st sess. (other maps are in H. Doc. 652, 71st Cong., 3rd sess.)
	PLYMOUTH HARBOR, MA (See Section 18 of Text.)	
March 3, 1899	Beach Protection.	Annual Report for 1899, p. 1089.
March 4, 1913	Dredging 18-foot channel.	H. Doc. 1194, 62nd Cong., 3rd sess
September 22, 1922	Dredging 15-foot extension, including turning basin.	H. Doc. 996, 66th Cong., 3rd sess.
October 23, 1962	Rubblestone breakwater. Anchorages are eight feet deep inside breakwater. Elimination of authorized 18-foot anchorage from existing project.	H. Doc. 124, 87th Cong., 2nd sess.
July 9, 1965	Recreational development.	
	PROVIDENCE RIVER AND HARBOR, RI (See Section 21 of Text.)	
August 26, 1937	Channel 35 feet deep from deep water in Narragansett Bay to Fox Point.	H. Doc. 173, 75th Cong., 1st sess.
October 18, 1965	Deepen 35-foot channel to 40 feet, and provide a 30-foot channel from the upper end of the existing project to India Point at the mouth of the Seekonk River. (The India Point channel was deauthorized in November 1986.)	S. Doc. 93, 88th Cong., 2nd sess.
	ROCKLAND HARBOR, ME (See Section 22 of Text.)	
June 14, 1880	Breakwater	
June 29, 1956	Approach channel 18 feet deep and branch channels.	S. Doc. 82, 82nd Cong., 1st sess.
November 17, 1986	Deauthorizes uncompleted portions of the 1956 Act.	Section 1002, P. L. 99-662.
	SALEM HARBOR, MA (See Section 23 of Text.)	
March 3, 1873	Channel 8 feet deep and 300 feet wide at entrance to South River, and construction of a seawall and breakwater for the protection of Long Point.	S. Ex. Doc. 25, 42nd Cong., 3rd sess.
September 19, 1890	Extends channel 6 to 8 feet deep and 50 to 150 feet wide up South River.	H. Ex. Doc. 28, 51st Cong., 1st sess.
March 3, 1905	Channel 10 feet deep and 200 to 300 feet wide at entrance to South River.	H. Doc. 303, 58th Cong., 2nd sess.
July 3, 1930	Main Ship Channel 25 feet deep and 300 feet wide, and removal of shoal near Abbot Rock Beacon.	H. Doc. 112, 70th Cong., 1st sess.
March 2, 1945	Main Ship Channel 30 feet deep.	H. Doc. 701, 76th Cong., 3rd sess.
July 3, 1958	Main Ship Channel 32 feet deep and 300 to 400 feet wide and South River Channel 8 to 10 feet deep and 50 to 300 feet wide.	H. Doc. 31, 85th Cong., 1st sess.
November 17, 1986	Deauthorizes uncompleted protions of the 1945 Act consisting of extending the 10-foot channel in the South River.	Section 1002, P. L. 99-662.
July 9, 1995	Deauthorizes uncompleted portions of the 1905 Act.	Federal Register Vol. 61, No. 244

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	SAUGUS RIVER, MA (See Section 24 of Text.)	
July 14, 1960	Entrance Channel 8 feet deep and 80 to 150 feet wide, and two anchorage areas 6 feet deep and totaling 4.3 acres	P. L. 86-645, Section 107. Authorized by the Chief of Engineers on May 15, 2000
	SEEKONK RIVER, PROVIDENCE, RI (See Section 26 of Text.)	
November 17, 1986	Removal of abandoned India Point Railroad Bridge.	Section 1166(c), P.L. 99-662.
December 18, 1991	Extends project authorization.	Section 1085, P.L. 102-240 of the Intermodal Surface Transportation Infrastructure Act of 1991.
October 12, 1996	Increases total project cost.	Section 301 (a) (13), P.L. 104-303
	SESUIT HARBOR, MA (See Section 27 of Text.)	
July 14, 1960 as amended	Channel 6 feet deep and 100 feet wide.	Section 107, P.L. 86-645 Authorized by the Chief of Engineers February 6, 1980.
	UNION RIVER, ME (See Section 28 of Text.)	
	Provides for the removal of ledge, boulders and mill waste to create a channel 3 to 4 feet deep from the mouth of the Union River to the wharves at Ellsworth; along with installing navigation beacons.	Report of District Engineer dated June 30, 1867.
June 3, 1896	Channel 6 feet deep, 100 to 1500 feet wide from the head of Union River Bay to the wharves at Ellsworth, and construction of a jetty and training wall at the mouth of Union River near Norton's Rocks. (Funds for construction of the jetty and the training wall were never appropriated and this work was subsequently omitted from the project.)	H. Doc. 138, 51st Cong., 1st sess.
	POINT BEACH, MILFORD, CT (See Section 30 of Text.)	
October 23, 1962	Project involves raising the first floor of 58 shorefront and back shore residential structures above the estimated 100 year flood elevation.	Section 103, P.L. 87-874. Authorized by the Chief of Engineers November 6, 1995.
	FAULKNER ISLAND, CT (See Section 36 of Text.)	
October 12, 1996	Construct 2,000 linear feet of stone revetment running along the entire east side of the Island and wrapping around the north and south ends.	Section 527, P.L. 104-303
	FOX POINT BARRIER, RI (See Section 37 of Text.)	
July 3, 1958	Construction of concrete hurricane barrier across Providence River at Fox Point in the City of Providence.	H. Doc. 230, 85th Cong., 1st Sess.
August 17, 1999	Directs Secretary to undertake repairs of the barrier as identified in Condition Survey and Technical Assessment dated April 1998, with Supplemental dated August 1998.	Section 352, P.L. 106-53
	HOOSIC RIVER, SYNDICATE ROAD, WILLIAMSTOWN, MA (See Section 38C of Text.)	
July 24, 1946, as amended	Construct 300 linear feet of stone slope protection along the western bank of the Hoosic River adjacent to Syndicate Road.	Section 14, P.L. 79-526. Authorized by the Chief of Engineers July 10, 2001
	NORTH NASHUA RIVER, LANCASTER, MA (See Section 39E of Text.)	
July 24, 1946, as amended	Construct 500 linear feet of stone slope protection along the streambank of the North Nashua River adjacent to Massachusetts Highway Route 70.	Section 14, P.L. 79-526. Authorized by the Chief of Engineers May 21, 1999

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PLEASANT POINT, PERRY, ME (See Section 41 of Text.)	
July 24, 1946, as amended	Construct 800 linear feet of stone slope protection along the shoreline of Pleasant Point.	Section 14, P.L. 79-526. Authorized by the Chief of Engineers July 31, 1986
	QUONSET POINT, DAVISVILLE, RI (See Section 42 of Text.)	
October 31, 1992	Construction of two elevated water storage towers and extension, rehabilitation and relocation of 6,000 feet of sewer line.	Section 362, P.L. 102-580.
	ROUGHANS POINT, REVERE, MA (See Section 43 of Text.)	
November 17, 1986	Stabilize existing facilities along the shore with a 4,080-foot long armor stone revetment. Construct earth berm one-foot high and 200 feet long on existing median strip between Bennington Street and State Road.	Section 401, P.L. 99-662.
	SAINT JOHN RIVER BASIN, ME (See Section 44 of Text.)	
November 17, 1986	Ten-year research and demonstration program of cropland irrigation and soil conservation techniques for increasing potato yield and quality.	Section 1108, P.L. 99-662.
	TOWN BROOK, QUINCY AND BRAINTREE, MA (See Section 47 of Text.)	
November 17, 1986	Construct 12-foot diameter, 4,060-foot long, concrete lined tunnel in bedrock approximately 140 to 180 feet below ground; channel improvements downstream of the tunnel outlet; and reconstruction of Old Quincy Reservoir Dam located at the headwaters of Town Brook.	H. Doc. 39, 99th Cong., 1st sess.
	VERMONT DAMS REMEDIATION, VT (See Section 48 of Text.)	
December 11, 2000	Evaluate the structural integrity of ten priority dams in Vermont and carry out measures to modify, repair, restore or remove if the dam poses an imminent and substantial risk to public safety.	Section 543, P.L. 106-541
	LEBANON, NH (See Section 53 of Text.)	
August 17, 1999	Amends Section 219 of the Water Resources Development Act of 1992 to include a combined sewer overflow project in Lebanon, New Hampshire.	Section 502, P.L. 106-53.
November 12, 2001	Non-Federal interests shall receive credit toward the non-Federal share of the cost of the project for work performed before the date of execution of the project cooperation agreement, if the Secretary determines the work is integral to the project.	Title I, P.L. 107-66
	LONSDALE DRIVE-IN, LINCOLN, RI (See Section 54 of Text.)	
October 12, 1996	Restoration of 7 acres of open water and 7 acres of upland habitat by demolishing and excavating former drive-in.	Section 206, P. L. 104-303, Authorized by the Chief of Engineers May 3, 2002.
	NINIGRET & CROSS MILLS PONDS, CHARLESTOWN, RI (See Section 55 of Text.)	
October 12, 1996	Dredging 40 acres of tidal shoal area and planting eelgrass, dredging 3.5-acre sediment basin and construction of fish passage facilities at Ninigret Pond and Cross Mills Pond dams.	Section 206, P. L. 104-303, Authorized by the Chief of Engineers September 4, 2002.

TABLE 1-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PRESUMPSCOT RIVER (SMELT HILL), FALMOUTH, ME (See Section 56 of Text.)	
October 12, 1996	Removal of Smelt Hill Dam.	Section 206, P. L. 104-303, Authorized by the Chief of Engineers May 6, 2002.
	SAGAMORE MARSH, CAPE COD CANAL, MA (See Section 57 of Text.)	
November 17, 1986	Restoration of 50 acres of salt marsh by installing larger culverts beneath Scussett Beach and Cape Cod Canal Service Roads and excavating channels.	Section 1135, P.L. 99-662. Authorized by the Chief of Engineers September 5, 1996.

[1] A portion has been abandoned pursuant to P.L. 624, December 31, 1970.
[2] Contains latest published maps. See also Annual Report, 1911, p. 1178 (seawalls and Nixes Mate Channel) and Annual Report, 1903, p. 770 (Fort Point Channel.)
[3] Authorized in part by Public Works Administration, Sept. 6, 1933.
[4] Contains latest maps.

TABLE 1-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Operation and Maintenance	Contributed Funds Expended (Construction)
Andrews River, MA	2002	219,042	996,723	187,500
Apponaug Cove, RI	1964	156,874	57,769	104,583 [7]
Bagaduce River, ME [3,4]	1912	28,000	39	-
Bar Harbor, ME	1932	406,591	2,187	-
Bass Harbor, ME [6]	1965	188,859	49,672	-
Bass Harbor Bar, ME	1920	4,076	20,382	-
Beals Harbor, ME	1959	184,880	163,177	-
Bellamy River, NH [3,4]	1897	34,643	-	-
Beverly Harbor, MA	1951	246,048	52,827	100,000
Black Rock Harbor, CT	1988	-	1,754,293	-
Branford Harbor, CT	1990	9,537	1,975,607	-
Bucks Harbor, Machiasport, ME [6]	1976	277,420	45,692	-
Bucksport Harbor, ME	1907	18,421	22,233	-
Bullocks Point Cover, RI	1996	170,902	503,730	123,757
Bunker Harbor, ME [6]	1969	95,372	33,206	-
Buttermilk Bay Channel, MA [6]	1985	163,855	235,138	69,323
Canapitsit Channel, MA [4]	1899	9,113	12,279	-
Cape Porpoise Harbor, ME	1977	175,037	361,664	20,000
Carvers Harbor, Vinalhaven, ME	1964	190,438	39,427	-
Cathance River, ME [3]	1884	21,000	-	-
Chatham (Stage) Harbor, MA	2000	266,705	4,564,863	43,500
Clinton Harbor, CT	2000	104,957	1,465,584	-
Coasters Island Harbor, RI [4]	1911	5,500	13,161	-
Cobscook Bay, ME [3,4]	1866	4,173	-	-
Cohassett Harbor, MA	2000	267,737	1,853,042 [31]	43,500
Connecticut River below Harford, CT	2002	1,550,185 [33]	19,031,072	130,410
Corea Harbor, Gouldsboro, ME [6]	1984	797,954	113,569	-
Criehaven Harbor, ME	1997	40,776	517,617	-
Cross Rip Shoals Nantucket Sound, MA	1954	24,200	54,328	-
Cuttyhunk Harbor, MA	2000	27,168	1,749,115 [32]	11,643
Damariscotta River, ME [4]	1906	5,000	905	-
Deer Island Thoroughfare, ME [4]	1916	40,000	5,792	-
Dorchester Bay and Neponset River, MA	1968	94,584	407,424	-
Duck Island Harbor, CT	1953	482,166	412,764	-
Duxbury Harbor, MA	1997	421,297	2,430,740 [27]	35,000 [26]
Edgartown Harbor, MA	1978	65,614	62,980	10,000
Essex River, MA	1948	21,759	167,281 [8]	-
Exeter River, NH [4]	1913	62,454	56,232	-
Fall River Harbor, MA	1984	6,164,757 [9]	2,181,267	-
Falmouth Harbor, MA	1978	123,763	346,249	35,000
Fivemile River Harbor, CT	2000	35,490	1,236,321	-
Frenchboro Harbor, ME	1978	657,345	25,216	-
Georges River, ME	1978	25,788	323,814	-
Gloucester Harbor and Annisquam River, MA	2000	1,296,934	1,900,748	25,000
Great Salt Pond, Block Island, RI	2002	189,037	855,321	-
Greenwich Bay, RI	1893	2,000	3,719	-
Greenwich Harbor, CT	1969	198,758	236,072	100,000
Guilford Harbor, CT	1995	137,222	2,061,867	25,500
Hampton Harbor, NH	1996	200,000	2,297,807	193,761
Harraseeket River, ME [4]	1896	30,963	37,069	-
Hay (West Harbor), Fisher's Island, NY	1931	8,401	75,462	-
Hendrick's Harbor, ME	1957	28,204	23,025	-

TABLE 1-C (Continued) OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003		
		Construction	Operation and Maintenance	Contributed Funds Expended (Construction)
Hingham Harbor, MA	1954	28,316	177,020	-
Housatonic River, CT	1983	859,691	2,643,928	222,010
Hyannis Harbor, MA	2001	4,113,358 [24]	2,359,063 [30]	772,918
Ipswich River, MA	1969	5,618	77,034	-
Island End River, Chelsea, MA [6]	1983	311,850	11,518	192,336 [10]
Isle Au Haut Thoroughfare, ME	1980	137,653	196,686	-
Isle of Shoals Harbor, ME and NH	1977	80,691	651,644	-
Jonesport Harbor, ME	1992	7,489,073	47,428	832,119
Josias River, ME [5]	1995	621,186	444,702	79,668 [22]
Kingston Harbor (North Plymouth), MA	1895	8,940	-	-
Lagoon Pond, Martha's Vineyard, MA [6]	1976	99,098	37,386	80,990
Lamprey River, NH [4]	1913	19,980	76,723	-
Little Harbor, Woods Hole, MA [4]	1906	18,000	19,673	-
Lubec Channel, ME	1956	380,322	70,389	-
Lynn Harbor, MA	2002	755,576	799,834	-
Machias River, ME	1972	32,000	283,067	-
Malden River, MA [19]	1922	104,853	45,097	62,000
Matinicus Harbor, ME	1962	14,000 [11]	8,989	-
Medomak River, ME	1953	17,000	92,359	-
Menemsha Creek, MA	1981	56,926	750,759	12,500
Merrimack River, MA	1940	369,891	829,900	-
Mianus River, CT	1985	132,435	776,912	46,500
Milford Harbor, CT [5]	1989	90,506	1,466,702	11,380 [12]
Moosabec Bar, ME	1930	11,400	25,327	-
Mystic River, CT	1957	197,582	311,085	14,000
Mystic River, MA	1986	3,222,777	2,031,078	-
Nantucket (Harbor of Refuge), MA	1989	502,661 [13]	759,000	-
Narragansett Town Beach, RI [2, 21]	-	27,398	-	-
New Bedford and Fairhaven Harbor, MA	2001	1,857,618	795,148	20,385
New Harbor, ME [5]	1966	118,620	101,291	7,015 [14]
New Haven Breakwater, CT	1950	1,242,246	40,273	-
New London Harbor, CT	1986	638,774	2,066,900	-
Newport Harbor, RI	1953	733,524	179,078	-
Niantic Bay and Harbor, CT [6]	1972	66,464	154,703	65,139
Northeast Harbor, ME	1954	138,942	67,047	-
Owl's Head Harbor, ME [3,5]	1968	124,158	55,324	4,383
Patchogue River, CT	1998	355,445	1,392,389	-
Pawcatuck River, Little Narragansett Bay and Watch Hill Cove, RI and CT	1997	318,787	1,661,760	20,000
Pawtuxet Cove, RI	1975	295,356	351,946	295,356
Pepperell Cove, ME	1969	171,351	53,156	-
Pig Island Gut, ME [6]	1966	191,753	97,056	-
Pleasant River, ME	1892	3,500	217	-
Pollock Rip Shoals, Nantucket Sound, MA	1956	1,083,504	846,590	-
Portsmouth Harbor and Piscataqua River, NH & ME	2001	18,360,800	3,240,960	4,437,665
Potowomut River, RI	1882	5,000	50	-
Provincetown Harbor, MA [5]	1997	3,889,577	1,053,966	797,847
Richmond Harbor, ME [4]	1883	20,000	-	-
Richmond's Island Harbor, ME [4]	1882	119,844	1,808	-
Rockport Harbor, MA	1996	1,808,745	337,578	51,430
Rockport Harbor, ME [3]	1989	32,000	277,266	-
Royal River, ME [5]	1997	336,704	1,777,1555 [28]	49,562 [29]
Rye Harbor, NH	1991	130,342	755,518	61,338 [16]

TABLE 1-C (Continued) OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Operation and Maintenance	Contributed Funds Expended (Construction)
Saco River, ME [5]	1995	1,064,983	2,960,655	74,996
St. Croix River, ME	1950	179,550	64,685	19,892
Sakonnet Harbor, RI	2001	764,651	463,204	21,928
Sakonnet River, RI	1909	38,427	18,478	-
Sandy Bay (Harbor of Refuge), Cape Ann, MA [17]	1922	1,925,553	16,060	-
Sasanoa River, ME [3,4]	1915	35,000	124	-
Scarboro River, ME	1997	392,635	2,949,188	10,000
Searsport Harbor, ME	1966	572,568 [15]	87,270	-
Seekonk River, RI	1954	672,214	955,073	67,792
South Bristol Harbor, ME	1971	89,593	81,723	2,567
Southport Harbor, CT	1962	59,213 [18]	510,035	18,285
Southwest Harbor, ME	1962	180,042	90,085	7,501
Stamford Harbor, CT	1980	892,824	1,888,847	169,636
Stockton Harbor, ME [3,4]	1915	33,000	34,376	-
Stonington Harbor, CT	1959	377,328	157,273	-
Stonington Harbor, ME [6]	1985	898,500	38,758	-
Stony Creek, Branford, CT [6]	1995	112,487	837,897	85,176
Sullivan Falls Harbor, ME	1914	19,871	-	-
Taunton River, MA	1948	442,895	115,017	-
Tenants Harbor, ME	1920	18,750	20,854	-
Thames River, CT	1967	1,471,919	1,732,940	-
Vineyard Haven, MA	1943	27,186	28,006	-
Wareham Harbor, MA	1896	95,997	42,891	-
Warren River, RI	1890	5,000	1,300	-
Warwick Cove, RI [6]	1975	155,430	176,149	133,985 [20]
Wellfleet Harbor, MA	1995	157,634	1,951,813	32,000
Wells Harbor, ME	2002	360,973	4,341,132 [34]	212,000 [25]
Westcott Cove, CT	1978	55,960	362,248	21,000
Westport Harbor and Saugatuck River, CT	1972	19,308	281,644	-
Westport River, MA	1942	3,000	6,800	-
Weymouth Back River, MA	1944	48,740	27,353	20,000
Weymouth-Fore & Town River, MA [5]	1979 and 1983	30,194,613	1,890,621	630,133
Wickford Harbor, RI [5]	1973	233,410	218,250	49,094 [23]
Wilson Point Harbor, CT [4]	1895	54,177	-	-
Winnipesaukee Lake, NH	1952	7,500	29,870	-
Winter Harbor, ME [6]	1976	162,937	45,438	-
Winthrop Harbor, MA	1895	8,992	39,315	-
Wood Island Harbor and the Pool at Biddeford, ME [5]	1995	733,272	667,095	43,660
Woods Hole Channel, MA	1940	230,000	55,614	-
York Harbor, ME	1997	239,654	1,116,848	32,161

TABLE 1-C (Continued) OTHER AUTHORIZED NAVIGATION PROJECTS

Projects are complete unless otherwise noted.

[1] Complete except for inactive portion.
[2] Inactive.
[3] Abandonment recommended in H. Doc. 467, 69th Congress, 1st session.
[4] No commerce reported.
[5] Portion or project authorized by Chief of Engineers (Public Law 86-645, Sec. 107).
[6] Authorized by the Chief of Engineers (Public Law 86-645, Sec. 107).
[7] Construction of a public landing by local interests has not been completed.
[8] Excludes $5,000 Contributed Funds.
[9] Excludes $37,200 Contributed Funds, Other.
[10] Excludes $582,188 Contributed Funds, Other.
[11] Excludes $114,327 expended for rehabilitation; breakwater repaired in 1962.
[12] Excludes $173,425 Contributed Funds, Other.
[13] Excludes $211,649 expended for minor rehabilitation; jetty repaired in 1963.
[14] Public landing at Black Cove has not been constructed.
[15] Costs to local interests for berth improvements are estimated to be $60,000.
[16] Excludes $81,548 Contributed Funds, Other.
[17] Abandonment recommended in H. Doc. 411, 64th Congress, 1st session, and in River and Harbor Committee Doc. 3, 65th Congress, 1st session.
[18] Excludes $37,714 Emergency Relief Funds.
[19] Under State maintenance.
[20] Excludes $10,000 Contributed Funds, Other.
[21] Lack of local sponsor. (Project authorized by Section 361 of WRDA 1992.)
[22] Excludes $17,495 non-project cost for removal of mooring chains, of which the project sponsor still owes $12,198.
[23] Excludes $10,000 Contributed Funds.
[24] Excludes $129,757 expended for minor rehabilitation work.
[25] Excludes $5,000 Contributed Funds Other.
[26] Excludes $65,000 consisting of $13,000 for public wharf and $52,000 for additional construction.
[27] Excludes $571,401Contributed Funds.
[28] Excludes $20,000 Contributed Funds, Other.
[29] Excludes $18,000 Contributed Funds, Other.
[30] Excludes $476,782 Contributed Funds, Other.
[31] Excludes $83,476 Contributed Funds, Other.
[32] Excludes $50,000 Contributed Funds.
[33] Excludes $60,000 expended for major rehabilitation.
[34] Excludes $417,757 Contributed Funds, Other.

TABLE 1-D OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

Project	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Amount Expended by Local Interest
Burial Hill Beach, Westport, CT	1958	5,810	11,612
Calf Pasture Beach Park, Norwalk, CT	1964	56,386	120,179
Clark Point Beach, New Bedford, MA [5]	1982	228,081	228,080
Cliff Walk, Newport, RI [1]	1995	1,155,491	955,237
Compo Beach, Westport, CT	1962	84,544	169,089
Cove Island, Stamford, CT	1961	47,131	94,262
Cummings Park, Stamford, CT	1963	26,886	53,771
Guilford Point Beach (Jacobs Beach), Guilford, CT	1961	15,620	31,241
Gulf Beach, Milford, CT	1958	21,303	42,606
Hammonasset Beach, Madison, CT	1956	163,183	326,366
Hampton Beach, Hampton, NH	1966	260,868	385,641
Jennings Beach, Fairfield, CT	1956	14,401	28,802
Lighthouse Point Park (Area 9), CT	1961	3,930	7,859
Middle Beach, CT	1958	8,810	17,620
Misquamicut Beach, Westerly, RI [2]	1963	14,512	29,024
North Scituate Beach, Scituate, MA	1969	106,552	106,552
Oak Bluffs Town Beach, Martha's Vineyard, MA [5]	1976	273,334	198,583
Oakland Beach, Warwick, RI	1982	559,200	181,175
Plum Island, MA [5]	1977	118,882	104,875
Prospect Beach, West Haven, CT [4]	1995	1,870,407	1,089,351
Quincy Shore Beach, Quincy, MA	1962	621,464	1,242,880
Revere Beach, MA	1994	3,889,016	2,197,312
Roosevelt Campobello International Park, Lubec, ME	1993	233,260	-
Sand Hill Cove Beach, RI	1959	40,143	82,000
Sandy Point Outfall, West Haven, CT [5]	1996	889,634	457,495
Sasco Hill Beach, Fairfield, CT	1961	23,759	47,518
Sea Bluff Beach, West Haven, CT [5]	1995	677,170	237,628
Seaside Park, CT	1958	150,000	329,921
Sherwood Island State Park, Westport, CT [4]	1983	1,186,830	889,330
Short Beach, CT [3]	1956	-	-
Silver Beach to Cedar Beach, CT	1964	62,560	270,695
Southeast Lighthouse, Block Island, RI	1995	1,648,249	970,000
Southport Beach, CT	1960	17,631	35,263
Town Beach, Plymouth, MA	1964	5,490	10,981
Wallis Sands State Beach, Rye, NH	1966	65,131	435,942
Wessagusset Beach, Weymouth, MA	1971	180,944	200,208
Winthrop Beach, MA	1960	176,567	353,134
Woodmont Beach, Milford, CT [4]	2001	2,043,765	1,089,515 [6]

Projects are completed unless otherwise noted.

[1] Complete except inactive portion.

[2] Additional Federal participation will be required based on Public Law 87-874, Sec. 103.

[3] Project completed at no cost to Federal Government by using fill from Federal navigation improvement at Housatonic River. (See page 88 of the 1956 Annual Report.)

[4] Portion authorized by Chief of Engineers (Public Law 87-874, Sec. 103.)

[5] Authorized by Chief of Engineers (Public Law 87-874, Sec. 103.)

[6] Excludes $118,215 expended for work beyond scope of project.

TABLE 1-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Contributed Funds
Alford, Green River, MA [3]	1977	41,419	-
Allendale Dam, North Providence, RI [26]	2001	109,500	-
Alley Bay, Beals, ME [3]	1979	190,500	-
Amesbury, Powwow River, MA [3]	1978	132,113	-
Ansonia - Derby, CT	1977	18,266,040	- [8]
Aroostook River, Fort Fairfield, ME	2002	4,849,991	941,580
Bagaduce River, ME [3]	1985	129,500	-
Beaver Brook, Keene, NH [2]	1989	2,591,000	-
Blackstone River, Millbury, MA [3]	1986	249,999	4,576
Bluffs Community Center, Swansea, MA [3]	1995	189,131	54,447
Bound Brook, Scituate, MA [4]	1974	47,300	-
Canton, MA [2]	1964	156,568	92,981
Charles River Dam, MA	1981	41,170,921	5,554,088 [9]
Charlestown, NH [3]	1976	113,330	-
Cherryfield, ME [2]	1963	191,095	-
Chicopee, MA	1954	1,433,600	385
Chicopee Falls, MA	1978	2,183,912	411,292 [10]
Clear River, Burrillville, RI [3]	1987	168,000	-
Cocheco River, Farmington, NH [2]	1963	183,100	-
Connecticut River, Middletown, CT [3]	1996	262,046	69,121 [23]
Connecticut River, North Stratford, NH [3]	1982	180,000	-
Connecticut River, W. Stewartstown, NH [3]	1976	54,703	-
Covered Bridge, Sheffield, MA [3]	1988	250,000	180,000
Danbury, CT	1978	13,143,000	- [11]
Derby, CT	1977	7,582,642	- [12]
East Branch Dam, CT	1973	1,959,836	-
East Hartford, CT	1951	2,135,447	7,637
Farmington River, Simsbury, CT [3]	1996	500,000	257,720 [22]
Fitchburg, MA (See No. Nashua River)	-	-	-
Folly Brook, Wethersfield, CT [2]	1979	220,284	-
Fort Kent, ME [2]	1979	1,997,820	-
Gardner, MA [2]	1970	495,691	15,000
Gulf Street, Milford, CT [3]	1991	365,000	21,000
Hall Meadow Brook Dam, CT	1970	2,572,357	-
Hartford, CT	1960	6,929,100	2,781,100
Hartford, White River, VT [2]	1973	332,236	-
Haverhill, MA	1940	1,743,485	120,000
Hayward Creek, Braintree-Quincy, MA [2]	1979	2,325,470	-
Holmes Bay, Whiting, ME [3]	1980	207,390	-
Holyoke, MA	1953	3,418,000	24,447
Housatonic River, Pittsfield, MA [2]	1985	739,003	-
Housatonic River, Salisbury, CT [3]	1982	102,800	-
Housatonic River, Sheffield, MA [3]	1981	202,608	-
Huntington, MA [3]	1960	3,900	-
Island Avenue, Quincy, MA [3]	1983	172,000	-
Islesboro (The Narrows), ME [3]	1985	165,500	-
Johnson Bay, Lubec, ME [3]	1985	163,082	-
Keene, NH [4]	1955	44,100	-
Lancaster, Israel River, NH [2]	1997	595,878	-
Lee, Housatonic River, MA [3]	1976	37,852	-
Little River, Belfast, ME [3]	1990	166,682	43,000
Lowell, MA	1945	1,284,974	-
Lower Woonsocket, RI	1977	6,600,681	1,266,638 [14]

TABLE 1-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Contributed Funds
Machias River, Machias, ME [3]	1987	152,000	-
Machias Bay, Machiasport, ME [3]	1995	133,473	32,733 [15]
Mad River Lake, CT	1973	4,773,020	-
Mad River, Waterbury (Woodtick Area), CT	1998	1,177,905	270,183 [13]
Marginal Way, Ogunquit, ME [3]	1987	243,000	-
Merriconeag Sound, Harpswell, ME [3]	1980	107,682	-
Mill Brook, Brownsville, VT [3]	1988	110,000	-
Narraguagus River, Milbridge, ME [3]	1995	132,967	24,893 [16]
Nashua, NH	1950	270,000 [6]	327
New London Hurricane Barrier, CT	1992	8,504,919 [7]	2,015,709 [21]
Nonewaug River, Woodbury, CT [3]	1985	222,500	-
Northampton, MA	1950	960,000	-
North Canaan, Blackberry River, CT [4]	1977	73,865	-
North Nashua River, Fitchburg, MA	1981	4,605,000	-
North Nashua River, Lancaster, MA [3]	1979	81,671	-
North Nashua River, Leominster, MA [3]	1997	152,756	50,919
North Nashua River, Leominster (Sewer Line), MA [3]	1997	221,455	73,818
Norwalk, CT [2]	1952	52,150	-
Norwich, CT	1960	1,209,000	-
Park River, Hartford, CT	1986	60,176,919	- [17]
Pawcatuck, CT	1966	644,311	214,106
Pawtuxet River, Warwick, RI [2]	1986	3,174,260	-
Penobscot River, Old Town, ME [2]	1986	178,045	-
Perley Brook, Fort Kent, ME [3]	1994	70,990	20,554 [18]
Point Shirley, Winthrop, MA [3]	1995	500,000	182,419
Port 5 Facility, Bridgeport, CT [3]	1986	227,500	-
Prestile Stream, Blaine, ME [3]	1980	73,674	-
Riverdale, West Springfield, MA [5]	1996	1,905,261	221,614 [24]
Salmon River, Colchester, CT [3]	1983	247,100	-
Sand Cove, Gouldsboro, ME [3]	1984	127,500	-
Saugus River & Tributaries, MA [1]	1997	5,525,000	-
Saxonville, MA	1980	4,218,700	- [19]
Sebago Lake, Standish, ME	1998	500,000	346,009
Sebasticook River, Hartland, ME [2]	1985	1,857,475	-
Shelburne, Androscoggin River, NH [3]	1977	37,657	-
Smelt Brook, Weymouth-Braintree, MA [2]	1978	1,803,738	-
South River, Conway, MA [3]	1987	133,500	-
Springdale, MA	1952	700,000	-
Springfield, MA	1950	932,000	5,350
Squantz Pond, New Fairfield, CT [3]	1983	116,296	-
Stony Brook, Wilton, NH [4]	1973	19,500	-
Sucker Brook Dam, CT	1976	2,227,792	58,800
Three Rivers, MA	1970	1,577,189	- [20]
Torrington, East Branch, CT [2]	1963	389,237	-
Torrington, West Branch, CT [2]	1963	228,237	-
Town River Bay, Quincy, MA [3]	1993	55,228	18,409
Village of Saxtons, VT [3]	1985	140,500	-
Ware, MA [2]	1963	400,000	-
Waterbury-Watertown, CT [2]	1963	265,300	-
Weston, VT [4]	1957	13,000	-
West Branch, Westfield River, Huntington, MA [3]	1983	119,433	-
West River, New Haven, CT [2]	1996	3,883,293	748,840 [25]

TABLE 1-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Contributed Funds
West Springfield, MA [5]	1992	2,043,728	14,343
West Warren, MA [2]	1964	389,200	41,000
Winsted, CT	1954	245,500	-
Woonsocket, RI	1962	4,033,100	224,476
Worcester Diversion, MA	1978	5,086,896	70,161

Projects are complete unless otherwise noted.

[1] Inactive.
[2] Authorized by Chief of Engineers (Public Law 80-858, Sec. 205).
[3] Authorized by Chief of Engineers (Public Law 79-526, Sec. 14)
[4] Authorized by Chief of Engineers (Public Law 83-780, Sec. 208)
[5] Portion Authorized by Chief of Engineers (Public Law 80-858, Sec. 205).
[6] Excludes $147,366 Flood Control and Coastal Emergency funds expended.
[7] Excludes $852,127 non-project cost per 1976 WRDA.
[8] Excludes $727,460 Contributed Funds, Other.
[9] Excludes $1,674,567 Contributed Funds, Other.
[10] Excludes $12,000 expended for land condemnations and $25,184 Contributed Funds, Other for relocations.
[11] Excludes $1,146,828 Contributed Funds, Other.
[12] Excludes $406,653 Contributed Funds, Other.
[13] Excludes $122,452 for lands.
[14] Excludes $488,920 Contributed Funds, Other.
[15] Excludes $11,758 for lands.
[16] Excludes $6,120 for lands.
[17] Excludes $259,408 Contributed Funds, Other.
[18] Excludes $3,109 for lands.
[19] Excludes $8,503 Contributed Funds, Other.
[20] Excludes $565,168 Contributed Funds, Other.
[21] Excludes $1,629,256 for lands and $303,251 Contributed Funds, Other.
[22] Excludes $10,195 lands.
[23] Excludes $24,134 Contributed Funds, Other.
[24] Excludes $109,140 for land and $46,929 Contributed Funds, Other.
[25] Excludes $554,638 for lands and $71,650 Contributed Funds, Other.
[26] Design only, project constructed under EPA Superfund Program.

TABLE 1-F OTHER AUTHORIZED MULTI-PURPOSE PROJECTS INCLUDING POWER

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Contributed Funds
Passamaquoddy Tidal Power Project, ME [1]	1935	6,384,394	-

[1] Work discontinued in 1937. Facilities transferred to War Assets Administration.

TABLE 1-G OTHER AUTHORIZED ENVIRONMENTAL PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Contributed Funds
Galilee Salt Marsh, RI [1]	2000	1,274,979	424,993 [2]
Naugatuck River, Torrington, CT [1]	2001	96,327	32,109

[1] Authorized by Chief of Engineers (Public Law 99-662, Sec. 1135).
[2] Excludes $836,381 Contributed Funds, Other.

TABLE 1-H DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Funds Expended: Federal	Funds Expended: Contributed Funds
Alternative for Sugar Hill Reservoir	-	Aug 1977	-	-
Andover Lake, CT	-	Aug 1977	-	-
Apponaug Cove, RI (portion of 1960 Act)	1964	Aug 1999	-	-
Bagaduce River, ME (uncompleted portion)	-	Oct 1978	-	-
Baker Brook, MA	1972	Nov 1979	94,000	-
Bar Harbor, ME (uncompleted portion of 1888 & 1890 Acts)	1932	Nov 1986	-	-
Bass Harbor, ME (portions of Section 107 project)	1965	Aug 1999	-	-
Beards Brook Reservoir, NH	1949	Aug 1977	78,000	-
Beaver Brook Lake, NH	1973	Apr 1978	378,300	-
Bennington Reservoir, NH	1949	Aug 1977	205,000	-
Big River Reservoir, RI (portion of 1986 Act)	1987	Nov 1990	-	-
Black Rock Harbor, CT (uncompleted portion of 1958 Act)	1988	Nov 1986	-	-
Boothbay Harbor, ME (Portion of 1912 Act)	1953	Oct 1992	-	-
Boothbay Harbor, ME	1953	Aug 1999	18,000	-
Boston Harbor, MA (1945 Act)	2003	Jan 1990	-	-
Boston Harbor, MA (portion of 1902 Act)	2003	Oct 1992	-	-
Boston Harbor, MA (portion of Chelsea River 1962 Act)	2003	Oct 1996	-	-
Boston Harbor, MA (portion of Reserved Channel 1990 Act)	2003	Oct 1996	-	-
Brant Rock Beach, Marshfield, MA	1961	Nov 1979	-	-
Branford Harbor, CT (portion of 1902 of Act)	1990	Oct 1990	-	-
Bridgeport Harbor, CT (portions of 1958 Act)	2003	Nov 1986	-	-
Bridgeport Harbor, CT (uncompleted portion of 1930 Act)	2003	Nov 1979	-	-
Bridgeport Harbor, CT (portion of 1946 Act)	2003	Oct 1996	-	-
Bridgeport Harbor, CT (portion of 1958 Act)	2003	Oct 1996	-	-
Bridgeport Harbor, CT (portion of 1958 Act)	2003	Aug 1999		-
Bristol Harbor, RI	1987	Apr 2002	316,288	-
Brockway Lake, VT	1946	Aug 1977	-	-
Bucksport Harbor, ME (portion of 1902 Act)	1907	Aug 1999	-	-
Cambridgeport Lake, VT	-	Aug1977	-	-
Carvers Harbor, Vinalhaven, ME (portion of 1896 Act)	1964	Aug 1999	-	-
Chicopee, MA (uncompleted portion)	1954	Aug 1977	-	-
Claremont Lake, NH	1968	Dec 1970	242,700	-
Clinton Harbor, CT (portion of 1945 Act)	1985	Aug 1999	-	-
Clyde, RI	1948	Apr 1951	8,800	-
Cocheco River, NH (portion of 1890 Act)	2003	Oct 1996	-	-
Cohasset Harbor, MA (portion of 1945 Act)	2000	Oct 1996	-	-
Cohasset Harbor, MA (portion of Section 107 project)	2000	Oct 1996	-	-
Connecticut River (above Hartford), CT	1932	Jan 1990	132,146	-
Connecticut River below Hartford, CT (uncompleted portion)	2002	Oct 1978	-	-
Connecticut River below Hartford, CT (1950 Act)	2002	Nov 1986	-	-
Cotuit Harbor, MA	1962	Oct 1978	8,541	-
Dickey - Lincoln School Lakes, ME (portion of 1965 Act)	1984	Nov 1986	26,285,298	-
Dorchester Bay and Neponset River, MA (uncompleted portion)	1968	Jan 1990	-	-
East Boothbay Harbor, ME (portion of 1910 Act)	1953	Oct 1996	-	-
East Boothbay Harbor, ME	1953	Aug 1999	6,500	-
Eastport Harbor, ME	1984	Nov 1983	638,675	141,530
Edgartown Harbor, MA (uncompleted portion of 1965 Act)	1978	Nov 1986	-	-
Fall River Harbor, MA (uncompleted portion of 1930 Act)	1984	Nov 1986	-	-
Fall River Harbor, MA (1968 Act & uncompleted portion of 1930 Act)	1984	Apr 2002	-	-
Falmouth Harbor, MA (portion of 1948 Act)	1978	Oct 1996	-	-
Falmouth Harbor, MA (portion of 1948 Act)	1978	Aug 1999	-	-

TABLE 1-H (Continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Funds Expended: Federal	Funds Expended: Contributed Funds
Fivemile River Harbor, CT (uncompleted portion)	2000	Oct 1978	-	-
Gaysville Lake, VT	1970	Oct 1976	206,600	-
Gorton's Pond, Warwick, RI	-	Nov 1991	-	-
Great Salt Pond, Block Island, RI (uncompleted portion of 1945 Act)	2002	Nov 1986	-	-
Greenwich Harbor, CT (portion of 1919 Act)	-	Nov 1990	-	-
Greenwich Point Beach, CT	1969	Oct 1978	-	-
Green Harbor, MA (portion of Sec 107 project)	2003	Aug 1999	-	-
Guilford Harbor, CT (portion of 1945 Act)	1995	Oct 1996	-	-
Harbor of Refuge, Block Island, RI (uncompleted portion of 1912 Act)	2003	Nov 1986	-	-
Housatonic River, CT (uncompleted portion of 1888 Act)	1983	Nov 1979	-	-
Honey Hill Lake, NH	1949	Aug 1977	92,000	-
Ipswich River, MA (uncompleted portion of 1968 Act)	1969	Nov 1986	-	-
Kennebec River, ME (uncompleted portion of 1902 Act)	2003	Nov 1986	-	-
Kennebunk River, ME (portion of 1962 Act)	2003	Oct 1996	-	-
Ludlow Lake, VT	-	Aug 1977	-	-
Lynn Harbor, MA (uncompleted portions of 1954 & 1935 Acts)	2002	Nov 1986	-	-
Lynn-Nahant Beach, MA	1986	Apr 1999	50,000	-
Manchester Harbor, MA	1949	Nov 1979	23,986	-
Marblehead Harbor, MA	1968	Oct 1978	43,711	-
Mattapoisett Harbor, MA	1950	Oct 1978	-	-
Merrimack River, MA	-	Nov 1991	-	-
Mianus River, CT (portion of 1945 Act)	1985	Nov 1986	-	-
Milford Harbor, CT (uncompleted portion of 1902 & 1937 Acts)	1989	Nov 1986	-	-
Monoosnoc Brook, MA	1967	Nov 1986	-	-
Monoosnoc Lake, MA	1967	Nov 1986	-	
Mountain Brook Dam, NH	1949	Aug 1977	57,000	-
Mystic, CT	1968	Aug 1972	67,700	-
Mystic River, CT (uncompleted portion of 1913 Act)	1957	Nov 1986	-	-
Mystic River, CT (portion of 1913 Act)	1957	Oct 1996	-	-
Mystic River, MA (portion of 1950 Act)	1986	Oct 1996	-	-
Nantasket Beach, MA	1971	Jan 1990	-	-
Nantucket Harbor of Refuge, MA (uncompleted portion of 1945 Act)	1989	Nov 1986	-	-
Nantucket Harbor of Refuge, MA (uncompleted portion of 1880 Act)	1989	Jan 1990	-	-
Napatree Beach, RI	-	Nov 1979	-	-
Narragansett Pier, RI	1966	Nov 1970	115,590	-
Neponset River, Milton Town Landing to Port Norfolk, MA	-	Nov 1991	-	-
New Bedford and Fairhaven Harbors, MA (uncompleted portion of 1912 Act)	2001	Nov 1986	-	-
New Bedford and Fairhaven Harbors, MA (portion of 1909 & 1930 Acts)	2001	Aug 1999	-	-
Newburyport Harbor, MA (uncompleted portion of 1945 Act)	2003	Nov 1986	-	-
Newburyport Harbor, MA (portion of 1910 Act)	2003	Oct 1992	-	-
Newport Harbor, RI (portion of 1907 Act)	1953	Nov 1999	-	-
New Haven Harbor, CT (uncompleted portion of 1946 & 1910 Acts)	2003	Nov 1986	-	-
New Haven Harbor, CT (1986 Act)	2003	Apr 2002	-	-
Nookagee Lake, MA	1976	Nov 1986	563,677	-
North Andover and Lawrence, MA	1949	Aug 1977	20,000	-
North Hampton Beach, North Hampton, NH	1963	Nov 1981	-	-
Norwalk Harbor, CT (portion of 1919 Act)	2003	Oct 1996	-	-

TABLE 1-H (Continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Funds Expended: Federal	Funds Expended: Contributed Funds
Norwalk-Wilton, CT	1973	Nov 1979	-	-
Patchoque River, Westbrook, CT (portion of 1954 Act)	1997	Oct 1996	-	-
Pawcatuck River, Little Narragansett Bay, RI & CT (uncompleted portions of 1896 Act)	1997	Nov 1986	-	-
Pawcatuck River, Little Narragansett Bay, RI and CT (1960 Act)	1997	Nov 1979	-	-
Pawtucket, RI	1949	Nov 1977	-	-
Pepperell Cove, ME (uncompleted portion)	1969	Nov 1981	-	-
Phillips Lake, MA	1982	May 1997	300,000	-
Pleasant Bay, MA	1971	Nov 1986	-	-
Point Judith, RI	1968	Nov 1977	198,477	-
Pontiac Diversion, RI	1948	Apr 1951	24,200	-
Providence River and Harbor, RI (uncompleted portion)	2003	Nov 1986	-	-
Provincetown Beach (Herring Cove), MA	1961	Oct 1978	-	-
Provincetown Harbor, MA (uncompleted portion)	1997	Oct 1978	-	-
Rockland Harbor, ME (uncompleted portion of 1956 Act)	2003	Nov 1986	-	-
Saco River, ME (uncompleted portion)	1995	Oct 1979	-	-
Sakonnet Harbor, RI (uncompleted portion)	2001	Jun 1982	176,000	-
Salem Harbor, MA (inactive portion of 1905 Act)	2003	Jul 1995	-	-
Salem Harbor, MA (uncompleted portion of 1945 Act)	2003	Nov 1986	-	-
Sandy Bay, Cape Ann, MA (uncompleted portion)	1922	Oct 1978	-	-
Searsport Harbor, ME (portion of 1962 Act)	1966	Aug 1999	-	-
Silver Beach to Cedar Beach, CT (uncompleted portion of 1954 Act)	1964	Nov 1986	-	-
South Coventry Lake, CT	1951	Aug 1977	96,000	-
Southport Harbor, CT (portion of 1935 Act)	1962	Oct 1996	-	-
South Tunbridge Lake, VT	-	Aug 1977	-	-
Stamford Harbor, CT (2 projects uncompleted portions)	1980	Oct 1978	-	-
Stamford Harbor, CT (inactive portion)	1980	Jan 1990	-	-
Stonington Harbor, CT (uncompleted portion of 1950 Act)	1959	Nov 1986	-	-
Stonington Harbor, ME (1960 Act)	1985	Nov 1979	2,543	-
Stony Creek, CT (portion of 1960 Act)	1995	Oct 1996	-	-
Stratford, CT	1973	Mar 1977	934,500	-
Sugar Hill Reservoir, NH	1946	Dec 1944	-	-
Taunton River, MA (inactive portion)	1948	Jan 1990	-	-
Thames River, CT (uncompleted portion of 1945 Act)	1967	Nov 1986	-	-
The Island Lake, VT	-	Aug 1977	-	-
Thumperton Beach, Eastham, MA	1961	Nov 1979	-	-
Town Beach, Plymouth, MA (inactive portion)	1964	Jan 1990	-	-
Town Neck Beach, Sandwich, MA (portion of 1960 Act)	1961	Nov 1986	-	-
Trumbull Lake, CT	1983	May 1997	1,498,800	-
Victory Lake, VT	1967	Aug 1977	168,400	-
Wareham Harbor, MA (inactive portion)	1896	Jan 1990	-	
Wareham-Marion, MA	1965	Aug 1977	81,715	-
Wells Harbor, ME (portion of 1960 Act)	2002	Aug 1999	-	-
West Brookfield Reservoir, MA	1965	Aug 1977	67,000	-
West Canaan Lake, NH	1948	Aug 1977	92,000	-
Westerly, RI	1966	Nov 1986	-	-
Westfield, MA	1967	Sep 1969	507,200	-
Westport, CT	1965	Feb 1970	29,634	-
Westport Harbor and Saugatuck River, CT (uncompleted portion of 1892 & 1954 Acts)	1972	Nov 1979	-	-
Westport River, MA (1938 Act)	1942	Jan 1990	-	-
Weymouth-Fore and Town Rivers, MA (portion of 1965 Act)	1979 & 1983	Oct 1996	-	-
Whitmanville Lake, MA	1979	Jul 1995	605,023	-

TABLE 1-I NAVIGATION ACTIVITIES PURSUANT TO SECTION 107, PUBLIC LAW 86-645 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Bass Harbor, Tremont, ME	-	-
Blackwater River, NH	2,648	-
Bucks Harbor, Machiasport, ME	40,494	-
Coordination	10,409	-
Charlestown Breachway & Ninigret Pond, Charlestown, RI	26,806	-
East Boat Basin, Sandwich, MA	30,277	-
Ipswich River, Ipswich, MA	23,903	-
Lubec Harbor, ME	18,290	-
Oaks Bluff Harbor, Martha's Vineyard, MA	42,068	-
Thames Rivers, CT	18,206	-
Westport, MA	18,118	-

TABLE 1-J MITIGATION OF FEDERAL NAVIGATION PROJECTS PURSUANT TO SECTION 111, PUBLIC LAW 90-483 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Camp Ellis, Saco, ME	336,161	-
Wells Harbor, Wells, ME	6,184	-

TABLE 1-K BEACH EROSION ACTIVITIES PURSUANT TO SECTION 103, PUBLIC LAW 87-874 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Morris Cove, New Haven, CT	235	-
Nantasket Beach, Hull, MA	-	6,397
North Nantasket Beach, Hull, MA	43	975

TABLE 1-L FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205 PUBLIC LAW 80-858 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expend
Aberjona River, Winchester, MA	83,447	57,506
Black Rocks Creek, Salisbury, MA	31,714	18,483
Coordination	14,950	-
Farm River, East Haven, CT	16,338	24,422
Harbor Brook, Meriden, CT	28,186	48,141
Pocasset River, Cranston and Johnston, RI	947	-
Salmon River, Haddam & East Haddam, CT	237	18,189

TABLE 1-M EMERGENCY BANK PROTECTION ACTIVITIES PURSUANT TO SECTION 14, PUBLIC LAW 79-526 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Coordination	11,827	-
Holmes Bay, Route 191, Whiting, ME	75,413	-
Merrimack River, Riverside Road, Haverhill, MA	-	-
Mill River, Federal Street, Northhampton, MA	78,563	-
Narraguagus River, Millbridge, ME	77,394	-
Penobscot River, Brewer, ME	33,090	-
Westfield River, Agawam, MA	38,778	-
White River, Hancock, VT	6,768	-

TABLE 1-N ENVIRONMENTAL IMPROVEMENT ACTIVITIES PURSUANT TO SECTION 1135, PUBLIC LAW 99-662 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Allin's Cove, Barrington, RI	46,509	-
Broad Meadows Marsh Restoration, MA	41,760	-
Boyd's Marsh (Town Pond), RI	59,957	-
Coordination Account	15,405	-
Half-moon Cove, Perry, ME	9,638	-
Hough's Neck Salt Marsh, Quincy, MA	8,923	-
Mill River, Northhampton, MA	179	-
NMLC, Buzzards Bay, MA	73,793	-
North Nashua River, Fitchburg, MA	20,716	-

TABLE 1-O AQUATIC ECOSYSTEM RESTORATION ACTIVITIES PURSUANT TO SECTION 206, PUBLIC LAW 99-662 (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs	Contributed Funds Expended
Bass River Salt Marsh Restoration, Yarmouth, MA	118	-
Bird Island Restoration, Marion, MA	8,798	-
Brush Neck Cove, Warwick, RI	-	-
Coordination	25,777	-
Hix Bridge Salt Marsh Restoration, Westport, MA	8,792	-
Lawrence Gateway, MA	-	-
Manham Dam, Easthampton, MA	42,755	-
Milford Pond, Milford, MA	28,833	-
Mill Pond, Littleton, MA	45,525	-
Mill Pond Restoration, Nashua, NH	143,328	-
Mill River, Stamford, CT	74,639	-
Narrows River, Narragansett, RI	2,748	-
Nashawannuck Pond, Easthampton, MA	57,993	-
Neponset River, Boston, MA	49,601	-
Osgood Pond Restoration, Milford, NH	55,128	-
Pleasant River Salt Marsh Restoration, Addison, ME	8,961	-
Reedy Meadow Marsh Restoration, Saugus, MA	1,321	-
Round Hill Beach Salt Marsh, Dartmouth, MA	7,606	-
Run Pond Coastal Ecosystem Restoration, MA	7,969	-
Sandy River (Madison Dam), Madison, ME	8,625	-
Scarborough Marsh, Scarborough, ME	132,780	-
Steward's Creek, Barnstable, MA	81,278	-
Wiswall Dam, Durham, NH	147,389	-

TABLE 1-P BLACKSTONE RIVER BASIN, MA AND RI
(See Section 33 of Text)
RESERVOIR

Name	Nearest City	Miles Above Mouth of Blackstone River	Height (feet)	Type	Reservoir Capacity (acre-feet)	Estimated Federal Cost: Construction	Estimated Federal Cost: Lands and Damages [1]	Estimated Federal Cost: Total
West Hill [2]	Worcester,MA	25.8	51	Earthfill	12,400	$1,366,922	$940,000	$2,306,902

[1] Includes highway, railroad, and utility relocations.
[2] See individual report for details.

LOCAL PROTECTION PROJECTS

Location	Miles Above Mouth of Connecticut River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages [1]	Estimated Cost: Total
Worcester, MA	48	Diversion tunnel and channel	$4,923,500	$1,179,000 [2]	$6,102,500
Woonsocket, RI	15	Channel improvement	3,733,100	1,069,000 [3]	4,802,100
Lower Woonsocket, RI	13	Flood wall, conduits and channel improvement	8,356,239	435,000	8,791,239
Blackstone River, Millbury, MA	32	Slope protection	256,619	-	256,619 [5]
Clear River, Burrillville, RI	23	Retaining wall	168,000	-	168,000
Pawtuxet River, Warwick, RI	-	Land acquisition	4,125,000	-	4,125,000 [4]

[1] Includes relocation.
[2] $158,000 Federal; $1,021,000 non-Federal.
[3] $300,000 Federal; $769,000 non-Federal.
[4] $3,300,000 Federal; $825,000 non-Federal.
[5] $250,000 Federal; $6,619 non-Federal.

TABLE 1-Q CONNECTICUT RIVER BASIN, VT, NH, MA AND CT
(See Section 35 of Text)
DAMS AND RESERVOIRS

Name	Nearest City	Miles Above Mouth of Connecticut River	Height (feet)	Type	Reservoir Capacity (acre-feet)	Estimated Federal Cost: Construction	Estimated Federal Cost: Lands and Damages[1]	Estimated Federal Cost: Total
Vermont:								
Union Village [2]	White River Jct.	228.4	170	Earthfill	38,000	$3,186,860	$ 908,300	$4,095,160
North Hartland [2]	White River Jct.	211.7	185	Earthfill	71,400	6,349,225	963,000	7,312,225
North Springfield [2]	Springfield	191.3	120	Earthfill	50,600	4,781,526	2,050,000	6,831,526
Ball Mountain [2]	Brattleboro	178.2	265	Rockfill-earth	54,600	10,757,842	350,000	11,107,842
Townshend [2]	Brattleboro	168.3	133	Earthfill	33,200	6,662,545	1,878,000	8,540,545
New Hampshire:								
Surry Mountain [2]	Keene	174.4	86	Earthfill	32,500	2,448,610	385,000	2,833,610
Otter Brook [2]	Keene	171.2	133	Earthfill	18,300	2,982,048	1,378,400	4,360,448
Massachusetts:								
Birch Hill [2]	Gardner	153.3	56	Earthfill	49,900	1,740,679	3,075,000	4,815,679
Tully [2]	Athol	148.7	62	Earthfill	22,000	1,298,752	368,000	1,666,752
Barre Falls [2]	Worcester	130.2	62	Rockfill-earth	24,000	1,928,819	39,000	1,967,819
Knightville [2]	Northampton	102.8	160	Earthfill	49,000	2,594,440	821,200	3,415,640
Littleville [2]	Northampton	102.0	150	Earthfill	32,400	5,863,412	1,150,000	7,013,412
Conant Brook [2]	Springfield	122.0	85	Rockfill-earth	3,740	1,935,530	1,015,000	2,950,530
Connecticut:								
Colebrook River [2]	Winsted	116.0	223	Rockfill-earth	98,500	8,341,971	5,922,000	14,263,971
Mad River	Winsted	120.0	178	Earthfill	9,700	4,773,020	2,210,000 [4]	6,983,020
Sucker Brook	Winsted	118.5	68	Earthfill	1,480	2,227,792	180,000 [3]	2,407,792

[1] Includes highway, railroad, and utility relocations.
[2] For details, see individual report.
[3] Non-Federal cost.
[4] Non-Federal $670,000; Federal $1,540,000.

LOCAL PROTECTION PROJECTS

Location	Miles Above Mouth of Connecticut River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages[1]	Estimated Cost: Total
Beaver Brook, Keene, NH	170.4	Channel improvement	$ 2,591,000	-	$ 2,591,000
Charlestown, NH	181	Riverbank protection	113,330	-	113,330
Chicopee, MA	80	Wall and levee	1,434,000	$ 250,000	1,684,000
Chicopee Falls, MA	83	Wall and levee	2,600,000	70,000	2,670,000

TABLE 1-Q (Continued)

CONNECTICUT RIVER BASIN, VT, NH, MA AND CT
(See Section 35 of Text)
DAMS AND RESERVOIRS

LOCAL PROTECTION PROJECTS

Location	Miles Above Mouth of Connecticut River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages[1]	Estimated Cost: Total
Connecticut River, Middletown, CT	31	Streambank protection	331,167 [6]	-	331,167
East Hartford, CT	52	Wall and levee	2,143,084	271,000	2,414,084
Farmington River, Simsbury, CT	60	Streambank protection	757,720	10,195	767,915
Folly Brook, Wethersfield, CT	50	Channel improvement	220,284	-	220,284
Gardner, MA	163	Dam and levee	510,691	35,000	545,691
Gulf Street, Milford, CT	-	Slope protection	386,000	-	386,000
Hartford, CT	52	Wall and levee	9,710,200 [4]	1,150,000	10,860,200
Hartford, White River, VT	216	Channel improvement	332,236	-	332,236
Holyoke, MA	85	Wall and levee	3,442,447	150,000	3,592,447
Huntington, MA	100	Riverbank protection	3,900	-	3,900
Israel R., Lancaster, NH	314	Gabion overflow weir	551,606	-	551,606
Keene, NH	167	Channel improvement	44,146	-	44,146
Mill Brook, Brownsville, VT	200.3	Streambank stabilization	110,000	-	110,000
Northampton, MA	94	Wall and levee	960,000 [5]	150,000	1,110,000
North Stratford, NH	345	Slope protection	180,000	-	180,000
Park River, CT	51	Conduit	58,876,919	1,300,000	60,176,919
Riverdale, MA	80	Wall and levee	2,126,875 [7]	109,140	2,236,015
Salmon R., Colchester, CT	38	Slope protection	247,100	-	247,100
South River, Conway, MA	107	Slope protection	133,500	-	133,500
Springdale, MA	84	Wall and levee	700,000	57,000	757,000
Springfield, MA	76	Wall and levee	937,350 [2]	272,000	1,209,350
Three Rivers, MA	98	Wall and levee	1,577,189	700,000	2,277,189
Ware, MA	110	Channel improvement	400,000	85,000	485,000
Weston, VT	195	Channel improvement	13,079	2,000	15,079
West Springfield, MA	76	Wall and levee	2,043,452 [3]	30,000	2,073,452
West Warren, MA	111	Wall and levee	430,176	64,000	494,176
Winsted, CT	115	Channel improvement	245,500	30,000	275,500

[1] To be borne by local interests. Also includes local interests portion of relocation.
[2] Includes $355,000 Public Works Administration funds.
[3] Includes $245,000 Public Works Administration funds.
[4] Includes $835,000 Public Works Administration funds.
[5] Includes $280,000 Public Works Administration funds.
[6] Excludes $24,134 Contributed Funds, Other.
[7] Excludes $46,929 Contributed Funds, Other.

TABLE 1-R HOUSATONIC RIVER BASIN, CT AND MA (See Section 38 of Text) DAMS AND RESERVOIRS [1]

Name	Nearest City	Miles Above Mouth of Naugatuck River	Height (feet)	Height Type	Reservoir Capacity (acre-feet)	Estimated Federal Cost: Construction	Estimated Federal Cost: Lands and Damages [2]	Estimated Federal Cost: Total
Hall Meadow	Torrington, CT	41.0	73	Rock and earthfill	8,620	$2,572,357	$1,290,000 [3]	$3,862,357
East Branch	Torrington, CT	43.7	92	Earthfill	4,350	1,959,836	1,290,000 [3]	3,249,836
Thomaston	Torrington, CT	30.5	142	Rock and earthfill	42,000	6,382,112	7,900,000	14,282,112
Northfield Brook	Torrington, CT	30.6	118	Earthfill	2,432	1,875,512	975,000	2,850,512
Black Rock	Waterbury, CT	29.0	154	Earthfill	8,700	5,223,700	2,958,600	8,182,300
Hancock Brook	Waterbury, CT	25.0	57	Earthfill	4,030	1,593,911	2,585,000	4,178,911
Hop Brook	Waterbury, CT	15.9	97	Earthfill	6,970	2,701,562	3,450,000	6,151,562

[1] For details of projects, see individual reports.
[2] Includes highway, railroad, and utility relocations.
[3] Includes cost of lands borne by local interests.

LOCAL PROTECTION PROJECTS [1]

Location	Miles Above Mouth of Housatonic River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages [2]	Estimated Cost: Total
Alford, Green River, MA	111.0	Earth dike and stone slope protection	$41,419	-	$ 41,419
Ansonia-Derby, CT	13.0	Wall, levee, channel improvement and pumping station	18,266,040	1,178,000	19,444,040
Covered Bridge, Sheffield, MA	96.0	Stone slope protection	430,000	-	430,000
Danbury, CT	56.0	Walls, channel improvement and bridge replacement	13,143,000	1,862,000	15,005,000
Derby, CT	12.0	Walls, levees and pumping Station	7,582,642	647,000	8,229,642
Hoosic River, Williamstown, MA	155.0	Stone slope protection	380,000	40,000	420,000
Mad River, Waterbury (Woodtick Area), CT	35.0	Channel improvements	1,448,087	122,452	1,570,539
North Canaan, Blackberry River, CT	83.0	Snagging and clearing project	73,865	-	73,865
Pittsfield, MA	133.0	Stone arch culvert	739,003	85,000	824,003
Salisbury, CT	76.0	Gabionade with slope protection	102,800	-	102,800
Sheffield, MA	96.0	Stone slope protection	202,608	-	202,608
Squantz Pond, New Fairfield, CT	43.0	Timber Bulkhead	116,296	-	116,296
Torrington, East Branch, CT	51.0	Dike and channel improvement	389,237	-	389,237
Torrington, West Branch, CT	52.0	Walls, dikes and channel	228,237	-	228,237
Waterbury- Watertown, CT	32.0	Wall, dike and channel	263,300	-	263,300

[1] For details of projects, see individual reports.
[2] To be borne by local interests. Includes relocations.

TABLE 1-S MERRIMACK RIVER BASIN, NH, AND MA (See Section 39 of Text) RESERVOIRS [1]

Name	Nearest City	Miles Above Mouth of Merrimack River	Height (feet)	Height Type	Reservoir Capacity (acre-feet)	Estimated Federal Cost: Construction	Estimated Federal Cost: Lands and Damages [2]	Estimated Federal Cost: Total
Franklin Falls	Franklin, NH	118.2	140	Earthfill	154,000	$ 6,190,487	$ 1,760,000	$ 7,950,487
Blackwater	Concord, NH	118.8	75	Earthfill	46,000	766,746	553,000	1,319,746
Hopkinton-Everett	Concord, NH	87.3	115	Earthfill	157,300	12,715,440	8,737,000	21,452,440
Edward MacDowell	Keene, NH	161.3	67	Earthfill	12,800	1,708,253	306,000	2,014,253

[1] For details, see individual report.
[2] Includes highway, railroad, and utility relocations.

LOCAL PROTECTION PROJECTS [1]

Location	Miles Above Mouth of Merrimack River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages [2]	Estimated Cost: Total
Amesbury, Powwow and Merrimack Rivers, MA	3.0	Wall and revetment	$ 132,113	$ -	$ 132,113
Haverhill, MA	21.0	Floodwall, conduit and pumping station	1,863,485	-	1,863,485
Lowell, MA	39.0	Wall and levee	490,600 [5]	90,000	580,600
Nashua, NH	55.0	Wall and levee	270,000	3,000	273,000 [4]
North Nashua River, Lancaster, MA	90.0	Stone slope protection	81,671	-	81,671
North Nashua River, Lancaster, MA	90.0	Stone slope protection	368,848	-	368,848
North Nashua River, Leominster, MA	94.0	Stone slope protection	203,675	-	203,675
North Nashua River, Leominster (Sewer Line), MA	94.0	Stone slope protection	295,273	-	295,273
North Nashua River, MA	100.5	Channel improvement	3,235,000 [3]	-	3,235,000
Saxonville, MA	69.0	Wall, levee, channel	4,218,700	530,000	4,748,700

[1] For details, see individual report.
[2] To be borne by local interests.
[3] Excludes $1,370,000 Public Works Administration Funds expended on Fitchburg, MA.
[4] Excludes $15,000 expended from Contributed Funds.
[5] Excludes $794,374 Public Works Administration Funds.

TABLE 1-T THAMES RIVER BASIN, CT, RI AND MA
(See Section 46 of Text)
RESERVOIRS [1]

Name	Nearest City	Miles Above Mouth of Thames River	Height (feet)	Type	Reservoir Capacity (acre-feet)	Estimated Federal Cost: Construction	Estimated Federal Cost: Lands and Damages [2]	Estimated Federal Cost: Total
Hodges Village	Webster, MA	74.5	55	Earthfill	13,000	$1,317,268	$3,144,000	$4,461,268
Buffumville	Webster, MA	74.4	66	Earthfill	12,700	2,157,603	841,000	2,998,603
East Brimfield	Southbridge, MA	82.8	55	Earthfill	30,000	1,337,043	5,720,000	7,057,043
Westville	Southbridge, MA	75.2	80	Earthfill	11,000	2,284,683	3,400,000	5,684,683
West Thompson	Putman, CT	59.3	70	Earthfill	25,600	5,036,220	1,965,000	7,001,220
Mansfield Hollow	Willimantic, CT	40.0	70	Earthfill	52,000	4,107,164	2,340,000	6,447,164

[1] For details, see individual report.
[2] Includes highway, railroad, and utility relocations.

LOCAL PROTECTION PROJECTS

Location	Miles Above Mouth of Thames River	Type of Structure	Estimated Cost: Construction	Estimated Cost: Lands and Damages [1]	Estimated Cost: Total
Norwich, CT	15.0	Channel improvements	$1,209,000	$72,000	$1,281,000
West River, New Haven, CT	-	Channel improvements	4,619,543 [2]	554,638	5,174,181

[1] Borne by local interests.
[2] Excludes $12,590 for revisions to flood insurance rate map and $71,650 Contributed funds not required.

TABLE 1-U RECONNAISSANCE AND CONDITION SURVEYS

Project	Date Survey Conducted
MASSACHUSETTS	
Andrews River	Mar/May 2003
Annisquam River	Oct 02/Feb-Apr 2003
Aunt Lydia's Cove	Feb-Mar/Aug-Sep 2003
Boston Harbor	Oct 02/Jan/Mar 2003
Chelsea River	Dec 02/Apr 2003
Cohasset Harbor	Dec 02/Jan 2003
Cuttyhunk Harbor	May/Sep 2003
Duxbury Harbor	May 2003
Fall River	Jul 2003
Falmouth Harbor	Mar/Jul-Aug 2003
Green Harbor	Oct-Nov 2002
Hyannis Harbor	Nov 02/Jul-Sep 2003
Island End River	Mar 2003
Mystic River	Oct-Dec 02/Jun-Jul 2003
Newburyport Harbor	Jul 2003
Salem Harbor	Oct 02/Jul 2003
Sesuit Harbor	Mar/May 2003
Taunton River	Sep 2003
Wellfleet Harbor	Dec 2002
CONNECTICUT	
Black Rock Harbor	Jan-Mar/Jun/Aug-Sep 2003
Branford Harbor	Oct-Dec 02/Jan 2003
Bridgeport Harbor	Dec 02/Jan-Apr/Jul/Sep 2003
Clinton Harbor	Dec 02/May/Aug-Sep 2003
Connecticut River Below Hartford	Oct-Dec 02/Jan-May/Jul/Sep 2003
Guilford Harbor	Oct/Dec 2002
Mianus River	Aug 2003
Milford Harbor	Oct 02/Jan-Feb 2003
Mystic River	Oct-Dec 02/Jun-Jul 2003
New Haven Harbor	Oct-Dec 02/Feb/Jul-Sep 2003
New London Harbor	Oct 02/Jun/Sep 2003
Patchogue River	Jul-Sep 2003
Southport Harbor	Jan-Feb/Jun-Aug 2003
Stamford Harbor	Jan-Mar 2003
Stony Creek	Jan-Mar/Jun 2003
Thames River	Jun-Jul/Sep 2003
MAINE	
Boothbay Harbor	Aug 2003
Bucks Harbor	Nov 2002
Corea Harbor	Apr/Jun-Aug 2003
Harraseeket River	Jun 2003
Kennebec River	Dec 02/Sep 2003
Kennbunk River	Dec 02/Jan 2003
Lubec Channel	Nov-Dec 2002
Machias River	Apr/Jul 2003
Narraguagus River	Jan-Mar 2003
New Harbor	Jul-Apr 2003
Northeast Harbor	Apr-May 2003
Penobscot River	May/Sep 2003
Portland Harbor	Nov 02/Jan-Mar/May 2003
Rockland Harbor	Mar/Sep 2003
Rockport Harbor	Aug-Sep 2003
Scarboro River	Mar 2003
Stonington Harbor	Jul-Aug 2003
Union River	Feb/Apr-Jul 2003
Wells Harbor	May/Jul-Sep 2003
Winter Harbor	Apr 2003
Woods Island Harbor	Dec 2002
NEW HAMPSHIRE	
Cocheco River	Jan/Jul-Aug 2003
Hampton Harbor	Nov 02/Jul-Sep 2003
Lamprey River	Dec 2002
Little Harbor	Oct/Dec 2002
Portsmouth Harbor & Piscataqua River	Oct 02/Feb/May/Jul-Aug 2003
RHODE ISLAND	
Block Island (Great Salt Pond)	Feb-Mar 2003
Block Island Harbor of Refuge	Nov 02/Feb-Mar/Sep 2003
Bristol Harbor	Feb 2003
Bullocks Point Cove	Dec 02/Jan-Feb/Sep 2003
Little Narraganset Bay	Oct-Dec 02/Aug 2003
Pawcatuck River	Feb-Mar 2003
Pawtuxet Cove	Nov 02/Jan-Apr 2003
Point Judith Harbor of Refuge	Mar/Aug-Sep 2003
Providence River & Harbor	Mar 2003
Sakonnet Harbor	Sep 2003
Sakonnet River	Aug 2003
Seekonk River	Mar/Sep 2003
Warwick Cove	Aug-Sep 2003
Wickford Harbor	Jun/Aug-Sep 2003

TABLE 1-U (Continued) RECONNAISSANCE AND CONDITION SURVEYS

Dredged Material Management Program

Major activities for fiscal year 2003 were (1) monitoring surveys at the Cape Cod Bay, Tupper Ledge, Rockland, Central Long Island Sound, and historic West island disposal sites and (2) maintenance, replacement, and repositioning of disposal site buoys. Seven monitoring study reports were completed and distributed to the public and regional resource agencies. Total cost of contracts was $787,000. Labor costs of $290,000 for program management, sampling and testing, and environmental analysis were incurred.

Long Island Sound

New England and New York Districts have an ongoing responsibility for maintenance of the 55 existing Federal Navigation Projects in Long Island Sound and adjacent waters. Work this FY consisted of continued investigations and preparations of a draft Environmental Impact Statement for designation of open water disposal sites in the central and western basins of Long Island Sound. Work was conducted for and in cooperation with the Environmental Protection Agency in response to the inclusion of Long Island Sound waters under the regulatory framework of the Ocean Dumping Act. The draft EIS, released in September 2003, recommends designation of disposal sites for long-term use by 40 or more Federal navigation projects in the New England and New York Districts on the central and western shores of Long Island Sound in Connecticut and New York. Work in the next fiscal year will include preparation of a final EIS for the western central regions of the Sound and initiation of studies for potential site designations in the eastern region of the Sound. Hired labor costs included $104,313 for project management, $189,267 for District review and input to the draft EIS, $6,668 for contract administration. Costs of $7,486 were incurred for public involvement. Contract costs of $1,325,027 were incurred for studies and preparation of the draft EIS. A deobligation from the prior fiscal year's contract resulted in a credit of $192.

Rhode Island Long-Term Disposal

At the request of the State of Rhode Island, the New England District is working in partnership with the US Environmental Protection Agency to evaluate the feasibility of designating a long-term dredged material disposal site in the Rhode Island Region. Designation of a permanent disposal site will assist the New England District in maintaining the 25 federal navigation projects in Rhode Island and southeastern Massachusetts. Work this FY consisted of continuing the site designation investigation. A total of $1,434,949 was expended on a continuing contract to collect field data, initiate screening of alternatives, conduct public workshops and continue EIS documentation efforts. In-house efforts included $23,890 for economic analysis, $66,955 for environmental work, and $98,882 for public involvement, project coordination and management.

NEW YORK, NY DISTRICT

This District comprises western Vermont, small portions of western Massachusetts and Connecticut, eastern New York including Long Island, and northeastern New Jersey, embraced in the drainage basins tributary to Lake Champlain and St. Lawrence River system east thereof and to the Atlantic Ocean from New York – Connecticut State Line to, but not including Manasquan Inlet, NJ. In addition it exercises jurisdiction over matters pertaining to improvement of Great Lakes to Hudson River waterway. Under the direction of the Secretary of Army, the District Engineer, as Supervisor of New York Harbor, also exercises jurisdiction under the laws enacted for the preservation of the tidal waters of New York Harbor, its adjacent or tributary waters, and the waters of Long Island Sound.

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Navigation

1. AQUATIC PLANT CONTROL

Location. Navigable waters, tributary streams, connecting channels, and other allied waters in New York District.

Existing Project. Provides for control and progressive eradication of water chestnut. Eurasian water milfoil, and other obnoxious aquatic plant growths from the navigable waters, tributary streams, connecting channels, and other allied waters of the United States, in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health and related purposes, including continued research for development of the most effective and economic control measures. (See Table 2-B for Authorizing Legislation.)

Local cooperation. Local interests were required to provide 30 percent of the cost of the program except as modified by 1962 River and Harbor Act and agree to hold the United Sates free from damages. The Water Resources Development Act of 1986 changed the local responsibility from 30% to 50%. In FY 87 the States involved in the program were permitted to keep the cost sharing at 30% by order of the Secretary of the Army. Starting FY 88, However, Local sponsors contributed 50% of the costs. The FY 2003 APC Project Cooperation Agreement was executed in June 2003.

Operations and results during period. The purpose of the control program, started in FY 1982, is for the removal of nuisance aquatic plants in the Lake Champlain Basin, Vermont. Recent work continued the removal of water chestnut and Eurasian milfoil from portions of the basin.

Condition as of September 30. Reconnaissance report covering the aquatic plant problems of the North Atlantic Division areas was complete in August 1967. The General Design Memorandum for this program was completed in March 1982 by the State of Vermont. The total Federal cost of this control program to date is $3,637,857 in FY 2003, the New York District did cost-share a FY 2003 program with the State Vermont, as Federal funds were available. In October 1991, Waterways Experiment Station was directed to conduct a multi-year study which would identify and test potential biocontrol agents of water chestnuts. No successful biocontrol agents of water chestnut were identified. FY 2003 funds in the amount of $400,000 was used
by New York District to continue the Aquatic Plant Control Program with the State of Vermont.

2. ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL, NY & NJ

Location. The project includes the Arthur Kill Channel from its confluence with the Kill Van Kull and Newark Bay Channels westerly for about 2.2 miles to the Howland Hook Marine Terminal in Staten Island, NY, and thence southwesterly for about 1.1 miles to the Tosco Oil Refining Company and GATX facilities in NJ and NY, respectively. (See National Ocean Survey Chart 12333.)

Existing Project. Deepening the existing 35 foot Arthur Kill channel to 41 feet MLW from its confluence with the Kill Van Kull and Newark Bay Channels to the Howland Hook Marine Terminal in Staten Island. New York and to 40 feet MLW from Howland Hook Marine Terminal to the Tosco Oil Refining Company and GATX facilities in NJ and NY, respectively. Also included are selected widenings and realignments of the channel, as well as the removal of the U.S. dike north of Shooters Island. Project also provides for mitigation consisting of restoration and enhancement of approximately 23 acres of intertidal salt march. The current estimate of the total project cost at Oct.03P.L.S, and inflated to the midpoint of construction, is $393,495,000 of which the Federal cost is estimated at $252,385,000 and the non-Federal cost is estimated at $141,110,000.

Local Cooperation. The Port Authority of New York and New Jersey is the non-Federal sponsor for the project, A Project Cooperation Agreement (PCA) for the project was executed on 25 July 2002.

Terminal Facilities. See Port Series No.5

Operations and results during period, and conditions as of Sept. 30. The existing Arthur Kill Channel has a channel depth of 35 feet MLW. The current project, will deepen the channel from its confluence with the Kill Van Kull and Newark Bay Channels to Howland Hook Marine Terminal to 41 feet MLW, and from Howland Hook Marine Terminal to the Tosco Oil Refining Comp[any and GATX facilities to 40 feet MLW. The first construction contract was awarded on 9 May 2003, and work was initiated on 20 July 2003. The cost of the construction contract awarded, including the base bid and options, was in the amount of $41,444,250. Approximately 188,000 cubic yards of silt material was dredged in FY 03. The first contract is ongoing, and is estimated to be completed in 2004. The second construction contract is scheduled for a bid opening in March 2004.

3. BURLINGTON HARBOR, VT.

Location. About 100 acres in extent, is in a half-moon-shaped indentation in eastern shore of Lake Champlain, about 40 statute miles south of international boundary line, 70 statute miles north of southern end or head of lake, and 20 statute miles southeast of harbor at Plattsburg, N.Y. (See Lake Survey Chart 172.)

Existing project. A breakwater 6,000 feet long about 1,000 feet from shore and practically parallel with it, to be built of stone-filled timber cribs capped with large stone or concrete. Completed breakwater is in two sections, northerly 500 feet being separated from southerly 5,500 feet by a gap 200 feet wide for purpose of safety in entering harbor during storms. Reference plane of low lake level is 93 feet above mean sea level. Level of lake has varied from 0.6 foot below up to 8.8 feet above low lake level. Usual annual variation is 5.8 feet. New work for completed project cost $706,414.

Terminal facilities. Bulkhead shore front and open pile and solid filled piers having a total dockage of 6,520 feet. Of the terminals, 5 wharves, 2 piers, and 1 ferry slip are in use. Five terminals have railroad connections. Facilities are considered adequate for present needs of commerce.

Local cooperation. None required.

Operations and results during the period. A continuing contract to perform repairs to the midsection of the breakwater was awarded to MCM Marine, Inc. on 17 June 2002. Total operations and maintenance funds in the amount of $706,856 was expended during FY 2003 to complete the contract for breakwater repairs including engineering, and design during construction, supervision and administration, and construction activities.
.

Condition as of September 30. Existing project was practically completed in 1890; part of breakwater originally proposed was not built, the work completed being considered sufficient for needs of navigation. Breakwater was built in two section.

4. EAST RIVER,NY

Location. A tidal strait about 16 miles long and 600 to 4,000 feet wide, connecting Hudson River and the Upper Bay at the Battery, New York City, with Long Island Sound at Throgs Neck, New York City,
and separating Long Island from Manhattan Island and the mainland. (See National Ocean Survey Chart 12335,12339 , and 12366.)

Previous Project. For details see page 210 of Annual Report for 1932.

Existing Project. Channels of following dimensions(depths refer to mean low water): From deep water in Upper New York Bay to Wallabout Channel, 40 feet deep and 1,000 feet wide: from Wallabout Channel to Throgs Neck, 35 feet deep, with widths varying from about 550 to 1,000 feet according to locality: east of F.D. Roosevelt Island up to English Place(43d Dr.), Long Island City, 30 feet deep and varying in width from 500 to 900 feet, with widening in approach from main channel: between South Brother and Berrian Island, 20 feet and 300 feet wide , with widening in approach from main channel :from East River channel to Astoria waterfront, a flared 0.31 mile entrance channel 1,600 to 400 feet wide, a 0.64 mile channel 400 feet wide, and a turning basin 1,000 feet wide and 1,600 feet long, all 37 feet deep in rock and 35 feet in soft material(South Brother Island Channel):removal of Coenties Reef to a depth of 40 feet, also removal of following rocks and reefs lying outside of limiting lines of main channels to give access to wharves: Along Brooklyn shore, Brooklyn Bridge to Manhattan Bridge(Fulton Ferry Reef) , to a depth of 25 feet: Jay Street Reef , 25 feet; Corlears Reef, 35 feet ; Shell Reef , 25 feet; Horns Hook , 40 feet: Rhinelander Reef, 26 feet; and reef off Oak Point, 30 feet; and construction of a dike in Pot Cove in Hell Gate .Section included in improvement is about 17.8 miles long. Mean range of tide varies according to locality from 4 feet at North Third Street, Brooklyn, and 4.4 feet at the Battery to 4.9 feet at Hallets Point, 6.3 feet at Port Morris, and 7.1 feet at eastern entrance at Throgs Neck; mean range of spring tides 4.8,5.3,5.9,7.6 and 8.5 feet respectively; irregular fluctuations due to wind and atmospheric pressure vary according to locality from 3.8 feet below mean low water at the Battery, 2.4 feet at North Third Street, Brooklyn, and 3.8 feet at Throgs Neck up to about 5.2 feet above mean high water at the Battery and 8.4 feet above mean high water at Throgs Neck; extreme fluctuations do not seriously affect navigations.

Local Cooperation. Resolutions of 1970 require local interests to furnish lands, easements and rights-of-way for construction and maintenance; hold the United States free from damages; provide and maintain depths in berthing areas and local access channels serving the terminals commensurate with project depth; provide upon transfer to the United States, a depth in the existing South Brother Island Channel and turning basin of not less than 30 feet; and establish regulations prohibiting discharge of untreated sewage, garbage, and other pollutants in the waters of the harbor, which shall be in accordance with regulations of Federal State and local authorities responsible for pollution control. Assurances of local cooperation were furnished by the Port Authority of

New York and New Jersey under the date of April 9,1974.

Terminal Facilities. See Port Series No. 5. revised 1988. Vol. 2.

Operations and results during the period. A contract for the removal and disposal of all material except ledge rock lying above the plane of 35 feet below mean low water in specified areas of South Brother Island Channel, East River, NY was awarded 25 April 2002 to Great Lakes Dredge & Dock Company. Approximately 245,700 cubic yards of material was removed and placed in the ocean as remediation material. The dredging was completed in June 2002.. Operations and maintenance funds in the amount of $1,727,374.75 was expended during FY 2002. Operations and maintenance funds in the amount of $61,999.73 was expended during FY 2003 for closeout of the above contract.

Conditions as of September 30. Work under existing project was commenced June 1916 and was essentially completed. Construction of dike at Pot Cove in Hell Gate and a part widening near pierhead line in Jay Street Reef are considered unnecessary for the needs of current navigation.

5. EAST ROCKAWAY INLET, NY

Location. On the south shore of Long Island between main body of island and western end of Long Beach. It is 10 miles east of Rockaway Inlet and about 27 miles by water south and east from the Battery, New York City. (See National Ocean Survey Chart 12353.)

Existing Project. A channel 12 feet deep at mean low water and 250 feet wide from 12 foot contour in Long Beach Channel protected by a jetty. Mean tidal range, 4.3 feet: mean range of spring tides. 5.2 feet above mean high water. New work for completed project cost $603,969, including $100,000 contributed funds. (See Table 2-B for Authorization Legislation.)

Local Cooperation. Complied with

Terminal Facilities. There are numerous terminals in Oceanside, Island Park, Long Beach, and East Rockaway, including oil terminals. Other terminals are repair and mooring docks with mechanical handling facilities. There are public wharves at East Rockaway and Woodmere. Waterfront on north side of Long Beach has bulkheaded. Facilities are considered adequate for existing commerce.

Operations and results during the period. A combined maintenance dredging and beach nourishment continuing contract for East Rockaway Inlet/Rockaway Beach was awarded on September 23, 2002 to Great Lakes Dock & Dredge Co. The Maintenance dredging phase of the project involved the dredging of 141,000 cubic yards of material from East Rockaway Inlet federal navigation channel with placement at Rockaway Beach. Dredging was completed during the 1st quarter of FY 2003. Operations and Maintenance funds in the amount of $1,621,845.82 was expended on this project during FY 2003.

Conditions as of September 30. A continuing contract was awarded to Great Lakes Dock & Dredge Co in September 2002. The work began on 10 November 2002 and finished on 9 December 2002. After dredge surveys revealed that the 141,000 cubic yards were removed from the Inlet by hopper dredge and pumped directly on the beach to offset the recent and ongoing erosion.

6. FIRE ISLAND TO JONES INLET, NY

Location. On south shore of Long Island, about 50 miles by water south and east of Battery, New York City. Fire Island Inlet is the main entrance into Great South Bay from the Atlantic Ocean. (See National Ocean Survey Chart 12352.)

Existing Project. A jetty at Fire Island Inlet extending generally southwest and south for 5,000 feet from high ground on Democrat Point at the west end of Fire Island and a channel 14 feet deep and 450 feet wide along the northern edge of the Inlet's shoaling area connecting the ocean to the deep water in the Inlet. Mean tidal ranges at the ocean and inlet ends of Democrat Point are 4.1 feet and 2.4 feet respectively. Irregular fluctuations due to wind and atmospheric pressure vary from 2.5 feet below mean low water up to 6.2 feet above mean high water on the ocean side. (See Table 2-B for Authorizing Legislation.)

Local Cooperation. Requires cost sharing and lands, easements and rights-of-way.

Terminal Facilities. Great South Bay has extensive public and private facilities for mooring and servicing recreational boats. Much of this traffic uses the inlet during the boating season and some traffic (Coast Guard craft and party head fishing boats) continues throughout the year.

Operations and results during the period. The sixth scheduled nourishment cycle was awarded on 25 September 2003. The maintenance dredging and beach nourishment project involves the dredging of Fire Island Inlet Channel and deposition basin with placement of 925,000 cubic yards of sand as nourishment along the designated feeder beach (Gilgo). In addition, the project also involves an option for beach placement at Robert Moses State Park. Approximately 925,000 cubic yards of sand was dredged and placed as nourishment along Gilgo

Beach Shoreline, a direct contract cost(cost shared) of $8,297,000. In addition 175,000 cubic yards of dredged sand is expected to be placed as nourishment along Robert Moses State Park Beach, at a direct contract cost (100%State) of $1,431,250.Operations and maintenance funds in the amount of $292,958.61 was expended on this project during FY 2003.

Condition as of September 30. The jetty completed in 1941 surpassed its capacity as a sand entrapping agent in a little over a decade. Since the extensive sand bars and shoals continued to form west of the jetty and in the inlet throat. Hydraulic dredging in the inlet was undertaken in 1959 and again in 1969 under a combined beach erosion control and navigation authorization (1958 Act). Since then 3 more hydraulic dredging operations were conducted starting 1973 and completed in 1977 under provision of the 1962 Act (See Table 2B). Maintenance dredging using a small hopper dredges has also been done from time to time. Due to local concerns about inlet dredging and consequent erosion at Oak Beach maintenance had been deferred since 1979 which allowed the complete shoaling of the authorized project channel. To facilitate the navigation in this period the existing natural channel was dredged in FY 1985 and in FY 1987. In FY 1987 sand was deposited offshore of Gilgo Beach by hopperdredge using operations and maintenance funds. O&M funds were also used during FY 1987 and 1988 to make repairs to the inner portion of the jetty.In March 1988 the District recommended to plan to maintain a realigned channel in the vicinity of the natural channel to a depth of 14 feet (plus 2 feet of allowable overdepth) and a width of 450 feet. The plan also recommended placement of the dredged material along Gilgo Beach for shore protection purposes. The recommended plan was approved by the Assistant Secretary of the Army for Civil Works on 2 August 1988.Since FY 1990, the realigned channel was dredged to project every two years with placement of material along Gilgo Beach for shore protection purpose.

7. FLUSHING BAY & CREEK, NY

Location. On the north shore of Long Island, the project channel flows from Flushing Bay of Queens, NY and merges with East River near LaGuardia Airport.

Existing Project. A bay channel with a depth of 15 feet for a width of 300 feet, from deep water in the East River to the maneuvering area, a distance of 1.8 miles; a creek channel with a depth of 15 feet, for a width of 200 feet to Northern Boulevard Bridge from which point, the decreases uniformly to 170 feet at a point 50 feet downstream of the Van Wyck Expressway Bridge , a distance of 1.1 miles; a branch channel with a depth of 15 feet for a width of 200 feet, from the bay channel to the maneuvering area , a distance of about 0.1 miles; an irregularly shaped maneuvering area 15 feet deep except the approach to the west side of the municipal boat basin which remains at 12 feet; an anchorage basin about 100 feet by 1,800 feet encompassing about 84 acres with a depth of 6 feet; and riprap revetment of 1,400 feet extension of earth dike.

Local Cooperation. Fully Complied with in that local interests have dredged berthing spaces and have provided waterfront terminals, parking facilities, and municipal boat basin. Projects included enlarged marina facilities, filling of marginal areas, bank protection, promenades, and additional parking facilities.. Construction of the World's Fair complex and the Municipal Stadium, adjacent to the bay, was completed in 1964. Additionally, local interests must furnish all lands, easements and rights-of-way required for construction and subsequent maintenance of the project; hold the United States free from damages; provide without costs to the United States adequate approach channels and berths and modify existing facilities; accomplish without costs to the United States removal or relocation of pipelines, cable or other utilities; provide and maintain necessary mooring facilities and utilities for recreational boating; regulate the use, growth and free development of the waterway facilities with the understanding that said facilities will be open to all on equal terms. Local interests are not required to provide spoil-disposal areas because at the time of authorization, it was determined that it is least costly to use clamshell dredge with disposal in Long Island Sound.

Terminal Facilities. See Port Series No. 5. revised 1999.

Operations and results during the period. A contract was awarded to Bean Stuyvesant Dredging Company, LLC for the dredging and placement of approximately 45,000 cubic yards of material from the creek portion of the project. Dredging was completed during the 4th Quarter of FY 2003. Total operations and maintenance funds in the amount of $4,335,057.25 were expended for this work during FY 2003.

Condition as of September 30. Work under the existing project commenced in April of 1963 and is 100 percent complete. Project channel was completed in March of 1964.

8. GLEN COVE, NY

Location. A narrow tidal inlet extending eastwardly about 1 mile from east side of Hempstead Harbor on the north shore of Long Island, 26 miles northeast of the

Battery, New York City. (See National Ocean Survey Chart 12366).

Existing Project. Provides for a channel 100 feet wide and 8 feet deep at mean low from deep water in Hempstead Harbor about 1 mile to the head of navigation at city of Glen Cove. Mean tidal range, 7.5 feet; mean range of spring tides, 8.7 feet; irregular fluctuations due to wind and barometric pressure vary from 3.6 feet below mean low water up to 8.4 feet above mean high water. New work for completed project cost $29,760, exclusive of $29,774 expended from contributed funds. Widening to 100 feet the upper 1,630 feet of channel where it crosses to foregoing description and cost estimate. Existing project adopted by 1925 River and Harbor Act (H. Doc.207, 68th Cong., 1st sess.). Latest published map is in project document.

Local cooperation. River and Harbor Act of March 3, 1925 provides that local interests pay one-half of first cost of the work, provided rights-of-way, spoil disposal areas, and bulkheads, and give assurances that adequate terminals will be built. Complied with as to contribution of one-half of first cost of work done to date, ceding of rights-of-way, provision of disposal areas, and the construction of terminals. Pending construction of bulkheads by local interests along southerly section of channel in the upper 1,600 feet of the improvement, a channel of less than project width has been evacuated. In a letter dated February 4, 1948, the Commissioner, Department of Public Works, City of Glen Cove, was notified of the conditions affecting the remaining work. There is no indication as to when compliance with these conditions may be expected.

Terminal Facilities. There are 1,875 feet of bulkheads along northerly side of waterway. Terminals are adequate for present needs and there is ample waterfront, both public and private, for additional terminals as needs arise.

Operations and results during the period. The outer portion of the channel was maintained in FY 1997. Maintenance dredging of the remaining portion of the creek was awarded to Bullard Lindsay Contracting on 30 August 2000. The basic work under the contract included the dredging with upland placement of approximately 35,000 cubic yards of material. Options within the contract allowed for the removal of up to 15,000 additional cubic yards of material based on the available capacity of the upland site. Mobilization and disposal site preparation commenced on 19 Sept 2000; and dredging started on 18 October 2000. On November 10th, the contractor informed the Corps that a large amount of debris and pilings were encountered and concluded that it was increasingly non-productive to try to finish the project hydraulically. Subsequently, the contract was modified to use an excavator dredge. Dredging resumed in late February 2001 and was suspended again in April 2001 due to the discovery of an oil layer sediment in the creek and radiation in dredged material at the upland dewatering site in May 2001. A stop work order was issued and radiological contamination signs were posted. The work site was immediately secured by the Corps and EPA.The maintenance dredging contract with Bullard-Lindsay was subsequently terminated in February 2002 for the convenience of the Government under the "Termination for the Convenience of the Government" contract clause. The radiological contaminated dredged material in the dewatering site was disposed of by USEPA. In July 2002, the contractor submitted a Request for Equitable Adjustment(REA) on differing site conditions and costs for Termination for Convenience (T4C), which is being audited by DCAA. The Corps has suspended the navigational dredging of Glen Cove Creek pending resolution of the radioactive material issue , indicating that environmental (rather than navigational) dredging may be required in the creek. Authority for such dredging is presently not available. USEPA has initiated an assessment to determine if the environmental dredging could be undertaken with CERCLA remedial funds. Operations and maintenance funds in the amount of $1,572,002.41 were expended on Glen Cove Creek during FY 2002. Ongoing discussions with EPA and contractor negotiations have led to expenditures in the amount of $174,844.01 during FY 2003.

Conditions as of September 30. Entire existing project is about 55 percent complete. Work under the active portion of existing project was commenced on August 1933 and completed August 1934. The work done provided a channel 100 feet wide from deep water in Hempstead Harbor for 3,470 feet, thence gradually decreasing to 50 feet wide for 180 feet, and 50 feet wide for about 1,450 feet to the head of the improvement. Head of navigation is at City of Glen Cove, about 1 mile above the mouth. Work remaining to complete existing project consists of widening to 100 feet the upper 1,630 feet of channel and building a sand fence along the north side of channel where it crosses the beach. The Glen Cove Creek maintenance dredging project consists of the removal of total, 45,000 c.y. of sediment from the creek with the placement of the dredged material an upland site for dewatering and temporary storage. The dredged material would be removed later by the City of Glen Cove for beneficial use, if feasible, and/or final disposal at an approved upland site.

9. GREAT KILLS HARBOR, NY

Location. Great Kills is a small harbor contiguous to lower New York Bay, located on the southeasterly shore of Staten Island NY, about 8 miles northwest of Sandy Hook, NJ and 16 ½ miles southwest of the Battery, New York City.(See U.S. Coast and Geodetic Survey Chart No. 369)

Existing projects. This provides for an entrance channel 10 feet wide and 150 feet wide from water in lower New York Bay through the entrance to the harbor in the vicinity of the present westerly end of Crooks Island, thence of same depth and width along the west side of the harbor and anchorage area of 138 acres and 8 foot depth. The length of the section included in the project is about 1.9 miles. The mean range of tide is 4.7 feet , mean range of spring tides, 5.6 feet; irregular fluctuations due to wind and barometric pressure vary from 3.9 feet below mean low water up to 5.2 feet above mean high water.

Local cooperation. Fully complied with except that local interests are required to furnish suitable spoil-disposal areas for maintenance.

Terminal facilities. No terminals suitable for commercial purposes have been established. There are 11 small piers used for mooring and landing purposes. Six commercial boatyards and one public terminal are located at Great Kills. The terminals are considered adequate for present needs.

Operations and results during period. A continuing contract for maintenance dredging was awarded to Wickberg Marine Contracting Inc. on 3 September 2002 for maintenance dredging of the outer (entrance) channel to Great Kills Harbor for removal of all material except ledge rock lying above the plane of 10 feet below mean low water with placement of dredged material on the nearby beaches at Great Kills Park New York. Approximately 130,000 cubic yards of material will be removed. The dredging was completed in May 2003. Operations and maintenance funds in the amount of $1,120,000 was expended maintenance dredging in FY 2002.
Operations and maintenance funds in the amount of $434,751.27 was expended in FY 2003 to complete contract dredging.

Government plant and hired labor were employed through the fiscal year performing project condition surveys at a total cost including supervision and administration, of $204,178 during FY 2001.

Conditions as of September 30. Work under existing project was commenced in December 1934 and completed in September 1934. Under a permit issued by the Secretary of the Army, the city of New York dredged a portion of the anchorage and channel along the west side of the harbor in order to obtain fill for park improvement purposes. When examined intermittently

10. GREAT SOUTH BAY, NY

Location. The waterway is located in Great South Bay, Long Island, New York where the 19-mile channel extends from Robert Moses Bridge Island Inlet to the head of navigation of Patchogue River, between Fire Island National Seashore and Long Island

Existing projects. The channel is 10 feet wide from Fire Island Inlet to the Central Basin in Great South Bay opposite Patchogue River, thence 100 feet wide to mile 18.9 in the Patchogue River with a turning basin at the upper end at a depth of 11 feet, thence 8 feet deep to the upstream limit of the project.

Local cooperation. As authorized in the Rivers and Harbors Act of 13 June 1902, and modified in 1970, local interests provide dewatering/disposal areas.

Terminal facilities. This waterway is an integral and essential component of the sheltered water route along the Atlantic Coast. There is considerable US Coast Guard, commercial and charter fishing and National Park Service ferry traffic on this waterway. During peak seasons there is extensive use of this project by pleasure craft.

Operations and results during period. Preliminary engineering and design work (E&D) was performed during this period. This effort included substantial environmental coordination for the Patchogue River portion of this channel. Total operations and maintenance funds in the amount of $70,000 were expended for this work during FY 2003.

Conditions as of September 30. Shoaling continues in the Great South Bay which was last dredged in 1992/93. The quantity of dredged material was 120,000 cubic yards at a cost of $1,194,039. The dredging cycle is approximately every eight to ten years. In the Patchogue River, additional shoaling has caused maneuvering difficulty in the River. In 1968, approximately 60,000 cubic yards were dredged and disposed at an upland site.

11. HUDSON RIVER, NY

Location. Originates in Adirondack Mountains, about 250 miles in a direct line and 315 miles along its course from the Battery, New York City, and flows generally southerly into New York Bay-Section under improvement extends from New York City about 156 miles to Waterford. (See National Ocean Survey Charts 12335, 12341, 12343, 12347, 12348, and 14786.)

Previous project. For details see Annual Reports for 1915 and 1938, pages 164 and 226, respectively.

Existing projects. A channel 600 feet wide from New York City to Kingston, and thence 400 feet wide to Albany, with widening at bends, a turning basin 700 feet wide and 1,200 feet long at Albany, and 2 anchorages, 1 near Hudson and 1 near Stuyvesant, each 400 feet wide and an average length of 2,400 feet; all with depth of 32 feet in soft material and 34 feet in rock to 2,200 feet south of the Mall Bridge; thence 27 feet deep and 400 feet wide to 900 feet south of Mall Bridge, thence 14 feet deep at lower low water and generally 400 feet wide to Federal lock at Troy; and thence of same depth and 200 feet wide to southern limit of State barge canal at Waterford; and removal of State dam at Troy and construction of a lock and dam about 2.5 miles below Waterford. Channel is to be formed by dredging and rock excavation, and maintained by dredging and constructing new and raising and repairing old, longitudinal dikes, built partly under previous projects and partly by the State of NY.

In the tidal section below the Federal dam at Troy, the assumed lowest low water plane downstream to Albany is 3 feet below mean sea level. Mean tidal range is about 5 feet below the dam and about 4.9 feet at Albany. The normal pool level above the dam from Troy to Waterford is 14.3 feet above mean sea level, with the mean range of pool level in seasons of moderate rains being 2.2 feet. (See Table 2-C for features of lock and dam included in existing project.) New work for completed project cost $39,050,019 exclusive of amounts of expended on previous projects. Widening to form harbors at Albany and Troy, NY, to 12 feet deep at a cost of $522,000 (1954) and completion of 27 foot channel at Albany at a cost of $642,000 (1957) was placed in deferred for restudy category, and has since been deauthorized. All three features of work are excluded from foregoing description of existing project and cost estimate. Construction of mooring facilities has been authorized (See Table 2-B for Authorizing Legislation.)

Local cooperation. Complied with except that local interests must furnish suitable soil disposal areas for future maintenance as required.

Terminal facilities. See Port Series No.6

Operations and results during period. A continuing contract for maintenance dredging of approximately 171,000 cubic yards of material was awarded to B+B Dredging Company on 22 September 2003 to restore project dimensions in the Hudson to Germantown reaches. FY 03 funds were used to perform engineering and design, supervision and administration and dredging activities to initiate work on continuing contract. Operations and maintenance funds in the amount of $ 1,013,479 was expended for maintenance dredging activities in FY 2003.

A continuing contract for maintenance repairs to Troy Lock and Dam was awarded to Structural Associates, Inc. on 14 September 2002.Operations and maintenance funds in the amount of $1,729,901 were expended for engineering and design during construction, supervision and administration and contract repair work during FY 2003.

Government plant and hired labor were employed through the fiscal year performing project condition surveys at a total cost including supervision and administration, of $289,052 during FY 2003.

Government plant and hired labor were employed through the fiscal year in the removal of snags and other obstructions which constituted a potential hazard to navigation at a total cost of $441,386 during FY 2003.

Government plant and hired labor were employed through the fiscal year performing operation and maintenance of the Troy Lock and Dam and associated buildings and grounds. Total funds in the amount of $1,049,941 were expended during FY 2003 for operation and maintenance of the Troy Lock and Dam and associated buildings and grounds including supervision and administration.

Condition as of September 30. Work under existing project began in July 1910 and was substantially completed in November 1965. New lock and dam at Troy, removal of dam at Troy and construction of 15,545 linear feet of dikes also are complete. In reconstruction of old dikes 39,676 linear feet are raised to adopted crest height. Channel from New York City to Albany is complete to a depth of 32 feet except for the 1,500 linear foot section at the northern end of the 32 foot project which has never been dredged to project depth. Channel from Albany to Waterford is complete to a depth of 14 feet.

12. HUDSON RIVER AT ATHENS, NY

Location. Athens, New York is along the west bank of the Hudson River approximately 116 miles above the Battery, New York City and approximately 29 miles downstream of Albany, New York. (See Geological Survey, Hudson North, NY quadrangle).

Existing project. No constructed project has ever been done in Athens. The main Hudson River navigation channel runs along the east bank of the Hudson River, Hudson, New York opposite Middle Ground Flats. The proposed project for Athens consists of the design and construction of a 300 foot wide channel to a depth of 24 feet (mean low water) extending from the existing Federal in the vicinity of the Hudson City Light to the north dock at Union Street in Athens. The project was authorized in

Section 110 of the September 1996 Energy and Water Appropriations Act. Preliminary surveys, geologic, and sediment chemical tests have been carried out. A preliminary channel alignment has been prepared with accompanying dredge quantities. The preliminary cost is $21,500,000 with additional cost needed for improvements at the existing terminal docks. The Design Agreement and Project Management Plan have been completed and were approved to by the non-Federal sponsor, Green County Industrial Development Agency.

Local cooperation. The non-Federal sponsor has signed the Design Agreement and provided the 25% cost share of the design, studies can be initiated. If the project is found to be viable, then another non-Federal sponsor would cost share in the construction.

Operation and results during the period, and condition as of Sept. 30. Preliminary studies have been completed and the engineering design and environmental assessment activities have been initiated.

13. JAMAICA BAY, NY

Location. Inside south shore of Long Island, the entrance being about 17 miles by water south and east of the Battery, New York City. (See National Ocean Survey Chart No.12350).

Previous projects. For details see page 1770 of Annual Report for 1915, and page 185 of Annual Report for 1938
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Existing Project. Provides for an interior channel extending from vicinity of Marine Parkway Bridge along west and north shores of the bay, 18 feet deep at mean low water and 300 feet wide to Mill Basin, with a swinging basin, 1,000 feet wide and 1,000 feet
long at the point – thence 12 feet deep and 200 feet wide to Fresh Creek Basin; and interior channel extending from the same locality along south shore to Head of Bay, 15 feet deep and 200 feet wide, a channel in Mott Basin, 15 feet deep and 200 feet wide extending from the channel along the south shore, 3,000 feet to junction of the two branches, thence 200 feet in north branch (Inwood Creek) and 3,200 feet in south branch; and an entrance channel connecting the two interior channels with deep water in Atlantic Ocean, of suitable hydraulic dimensions to maintain present tidal prism in the bay, but not less than 18 feet deep and 500 feet wide from opposite Barren Island to Rockaway Point, Thence enlarging to not less than 20 feet deep and 1,000 feet wide to the sea, protected by one riprap jetty. Length of section included in project is 19.7 miles. Mean tidal range, 4.9 feet at Barren Island, and 5.1 feet at Head of Bay; mean range of spring tides, 5.9 and 6.1 feet, respectively; irregular fluctuations due to wind and atmospheric pressure vary from 4 feet below mean low water to 4.9 feet above mean high water.

Cost for new work for completed project is $4,466,421 (July 1961), excluding amounts expended on previous projects.

Legal cooperation. River and Harbor Act of 1945 provides that in lieu of conditions heretofore prescribed local interest furnish suitable areas for disposal of dredge materials for new work and subsequent maintenance, and hold the United States free from damages. City of New York was notified of conditions of local cooperation in letter dated January 15, 1946. In letter dated February 7, 1946, the Mayor of New York advised disposal areas are available and necessary document holding the United States free from claims for damages" would be executed.

River and Harbor Act of 1950 provides local interests furnish lands, easements, rights-of-way, and suitable areas for disposal of dredged material during construction and subsequent maintenance, hold the United States free from damages and perform all necessary alterations to existing terminals and bulkheads, and dredge adequate approaches thereto. These conditions have been fulfilled.

Terminal facilities. See Port Series No.5.

Operations and results during the period. A continuing contract was awarded to Great Lakes Dredge & Dock Company on 26 September 2002 for maintenance dredging of the Outer Entrance Channel of Jamaica Bay for removal of all material except ledge rock lying above the plane of 20 feet below mean low water with placement of the dredged material on the nearby bay beaches at Breezy Point,
New York. Approximately 386,000 cubic yards of sand was removed. The dredging was completed in March 2003. Operation and maintenance funds in the amount of $2,145,241 were expended on this project during FY 2003.

Conditions as of September 30. Work under existing project was commenced in August 1912 and completed in June 1961. Westerly interior channel from Barren Island to Fresh Creek Basin and swinging basin at Mill Basin were completed in April 1929. Southerly interior channel and channel in Mott Basin, including its two branches were completed in

14. JONES INLET, NY

Location. The project is located in the Town of Hempstead, Nassau County, NY between Atlantic Ocean and Hempstead Bay. It extends from outside of the jetty to the Loop Causeway Bridge over Long Creek.

Existing projects. The project provides for an east jetty and a channel 12' deep, 250' wide from deep water in Atlantic Ocean to Loop Causeway Bridge. The length of the section is 2.3 miles. The mean range of tide is 3.9 feet, mean range of spring tides is 4.7 feet, irregular fluctuations due to wind and barometric pressure vary from 3.9 feet below mean low water up to 11.6 feet above mean high water.

Local cooperation. Fully complied with except that local interests are to pay 35% of the difference of the cost for placement of dredged material from the inlet on the beach if that is not the least cost placement site.

Terminal facilities. No terminals suitable for commercial purposes have been established. There are small piers used for mooring and landing purposes. Approximately 11 commercial boatyards are located in channel adjacent to Jones Inlet. The terminals are considered adequate for present needs.

Operations and results during period. Total operations and maintenance funds in the amount of $61,326.31 were expended for engineering and design activities during FY 2003.

Conditions as of September 30. Work under existing project commenced in 1956 and was completed in 1957.

15. KILL VAN KULL – NEWARK BAYCHANNEL, NJ & NY

Location. The project includes Kill Van Kull connecting upper New York Bay with Newark Bay, and channels in lower Newark Bay serving Port Newark and Elizabeth Marine Terminal. These terminals are located on the west shore of Newark Bay. (See national Ocean Survey Chart 12333.)

Existing project. Deepening the existing Kill Van Kull channel and channels in lower Newark Bay, including turning and maneuvering areas, as well as deepening the Elizabeth and Port Newark channels. The deepening to be done from the existing 35 foot depth incrementally to 40 feet and then 45 feet. The Federal cost of construction is estimated at $582,500,000 with an additional $436,600,000 to be contributed by local interests.

Local cooperation. The Port Authority of New York and New Jersey, the local cooperating agency, has entered into a local cooperation agreement with the Government which was executed on 30 May 1986. A supplemental agreement was executed on 21 May 1987, for Phase I. A new project cooperating agreement will be entered into on 30 January 1999 for Phase II (40 feet to 45 feet).

Terminal facilities. See Port Series No. 5, Vol. 2.

Operations and results during period, and condition as of Sept. 30. Stage 1, channel deepening to 40 feet in seven contracts was substantially completed. Contract No. 1, awarded in June 1987, is completed. Contract No.2 was awarded in July 1988 and is completed. Contract No.3 was awarded in Sept. 1988 and is completed. Removal of rock and hard material in the Kill Van Kull and Newark Bay

was divided in three contracts 4A, 4B, and 4C. Contract 4A was awarded in April 1991 and was completed in Sept. 1995. Contract No. 5 was awarded in May 1988 and is complete. Contract 4C was awarded in Sept. 1994 and was completed in July 1995. Stage 2, channel deepening to 45 feet has commenced with start of work on a Limited Re-evaluation Report, which was approved Oct., 1997. First construction contract for Area 2 was awarded 16 March 1999, May.1999 and was completed September 2000. The second construction control for Area 1 was awarded 4 Aug. 1999 and completed July 2001. The third construction control for Area 4A was awarded 28 Feb. 2000 and was completed Feb. 2002. The fourth construction control for Area 7 was awarded 12 March 2001 and was completed August 2002. Area 5 was awarded December 2001 and scheduled to be completed August 2004.The sixth contract for Area 3 was awarded August 2001 and was completed October 2002.The seventh contract Area 6 was awarded July 2002 and has a completion date of September 2003. The eight contract Area 8 was awarded on May 2003 with a schedule completion date of August 2004.

16. LAKE MONTAUK HARBOR, NY

Location. On east end of Long Island, about 3 miles by land west of Montauk Point and 125 miles by water east of New York City. It is land-locked on the east sides and is connected to the north with Block Island sound by an artificial inlet.

Existing projects. A channel 12 feet deep, at MLW and 150 feet wide, extending from the 12 foot contour in Block Island Sound to the same depth in the existing yacht basin east of Star Island; a boat basin 10 feet deep, 400 feet wide and 900 feet long, located northwest of Star Island; repair and extension shoreward of the east and west jetties; and additional sport fishing facilities on top of both jetties. Length is
Approximately 0.7 miles.

Local cooperation. The Rivers and Harbors Act of 2 March 1945, House Document No. 369, 76th Congress, 1st Session provides that local interests must furnish, free of

cost to the United States all lands,, easements, rights of way and spoil-disposal areas for the initial work and subsequent maintenance as required and hold and save the United States free from damages due to the construction works and subsequent maintenance. Local cooperation has been complied with.

Terminal facilities. A yacht club, marina, a United States Coast Guard Station.

Operations and results during period. Preliminary engineering and design work (E&D) was performed during this period. This effort included bathymetric survey reviews and controlling depth reports as well as environmental coordination. Total operations and maintenance funds in the amount of $76,557.11 were expended for this work during FY 2003.

Conditions as of September 30. There has been additional shoaling in the federal channel and advance maintenance deposition basin.

17. LONG ISLAND INTRACOASTAL WATERWAY, NY

Location. A 33.6 mile long tidal channel opposite Patchogue, to the south end of the Shinnecock Canal in the Town of Southhampton.

Existing Project. A channel 6 feet deep, 100 feet wide from the Federally improved channel in Great South Bay opposite Patchogue, to the south end of the Shinnecock Canal. Length is about 33.6 mile.

Local cooperation. Fully complied with except that local interests are required to furnish suitable dredged material placement areas for maintenance.

Terminal facilities. No terminals suitable for commercial purposed have been established. There are many commercial boatyards along the length of the Intracoastal Waterway as well as two US Coast Guard Stations from which search and rescue missions are launched. The terminals are considered adequate for the present needs.

Operations and results during this period. A continuing contract was awarded to Innerspace Services Inc. on 25 September 02 for maintenance dredging of the Moriches Bay Reach on Long Island Intracoastal Waterway for removal of all material except ledge rock lying above the plane 6 feet below mean low water with placement on an island in Moriches Bay for creation of shorebird habitat. . The dredging was completed in March 2003 and approximately 46,000 cubic yards of material was removed. Total operations and maintenance funds in the amount of $1,634,452.23 were expended for this work during FY 2003.

Condition as of September 30. Work under the existing project was commenced in October of 1939 and was completed in September of 1940.

18. MATTITUCK HARBOR, NY

Location. A tidal inlet on the north shore of Long Island, about 85 miles east of the Battery, New York City, and 24 miles southeast of New Haven Harbor, CT, extending southward about 2 ¼ miles to Village of Mattituck.

Existing project. A channel 7 feet deep at mean low water from Long Island Sound to the Village of Mattituck., 100 feet wide at the entrance and 80 feet wide thereafter, and a 460 by 570 ft. anchorage area at the upper end.

Local cooperation. Fully complied with except that local interests are required to furnish suitable dredged material placement areas for maintenance.

Terminal facilities. Tilcon Minerals, Mattituck Inlet Wharfs; see Port Series No.5, revised 1999.

Operations and results during period. Total operations and maintenance funds in the amount of $115,607.29 were expended for engineering and activities during FY 2003.

Conditions as of September 30. Work under the existing project was commenced in June of 1921 and completed in November of 1921. Construction of West Jetty commenced in October of 1937 and was completed in August of 1938.

19. MORICHES INLET, NY

Location. On the south shore of Long Island, about 80 miles by water east of the Battery, New York City. It is an opening through the narrow sandy barrier beach on the south shore of Long Island which separates the Atlantic Ocean from a series of interconnected bays. (See National Ocean Survey Chart 12352).

Existing project. Provides for a channel, 10 feet deep at mean low water and 200 feet wide extending from that depth in the Atlantic Ocean to Moriches Bay, a distance of 0.7 miles; thence a channel 6 feet deep and 100 feet wide to the Long Island Intracoastal Waterway, a distance of 1.1 miles; rehabilitation of the existing jetties and revetments. Recent provisions include an outer channels deposition basin, a west jetty scour blanket , and habitat enhancement for shore birds. Estimate of cost of work is $13,050,000 (October 1988P.L.) including $50,000 from Coast Guard

and $4,550,000 to be contributed by local interests. (See Table 2-B for Authorizing Legislation).

Local cooperation. In accordance with the project authorization, local interests are required to furnish all easements, rights-of–way including relocations that are necessary for improvements at an overall 35% cost sharing basis. The annual Operations and Maintenance cost is estimated to be $1,860,000 of which the local share is 50% or $930,000 per year. An agreement of Local Cooperation was executed on 30 June 1986. The New York State Department of Environmental Conservation is the local sponsor.

Terminal facilities. Several yacht clubs, boatyards, and public wharfs and landings and numerous private landings are located in Moriches Bay. There are boat basins open to the public. The facilities existing in the bay are considered adequate for present and probable future needs under present conditions of Moriches Inlet. There is room for expansion should future activity warrant.

Operations and results during period, and condition as of Sept. 30. A bid opening for maintenance dredging 280,000 cy of material from the Inlet was held on 22 August 03, as Option #2 of Shinnecock Inlet maintenance dredging. The contract was awarded on 19 December 03. The total contract amount for this option is $1,604,000. The work commenced on 09 February 04 and was completed 24 February 04.

Condition as of September 30. Pre-construction planning resumed in October 1977. Coordination continued with Federal, State and local agencies on current problems and needs for all purposes (i.e., navigation; beach erosion control; water quality improvement). A post authorization change was approved in September 1983 to allow construction of each project purpose separately which clarified authority to defer all purposes except navigation. In January 1980 a breach occurred adjacent to the eastern jetty. Emergency funds ($11.3 million) were authorized under the authority of PL 84-99 to close the breach. About 1,185,000 yards of sand fill were used to effect closure of breach by March 1981.

20. NARROWS OF LAKE CHAMPLAIN, NY & VT

Location. This waterway, 37 miles long, comprises southern end of Lake Champlain and extends from Whitehall to Crown Point, NY at southern extremity of lake, northerly to Benson Landing, VT. (See N.O.S. Chart 14784).

Previous projects. For details, see Annual Reports for 1931, and 1963, pages 256 and 177 respectively.

Existing project. A channel extending from Whitehall, NY at head of Lake Champlain to Benson Landing, 12 feet deep at low lake level and generally 150 feet wide, and installation of lender booms at Putts Rock, Putts Leap, Narrows near Dresden, Pulpit Point and, Cedar Mountain. Reference plan of low take level is 93 feet above mean sea level. Section included in project is about 13.5 miles. Usual annual variation of lake level is 5.8 feet and extreme variation varies from 0.6 foot below up to 8.8 feet above low lake level.

Widening channel throughout its entire length to project width of 200 feet is inactive and excluded from foregoing description of existing project and cost estimate. (See Tale 2-B for Authorizing Legislation.

Local cooperation. None required.

Operations and results during the period. A continuing contract for maintenance dredging of approximately 65,000 cubic yards of sediment was awarded to Inner Space Services, Inc. on 20 July 2001.Operations and maintenance funds in the amount of $286,475 were expended on maintenance dredging activities during FY 2002.Government plant and hired labor were employed in the removal of snags and obstructions that constituted a potential hazard to navigation and in the repair and replacement of deteriorated fender booms during the fiscal year. In addition, environmental assessment activities relative to the Cooke's Island Placement site were performed. Total operations and maintenance funds in the amount of $ 90,555 were expended for this work during FY 2003.

Condition as of September 30. Work under the existing project was commenced June 1919 and is about 77 percent complete. A channel 12 feet deep at low lake level and least width of 150 feet has been excavated throughout the length of the improvement, except at the Elbow, where the width is 110 feet. Fender booms have been placed at the elbow. (Putts Leap and Putts Rock.)

21. NEW YORK HARBOR AND ADJACENT CHANNELS, (PORT JERSEY CHANNEL), NJ

Location. The Port Jersey Channel is the navigation channel located in the Upper Bay of New York Harbor. The Channel runs from its confluence with Anchorage Channel to its head of navigation in Bayonne, where Global Terminal & Container Services, Inc. provides berthing

facilities for container commerce within the Port of New York and New Jersey.

Existing Project. The Federal Port Jersey Channel Project will deepen and widen the existing (non-Federal) Port Jersey Channel and add a turning basin at the head of navigation. The authorized project provides for deepening the existing 35 to 38 foot deep channel to a depth of 41 feet deep below mean low water and generally 450 feet wide with suitable bends and turning areas to extend from deep water in the Anchorage Channel in the Upper Bay of New York Harbor, westward approximately 12,000 feet along the southern boundary of the Port Jersey peninsula, to the head of navigation in Jersey City/Bayonne, New Jersey. The Federal cost of construction is estimated at $88,782,000 with an additional $29,592,000 to be contributed by the primary non-Federal sponsor, the State of New Jersey Department of Transportation.

Local Cooperation. The State of New Jersey Department of Transportation is the primary non-Federal sponsor for the Port Jersey Channel Project. The Port Authority of New York and New Jersey also serves as a limited project sponsor for the single purpose of providing indemnification to the Federal government for the project.

Operations and results during period, and conditions as of September 30. On October 23,2000, the Record of Decision for the Project was signed. On March 28, 2001, the Assistant Secretary of the Army for Civil Works submitted the Chief of Engineers report formally to Congress. The State of New Jersey and the Port Authority executed a Project Cooperation Agreement (PCA) with the Government on July 23,2002. The first construction contract was awarded on October 28,2002, with work now underway.. Plans for the remaining construction contracts have been advertised to begin in 2004.

22. NEW YORK AND NEW JERSEY CHANNELS

Location. Extends from deep water northwest of Sandy Hook, through Lower New York Bay to the and Raritan Bay, to Perth Amboy, and thence through Arthur Kill Lower Newark Bay and Kill Van Kull to deep water in the Upper New York Bay. This is approximately along boundary line between States of New York and New Jersey. (See National Ocean Survey Charts 12333, 12331 and 12327.)

Previous projects. For details, see 1963 Annual Report, pages 184 and 185.

Existing project. A channel through Lower New York Bay, Raritan Bay Arthur Kill, Lower Newark Bay, Kill Van Kull to Upper New York Bay and Raritan Bay and in Arthur Kill to a point 1,000 feet north of Smith Creek, widened to 800 feet in vicinity of Seguine Point and Wards Point, respectively, thence 500 wide to a point 1,000 feet south of Piles Creek; thence 500 to 600 feet wide and passing, north
Of Shooters Island and protected by a dike to it's northern side to junction of channel Newark Bay; thence 800 feet wide through Kill Van Kull to Constable Hook; thence 1,000 feet wide for a point near the intersection with the channel along New Jersey pierhead line; thence 1400 feet wide through Kill Van Kull to Upper New York Bay; with an anchorage 38 feet deep to accommodate five vessels south of Perth Amboy, all with suitable easing bends and junctions. Section included in project is 30.8 miles long. In addition, construction of a dike north of Shooters Island and two secondary channels 30 feet deep and 400 feet wide, one south of Shooters Island and the other in Raritan Bay connecting with Raritan River, were completed under previous projects and maintained under existing project. A triangular area at the eastern end of the 30 foot channel south of Shooters Island was deepened to 35 feet in order to provide additional widening in vicinity of Bergen Point and is included in the Newark Bay project. All depths refer to plane of mean low water. Mean range of tides varies between 4.7 and 5.1 feet; mean range of spring tides 5.7 to 6.3 feet; irregular fluctuations due to wind and atmospheric pressure vary from 3.9 feet below mean high water. Anchorage as Sandy Hook and cutoff at junction of Main Ship Channel are deferred for restudy and excluded from foregoing description and cost estimate. (See Table 2-B for Authorizing Legislation.)

Local cooperation. Fully complied with except for the middle section of Arthur Kill where local interest must furnish soil disposal areas for maintenance.

Terminal facilities. See Port Series No.5, revised 1988, Vol.2.

Operations and results during the period. Operations and maintenance funds in the amount of $5,883,246.68 was expended on this project in FY 03 for engineering and design for dredging of Raritan Bay Reach at Seguine Point Reach and for dredging of the Arthur Kill Reach.

Condition as of September 30. Work under active portion of existing project began in October 1933. Work completed consists of providing authorized project depth and widths throughout entire channel Lower New York Bay and providing depths of 37 and 25 feet in Perth Amboy Anchorage. In addition to above mentioned work, construction of dike north Shooters Island, two secondary channels 30 feet deep and 400 feet wide, one south of Shooters Island, the other in Raritan Bay connecting with Raritan River were completed under previous projects.

Work remaining under existing project consists of dredging cutoff junction of Main Ship Channel to dimensions authorized by River and Harbor Acts of August 30,1935, and May 17,1950, dredging anchorage in vicinity of Sandy Hook.

23. NEW YORK HARBOR-COLLECTION AND REMOVAL OF DRIFT

Location. Applies to Lower and Upper Bays, New York Harbor; East River, Harlem River, Lower Hudson River Channel, New York, NY and New Jersey Channels, Newark Bay, NJ, Passaic and Hackensack Rivers, NJ, Raritan and Sandy Hook Bays, NJ, Jamaica Bay, NY, the Western Portion of Long Island Sound, and their tributaries.

Existing project. Provides for collection, removal and disposal of drift, derelict vessels, deteriorated shore structures and debris along shores of New York Harbor and tributary waters, and for the repair of certain other in-use piers, wharves and shore structures. Work authorized before Act of 1974 was restricted solely to removal of drift from waterway and was funded as maintenance activity. In 1991, WDRA 1974 was modified to authorize collection of floatables wherever corp is collecting and removing debris which is an obstruction to navigation.The current estimate of first cost is $292,000,000 (October 1997 P.L.) including $68,000,000, cash contribution from local interests plus $89,000,000 to be contributed for repair of deteriorated shore structures in use. (See Table 2-B for Authorizing Legislation.)

Local cooperation. Local cooperation conditions provide that local interests must furnish all lands, easements and rights-of –way required for the improvement; hold the United States free from damages; enact and enforce local legislation to prevent creation of sources of drift, contribute in cash one third of the first cost of the Federal drift removal work, and make necessary repairs to deteriorated structures in use so as to eliminate them as a source of drift. These conditions are subject to approval by the Secretary of the Army and the President, as stipulated in Section 113 of the authorizing law, Public Law 91-611.

Operations and results (New work-cumulative to date). A total of five Liberty State Park contracts have been completed at a cost of $10,321,112. East River-Manhattan Waterfront contract was completed at a cost of $1,477,806. A contract for the removal of pier 17 and 18 on the East River was completed at a cost of $219,604. The City of Elizabeth contract was completed at a cost of $791,656. The Stapleton, Staten Island contract was completed at a cost of $2,910,400. A contract for the city of Hoboken was completed at a cost of $2,123,404. Work along the Jersey City South waterfront was completed at the cost of $979,580. Contract Number One at Weehawken to Edgewater was completed at a cost of $1,697,487. The Brooklyn Reach One contract was completed at a cost of $5,057,920. Work was completed on the Weehawken to Edgewater Contract No. 2 at a cost of $8,490,000, and Jersey City North Contract No. 2 at a cost of $1,800,000. The Bayonne One contract has been completed at a cost of $735,800. Hoboken Pier B was completed at a cost of $973,590, and Jersey City North 1 was completed at a cost of $2,358,000. Weehawken-Edgewater Contract 2A was completed at a cost of $4,550,000. The Brooklyn 2A Reach removal contract was completed in October 1999 at a cost of $4,878,022. The Passaic River, Newark, Kearny and Passaic, NJ Reach was completed in May 1999 at a cost of $109,907.

Maintenance. U.S. Debris Boats Driftmaster, Gelberman and Hayward and auxiliary plant were assigned the task of removing and disposing of floating debris that is a hazard to navigation. Removal and disposal of 530,400 cubic feet (4,144 cords) of floating debris consisting mainly of driftwood, ranging in size from small blocks to large timbers, including pilings, pieces of wreckage, derelict vessels and sections of deteriorated pier structure was accomplished at a cost of $4,868,000 during FY 2003.

Conditions as of September 30. For work authorized by Water Resources Development Act, removal of drift sources has been completed in New Jersey at Liberty State Park, the City of Elizabeth, Hoboken, and parts of Jersey City, Bayonne, Weehawken to Edgewater, and Passaic River in Newark, Kearney and Passaic. The New York City work has been completed along the Manhattan side of the East River (South Street Seaport), along part of the Brooklyn waterfront, and at Stapleton, Staten Island.

24. NEW YORK HARBOR-ENTRANCE CHANNELS AND ANCHORAGE AREA

Location. In Upper and Lower Bays, New York Harbor is 330 miles southwest by water of Boston Harbor. Mass.., and 165 miles northwest of entrance to Delaware Bay, NJ. The Upper Bay extends about 5.5 miles southerly from junction of Hudson and East River opposite the Battery, New York City to the Narrow. The Lower Bay extends about 9 miles from the Narrows to the sea.. (See National Ocean Survey charts 12334,12335 and 12349.)

Existing project. Ambrose Channel 45 feet deep and 2,000 feet wide, extending about 10.2 miles from sea to deep water in the Lower bay; Anchorage Channel, and extension of Ambrose Channel, with same depth and width, in the Upper bay opposite anchorage grounds, about 5.7 miles long; and southerly entrance channel. Sandy Hook

Channel (East Section) 35 feet deep and generally 800 feet wide extending 3.4 miles from 35 foot ocean contour to Bayside Channel along an alignment generally west of the South Channel; and elimination from authorized project of that portion of Bayside-Gedney Channel east of junction with new southerly entrance Gedney Channel east of junction with new southerly entrance channel; for bayside Channel 35 deep and 800 feet wide, extending about 5.3 miles from Bayside Channel to deep water in Lower Bay; a channel along New Jersey pierhead line connecting Kill Van Kull with deep water in anchorage Channel, south of Liberty Island anchorage. 20 feet deep fro 500 feet wide with sidening at bends to 800 feet and bout 3 miles long; anchorage in vicinity of Liberty (Bedloes) Island (about 160 acres in extent) 20 feet deep; and for removal of craven shoal to 30 feet deep; for a channel 16 feet deep, 200 feet wide, and about 2.3 miles long, extending from bell buoy 23 to Hoffman and Seinburne Island; for an anchorage area in Red Hooks Flats to depths of 45, 40 and 35 feet and an anchorage area in Gravesand Bay to 47 feet deep. Project depths refer to mean low water. mean tidal range is 4.7 at Fort Hamilton; mean range of spring tides, 5.7 feet; irregular fluctuations due to wind and atmospheric pressure vary from 3.9 feet below mean low water up to 6.2 feet above mean high water. Dredged Material Management Plan.

Location cooperation Fully complied with .Port Authority , States of New York and New Jersey, New York City

Terminal facilities. Port of New York and New Jersey

Operations and results during the period. A continuing contract was awarded to Weeks Marine, Inc. on 5 September 2001 for removal of all material except ledge rock lying above the plane of 35 feet below mean in specified areas of Red Hook Flats Anchorage, NY. Approximately 487,500 cubic yards of material was dredged and transported to Historical Area Remediation Site (HARS). Dredging was completed on 28 November 2001.Total operations
and maintenance funds expended on Red Hook Flats during FY 2002 was $1,020,939. Updated draft DMMP and draft final Programmatic EIS prepared and coordinated with local agencies for release to public in CY 04. Completed data collection effort for habitat restoration option at degraded pits within Jamaica Bay. Total operations and maintenance funds in the amount of $3,242,402.27 were expended for this work during FY 2003.

Condition as of September 30. Work under existing projects began in 1885 and is 100 percent complete. Main Ship and Bayside-Gedney Channels were completed to 30 feet deep in February 1891. Deepening of Bayside-Gedney Channel to 35 feet for a width of 800 feet was completed in June 1939. Ambrose Channel was completed to 40 feet deep for a width of 2,000 feet in April 1914 and substantially completed to 45 feet for a width of 2,000 feet in 1951. Relocation of Anchorage Channel was completed to 40 feet deep in October 1932. Center 800 feet was dredged to 45 feet in June 1947 and westerly 600 foot strip in April 1948. Easterly 600 foot strip was substantially completed in June 1953. Channel between Staten Island and Hoffman and Swinburne Islands was completed in December 1920 up to within 300 feet of southerly limits of the project. Dredged channel meets all needs of navigation and no further work of improvement is contemplated for the present. Channel along New Jersey peirhead line from Kill Van Kull to Anchorage Channel was completed in March 1939. Widening at bends nearly southerly and northerly ends authorized in 1948 was completed to depths of 45 and 35 feet in October 1976. Anchorage Channel was relocated to the westward in 1982. Red Hook Flats Anchorage was accordingly increased in area. No dredging was required. Liberty (Bedloes) Island anchorage was completed to 20 feet in Oct. 1944. Sandy Hook Channel (east section) was Gravesend Bay was completed to 47 Foot depth in November 1977. FY 2004 DMMP Implementation Report and Final Programmatic EIS to be released in CY 2004.

25. NEW YORK AND NEW JERSEY HARBOR, NY & NJ

Location. Extends from deep water northwest of Sandy Hook, through Lower New York Bay to the Verrazano Bridge, then slits northeast along the Brooklyn waterfront, north in the Upper New York Bay to Port Jersey, and west along the Kill Van Kull and portions of the Newark Bay and Arthur Kill Channels. (See National Ocean Survey Charts 12333, 12331 and 12327.)

Previous projects. See New York and New Jersey Channels, Newark Bay Channels, Bay Ridge Channel.

Existing project. The plan requires deepening the entire 10.6 nautical miles of Ambrose Channel extending from deep water in the Atlantic Ocean to the Narrows to a depth of 53ft MLW and 2,000 feet wide. The Anchorage Channel will be dredged to 50ft MLW for 19,000 feet from Narrows to the point 1,000 feet north of the junction with Port Jersey Channel at a width of 2,000 feet. The Port Jersey Channel is to be deepened to 52ft MLW in the rock or otherwise hard material and maintained at a depth of 50ft MLW. The channel will be deepened for a distance of 10,000 feet from this juncture with Anchorage Channel. Through the berthing areas at the Global Marine Terminal and the former MOTBY.
Kill Van Kull is to be deepened to 52ft MLW in the rock or otherwise hard material and maintained at a depth of 50ft MLW, extending from its junction. with Anchorage

Channel. to its junction with the Newark Bay Channel near Bergen Point, and will be 800 foot wide. The Newark Bay Channels are comprised of the Main Channel (South, Middle and North Reaches) plus numerous access channels (South Elizabeth Channel, Elizabeth Channel, Elizabeth Pierhead Channel, Port Newark Pierhead Channel and Port Newark Channel). The main Port Newark Channel will be dredged from its juncture with the Kill Van Kull near Bergen Point to a point located 1,500 feet north of the Elizabeth Channel. The channel will extend north of the Elizabeth Channel to aid vessels in turning and backing into berth.. The 14,000 LF of improvement proposed for the main Newark Bay Channel will not change the present width, which varies from 2,200 feet at its northern terminus 800 feet near Bergen Point. Similarly, the 8,800 foot long Elizabeth Channel will also remain at its present width, which varies from 500 to 800 feet, and its present alignment. The 2,700 long South Elizabeth Channel will be significantly widened from its present 290 feet to 500 feet. Each of the aforementioned channels will be dredged to 52 ft MLW in rock or otherwise hard material and maintained at 50 ft MLW. The Arthur Kill Channel will be deepened from its juncture with the Kill Van Kull near Bergen Point to the Howland Hook Marine Terminal. This 2.4 nautical mile segment of channel will be dredged to a depth of 52 ft MLW in rock or otherwise hard material and maintained at 50 ft MLW. The existing channel varies in width from 500 feet to 800 feet, but will be widened to 800 feet as part of the 41 ft MLW project. This width will be maintained for this project. The nearly 3 nautical mile long Bay Ridge Channel will be improved and maintained to a depth of 50 ft MLW. The proposed channel will parallel the eastern side of current channel at a width of 600 feet, reduced from the current width of 1,200 to 1,750 feet. A proposed turning basin, with a diameter of 1,600 feet, is to be located at the north end of the channel.

Local cooperation. Fully complied with Design Phase. Exceution of the Project Cooperation Agreement is scheduled for May 2004.

Terminal facilities. See Port Series No.5, revised 1999

Operations and results during the period. Under the provisions of Section 101,WRDA 2000, the Port Authority of New York and New Jersey has undertaken the deepening of a portion of the project located near Bergen Point to its authorized depth. This area is primarily rock which will be placed at artificial fishing reefs. The work is being done concurrently with work on Kill Van Kull and Newark Bay channels project, which is deepening that area to 45 feet MLW. The Port Authority is expecting that their costs for this effort will be credited towards the overall project once the Project Cooperation Agreement is executed.

Condition as of September 30. Work remains on all portions of the project, except as noted above.

26. NEWARK BAY, HACKENSACK AND PASSAIC RIVERS, NJ

Location. Newark Bay is an estuary about 1.25 miles wide and 6 miles long extending southerly from confluence of Hackensack and Passaic Rivers to New York and New Jersey Channels. Hackensack River rises near Haverstraw, Rockland County, NY and flows about 45 miles into Newark Bay. Passaic River rises in highlands of northeastern New Jersey and flows about 80 miles into Newark Bay. (See National Ocean Survey Charts 12333 and 12337)

Previous projects. For details, see 1926 Annual Report, pages 265 and 266; and Annual Reports for 1929, 1938, 1954, and 1976, pages 301, 244, 124, and 2-11 respectively.

Existing project. A main channel 700 feet wide to the branch channel to Port Newark, thence 500 feet wide to a turning basin 1,300 feet long and 900 feet wide at the junction of the Hackensack and Passaic River channels, length about 4.7 miles; a maneuvering area south of the removed Central Railroad of New Jersey Bridge 2,200 feet long and 300 feet wide with depths of 38 feet in the south half and 35 feet in the north half; a combined bend cutoff and maneuvering area at the south side of the junction with Elizabeth branch channel; and widening bends at the Kill Van Kull and Port Newark Bay Channels.(Authorized depth 35 feet except as noted above). (adopted 1966) including a triangular area east of Shooters Island with a depth of 37 feet.

At Port Newark-A branch channel 500 feet wide, leading to an inshore channel 400 feet wide 1.6 miles (adopted 1945). Authorized depth 37 feet in rock and 35 feet in soft material; a pierhead channel 200 feet wide along the east bulkhead between Port Newark and Elizabeth branch channels; between 4,100 feet). Authorized depth 35 feet (adopted 1962).

At Elizabeth Marine Terminal-A branch channel 500 feet wide, length about 1.4 miles; a pierhead channel along the east bulkhead 290 feet wide, length about 2,600 feet, southern approach area just above former Central Railroad of New Jersey Bridge enlarged for turning and maneuvering, with a maximum length of about 2,700 feet and width (between the pierhead channel and Newark Bay channel) of about 800 feet. Authorized depth 35 feet (adopted 1962).

Local Cooperation. Rivers and Harbor Act of 1954 provides local interests, furnish lands, right-of-way, the suitable spoil-disposal areas for initial construction and future maintenance; provide depths commensurate with channel depth in approaches and berths at terminals of companies which would use improvement; and hold the United States free from damages. Rivers and Harbor Act of 1962, provides that local interests must provide lands, easements and rights-of-way for maintenance and construction , hold the United States free from damages, provide and maintain adequate public terminal and transfer facilities, and accomplish without cost to the United States, removal or relocation of pipelines, cable and other utilities. Assurances were furnished by Port of New York Authority and accepted June 12,1964. Local cooperation required by previous modifications is fully complied with.

Terminal facilities. See Port Series No.5, revised 1978, Vol.2.

Operations and results during the period. A continuing contract for the removal of all material except ledge rock lying above the plane of 40 feet and 41 feet, below MLW was awarded on September 2002 to Don Jon Marine Co. Inc, for maintenance dredging of Newark Bay Main Channel. The contract was financed by the Government and the Port Authority of New York and New Jersey. The PA provided the specified disposal site for the removal of approximately 68,510 cubic yards of material. Operations and maintenance funds in the amount of $1,356,476.23 were expended during FY 2003.

Condition as of September 30. Work under the active portion of the original portion of the original project began June 1976 and is 100 percent complete. Approximately 250,000 cubic yards of maintenance material remain in the Port Newark Branch and Pierhead Channels. Work remaining to complete existing original project consists of deepening the Hackensack River channel to depths of 32 feet and 15 feet., except as noted above.

27. PLATTSBURGH HARBOR, NY

Location. An area of about 25 areas along the westerly Shore of Cumberland Bay, an arm of Lake Champlain. The Harbor is that portion of the bay between wharf front of Plattsburgh, NY and the breakwater constructed by the United States.(See Lake Surveys Chart 172)

Existing Projects. Provides for a breakwater 1,565 feet long built of timber cribs filled with rubble stone and capped with large stone and extending from a point 750 feet south of outer face of South dock generally northeasterly to a point about 1,400 feet from shore; and for dredging to a depth of 9 feet at low lake level between the breakwater and the wharves. Reference plane of low lake level is 93.0 feet above mean sea level at Sandy Hook, NJ. Usual variation of lake level is 5.8 feet, and extreme variation from 0.6 feet below up to 8.8 feet above low lake level.

Local cooperation. None required **.**

Terminal Facilities. Four timber wharves, aggregating 1,780 feet in length, 400 feet of which are open to the public; all are privately owned. The State of New York has constructed a barge canal terminal about 1 mile north of the breakwater. These appear adequate for the existing commerce.

Operations and results during the period. A continuing contract to perform repairs to approximately fifty percent of the breakwater was awarded to Tug Hill Construction, Inc. on 26 June 2002. Total operations and maintenance funds in the amount of $664,134 were expended during FY 2003 to complete the contract for breakwater repairs including engineering and design during construction, supervision and administration, and construction activities.

Condition as of September 30. Work under existing project commenced 1836 and was completed in 1913. Breakwater was completed in 1893 and dredging in 1913.

28. RARITAN RIVER, NJ

Location. Rises in northern-central part of New Jersey and flows generally southeasterly into Raritan Basin, between Perth Amboy and South Amboy, about 24 miles by water south of the Battery, New York City. (See National Ocean Surveys Chart 12332)

Previous Projects. For Details see Annual Reports for 1915, 1918, and 1938 pages 1777, 359 and 259 respectively

Existing Projects. A channel 25 feet deep and 300 feet wide extending 5.8 miles from turn in New York and New Jersey Channels near Great Beds Light to Government wharf on Main Channel, widened to 600 feet for 1,000 feet of long opposite to form a turning basin of same depth; thence a channel 150 feet deep and 200 feet wide 3 miles to Washington Canal, thence 10 feet deep in soft material, 11 feet deep in rock, and generally 100 feet wide with widening at bends 5 miles to site of former D&R Canal entrance at New Brunswick, and a South Channel 25 feet deep and 300 feet wide 0.8 mile from junction with Main Channel at Keasby to upper limit of Titanium Pigment Co. property; ; thence 15 feet deep and 150 feet wide 0/4 miles to dock of Middlesex County Sewerage Authority; thence 10 feet deep and 150 feet wide 2 miles to a point 1,300 feet below upper junction with Main Channel

at Crab Island. Plane of reference is mean low water. Mean range of tides is 5.1 feet at mouth of river and is 5.6 feet at New Brunswick; mean range of spring tides, 6.1 and 6.6 feet respectively. Irregular fluctuations due to winds and atmospheric pressure vary from 3.6 feet below mean low water up to 6.9 feet above mean high water. New work for completed portion of project, consisting of channels described above cost $1,237,000, exclusive of amounts expended on previous projects, including $66,000 contributed by local interests. Dredging South Channel to 10 feet deep and 150 feet wide for 1,300 feet to upper junction with Main Channel at Crab Island is inactive and excluded from foregoing description and cost estimate. (See Table 2-B for Authorizing Legislation

Local Cooperation. Complied with except local interests. Must furnish spoil-disposal areas for maintenance to 25-foot channel from New York & Long Branch Railroad bridge to junction of Main and South Channels, and is South Channel to Titanium Pigment Co. Property. Rivers and Harbor Act of 1962, provides local interests furnish spoil-disposal areas and necessary retaining dikes, bulkheads and embankments therefore, required for maintenance of improvement, and hold the United States free from damages.

Terminal Facilities. See Port Series No., 5, revised 1988, Vol.2.

Operations and results during period. Engineering and design for future maintenance work was initiated in FY 2003. Operations and maintenance funds in the amount of $70,000.00 was expended on this project in FY 2003.

Condition as of September 30. Entire existing project is about 96 percent complete. Work under active portion of existing project was commenced on September 1919 and completed July 1941.A shoal along northerly channel line in vicinity of Victory Bridge was eliminated by relocation of channel in February 1959. Main Channel dredged 25 feet deep and 300 feet wide from junction with New York and New Jersey Channels to and including a turning basin of same depth opposite Government Wharf thence 15 feet deep and 200 feet wide to mouth of Washington Canal, thence 10 feet and 10 feet deep and 100 feet wide to Delaware and Raritan Canal outlet locks at New Brunswick . South Channel dredged 25 feet deep and 300 feet wide for 3,200 feet, thence 10 feet deep and 150 feet wide for 12,400 feet to within 1,300 feet of junction. with Main Channel to Crab Island . Model study of Raritan River was completed in March 1952, Work remaining under existing project is dredging South Channel to 10 feet deep and 150 feet wide for 1,300 feet to upper junction with Main Channel to Crab Island .

29. RARITAN RIVER TO ARTHUR KILL CUTOFF CHANNEL, NJ

Location. Channel is in western portion of Raritan Bay, off Perth Amboy, and about 23 miles by water southwest of the Battery, New York City. (See Chart No. 12331)

Existing Projects. Channel 1 mile long, 20 feet deep at mean low water, and 800 feet wide, 3 miles connecting Raritan River channel with southern end of Arthur Kill Channel , New York and New Jersey Channels Project. Mean tidal range 5.1 feet; mean range of spring tides, 6.1 feet; irregular fluctuations due to wind and barometric pressure vary from 3.6 feet below mean low water up to 6.9 feet above mean high water. New work for completed project cost $810,500. (See Table 2-B for Authorizing Legislation.)

Local Cooperation. None required.

Operations and results during period. Approximately 72,000 cy of material was removed by Corps' Hopper Dredge "Mc Farland" during FY 1991, to restore project dimensions Raritan River to Arthur Kill Cut-Off Channel, at a project cost of $699,173..

Condition as of September 30. Existing project was completed in 1935

Operations and results during fiscal year. A continuing contract for maintenance and dredging was awarded on 4 August 2000 to Great Lakes Dredge and Dock Company on 30 June 2000 to remove approximately 175,070 cy of material. Operations and maintenance funds in the amount of $972,778.10 was expended on this project during FY 2000.

30. SAG HARBOR, NY

Location. On northern shore of south fork of Long Island, about 24 miles west of Montauk Point. (See U.S. Coast and Geodedit Survey Chart No.298.)

Existing Project. Provides for a breakwater 3,180 feet long extending northerly from Conklin Point; and for an entrance channel 3,200 feet long, 100 feet wide, and 10 feet deep at mean low water from Shelter Island Sound by way of village wharf to mooring dolphins of Standard Oil Co.; for a turning in of same depth; for and anchorage area 8 feet deep at a small anchorage area 6 feet deep at mean low water between the village wharf and Sag Harbor Yacht Club pier. Length of section included in project is about five eighths mile. Mean tidal range, 2.5 feet; mean range of spring tides, 3 feet; irregular fluctuations due to wind and barometric pressure vary from 2 feet below mean low water up to 4.9 feet above mean high water. Cost for new work

for completed project was $121,805. The entrance channel anchorages and turning basin were deauthorized in 1992.

Local Cooperation. Fully Complied with.

Terminal Facilities. There are 7 terminals with a total available berthage of 4,250 feet located in harbor. Three of these terminals with berthage of 2,700 feet, and in addition two small basins, with suitable landing facilities, are open to the public. Mooring dolphins serve to tie up oil barges. One boatyard with storage space for 50 boats sand equipped with two marine railways is available for pleasure craft. Facilities are considered adequate for existing commerce.

Operations and results during the period. A continuing contract (FY00/01/02/03) was awarded to Newborn Construction, Inc on 30 September 2000 for rehabilitation of the breakwater. The rehabilitated structure will have similar dimensions (length, crest width and elevation) as the authorized structure, however, the bayward facing slope will be flattened from 1 on 1 on 1.5 to correspond with Corps of Engineers standard breakwater design criteria. The breakwater rehabilitation was completed as of 23 September 2003. Operations and maintenance funds in the amount of $1,463,474.98 was expended on this project during FY 2003.

Conditions as of September 30. A continuing contract (FY00/01/02/03) was awarded to Newborn Construction, Inc on 30 September 2000 for rehabilitation of the breakwater. The rehabilitated structure will have similar dimensions (length, crest width and elevation) as the authorized structure, however, the bayward facing slope will be flattened from 1 on 1 on 1.5 to correspond with Corps of Engineers breakwater design. Operations and maintenance funds in the amount of $1,463,474.98 was expended on this project during FY 2003 closing out the contract. The breakwater rehabilitation was completed on 23 September 2003. Total cost of contract was $5,936,445.56.

31. SHARK RIVER, NJ

Location. Shark River Channel begins at Shark River Inlet that connects with the Atlantic Ocean at a point 20 miles south of Sandy Hook, NJ. The channel extends 1.7 miles south east of the Inlet.

Existing project. A channel 18 feet deep, 150 feet wide; thence 12 feet deep and 100 feet wide to Rt. 35 bridge; 8 feet deep and 100 feet wide to the Boat Basin, anchorage area 7.3 acres.

Local cooperation. Fully complied with except that local interests are required to furnish suitable dredged material placement areas for maintenance.

Terminal Facilities. No terminals suitable for commercial purposed have been established. Approximately four commercial boatyards are located in Shark River. The terminals are considered adequate for present needs.

Operations and results during period. A contract was awarded to Gibson and Cushman Company, LLC on December 11,2002 for the maintenance dredging of the outer (entrance) channel and a portion of the inner channel of Shark River for removal of all material except ledge rock lying above the plane of 18 feet and 12 feet below mean low water, respectively, with placement on the nearby Borough of Avon-By-The-Sea beach and as a nearshore berm along the 10 ft. below mean low water contour. Approximately 20,000 cubic yards of sand was removed. The dredging was completed in January 2003. Additionally, the Corps' Dredge Currituck was hired for 2 days in August 2003 to remove a shoal from the inlet. A total of 1,600 cubic yards of sand was dredged from the channel and placed as a nearshore berm along the 10 ft. below mean low water contour. Total operations and maintenance funds in the amount of $1,080,991.48 were expended for this work during FY 2003.

Conditions as of September 30. Work under the existing project was commenced in June of 1947 and completed in October of 1947.

32. SHINNECOCK INLET, NY

Location. On the south shore of Long Island, about 95 miles east of the Battery, New York City. It

is an opening through the sandy barrier beach, connecting Shinnecock Bay with the Atlantic Ocean. (See National Ocean Survey Chart 12352).

Existing project. Provides for a channel 10 feet deep (mlw) and 200 feet wide with a deposition basin, thence extending through the inlet to Shinnecock Bay for a distance of about 0.7 mile thence a channel 6 feet deep and 100 feet wide to the Long Island Intracoastal Waterway, a distance of about 1 mile; rehabilitation of the existing jetties and revetments. Estimate of cost for work is $22,300,000(October 91 P.L.) of which the Federal share is $16,900,000 and non-Federal share is $5,400,000.

Local cooperation. The navigation improvement will accrue both recreational and commercial benefits which result in a first cost allocation of 69 percent Federal and 31

percent non-Federal. The authorizing document also requires that local authorities; provide without cost to the United States, all lands easements, right-of-way, and suitable disposal areas for the initial work and for subsequent maintenance, when and as required; hold and save the United States free from damages due to the construction and maintenance of the project; maintain and operate the works after completion in accordance with regulations prescribed by the Secretary of the Army; provide and maintain suitable terminal facilities when and as required for the accommodation of vessels that would navigate the inlet and adjacent bays, open to all on equal terms maintain, for the duration of the economic life of the project, continued public ownership of the publicly owned shores and their administration for public use, and continued availability for public use of the privately owned shores upon which a portion of the Federal share of the costs is based. A Local Cooperation Agreement for the dredging element of the project was executed with the New York State Department of Environmental Conservation on 7 June 90.

Terminal facilities. Shinnecock Bay, and adjacent ocean area, constitute an important marine fishery. The public fishing facility includes three docks, one of which, the Shinnecock Fishermens Cooperative, stores and market the catch for the fishermen.

Operations and results during period. A continuing contract for rehabilitation/revetment of the Western Jetty at Shinnecock Inlet was awarded on 20 June 2001 to Seaboard Marine Corporation for $3,599,565. Mobilization commenced on 5 August 2001. On July 3, 2002 the Seaboard Marine Corporation was terminated for default. The surety company has taken over the project, and has contracted to complete the project with the Newborn Construction in November 2002. The project was expected to take fifteen months to complete. At present Newborn Construction has completed 1200 feet of repairs to the jetty, initiated work on another 70 feet of the jetty, and removed the sheet piles driven by the previous contractor in the inlet. Work is expected to be completed by May 04.Operations and maintenance funds in the amount of $1,279,599.13 were expended during FY 2003. A bid opening for maintenance dredging of the inlet was held on 22 August 03, and awarded on 19 December 03. The total contract amount for the maintenance dredging of 400,000 cubic yards is $3,089,000. The work is expected to commence in February 04 and be completed in March 04.

Condition as of September 30. The initial dredging and reconstruction of the east and west jetties have been completed.

33. SUPERVISOR OF NEW YORK HARBOR (PREVENTION OF OBSTRUCTION AND INJURIOUS DEPOSITS)

The District Engineer, New York District, was designated Supervisor of New York Harbor under the provisions of the River and Harbor Act of June 29,1888 (33U.S.C. 441-451), as amended July 12, 1952. Under this Act, the Supervisor of New York Harbor is charged with the mission of preventing the deposit of obstructive and injurious materials in New York Harbor and its adjacent and tributary waters, including Long Island Sound. The River and Harbor Act of August 18, 1894 (33 U.S.C. 452) makes it unlawful for any person or persons to engage in fishing or dredging for shellfish in any of the channels leading to and from New York Harbor, or to interfere in any way with the safe navigation of deep draft traffic; the River and Harbor Act of March 3, 1899 (33 U.S.C. 403, 407, 409) prohibits obstructions to navigable waters such as unauthorized structures, unauthorized fill, deposit of refuse, and willful or negligent abandonment of vessels. Other laws relating to the supervision of New York Harbor and its tributary water are the Clean Water Act, the Marine Protection, Research and Sanctuaries Act of 1972, the Coastal Zone Management Act of 1969, the Fish and Wildlife Act of 1956, the Federal Power Act of 1920, the National Historic Preservation Act of 1966, the Endangered Species Act of 1973, the Deepwater Port Act of 1972, the Wild and Scenic Rivers Act and the Land and Water Conservation Fund Act.

Direct supervision of the waters under the jurisdiction of the New York District is accomplished by means of a patrol vessel whose scope of duty includes surveillance of the water front for unauthorized construction or fill, surveillance of tows enroute to dumping grounds in Atlantic Ocean to ensure that material is not illegally deposited in the waters of New York Harbor, and investigation of wrecks and abandoned vessels. In addition to the patrol vessels, whose range of patrol is limited to New York Harbor, inspectors utilizing government vehicles patrol shorefront facilities and property. The inspectors operate out of the New York District Office. Their duties include inspection of authorized construction, fill or excavation in waterways, including wetland areas, to ensure that work is performed in accordance with the Corps permit, as well as investigation of unauthorized construction activities. The inspectors also patrol all waterways in their respective area and inform the public of the Corps' role and jurisdiction as well as provide assistance in the preparation of permit application, (See Table 2-E at end of chapter).

34. RECONNAISSAANCE AND CONDITION SURVEYS (See Table 2-F at end of chapter)

35. OTHER AUTHORIZED NAVIGATION PROJECTS (See Table 2-G at end of chapter)

36. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation Activities pursuant of Section 107, Public Law 645, 86th Congress as amended (Pre-Authorization). (See Table 2-N at end of chapter)

Beach Erosion Control

37. ATLANTIC COAST OF LONG ISLAND JONES INLET TO EAST ROCKAWAY INLET LONG BEACH ISLAND, NY

Location. Atlantic Coast of Long Island, in Nassau County, New York, between Jones Inlet and East Rockaway Inlet.

Existing project. The project feasibility study was conducted pursuant to a resolution by the Committee on Public Works and Transportation of the U.S. House of Representatives that was adopted October 1, 1986. Project construction was authorized by the Water Resources Development Act of 1996. The total Federal cost of the project is $299,000,000 and total non-Federal cost is $161,000,000. The authorized plan provides for storm damage protection for 7 miles of public shoreline against a 100 year storm event. Protection is provided by constructing a 110 foot wide protective beach berm at an elevation of 10 feet above sea level backed by a 25 foot wide dune system at an elevation 15 feet above sea level. The project also includes the rehabilitation of 16 existing groins and the construction of four new groins at the eastern end of the island. In addition, the project includes periodic nourishment of the restored beaches on a 5 year cycle for a period of 50 year following initial construction.

Local cooperation. The local sponsor is the New York State Department of Environmental Conservation, who funded 50 percent of the cost of the feasibility study. The Project Cooperation Agreement has not yet been negotiated, but the customary provisions are that local interests will provide, without cost to the United States, all lands, easements, and rights-of-way, including borrow areas, necessary for construction of the project, fund 35% of the total project cost, assure continued conditions of public ownership and use of the shore, maintain public use facilities open and available to all on equal terms, and maintain all improvements after completion of construction in accordance with Federal regulations for the economic life of the project.

Operations and results during the period and condition as of September 30. The Feasibility Report with Draft Environmental Impact Statement (EIS) was completed in February 1995. The Pre-construction, Engineering and Design (PED) phase was completed in September 1997. The final EIS was released for public comment in May 1998 and the record of decision was signed in December 1998. Congress added $2 million in FY 1998 and 7.5 million in FY 1999 to continue the design of the project and initiate construction. The local sponsors requested that the Corps of Engineers reanalyze the area between the proposed new groins and existing groin field in the City of Long Beach before starting construction. A study was conducted which utilized new modeling techniques that were unavailable during the feasibility study to finalize the groin field design. The final report summarizing the findings of the study was completed in March 2000. A reevaluation report that incorporates the design modifications made since the completion of the feasibility study is underway and is scheduled to be completed in November 2004. The reevaluation report will be used as a basis for the PCA. The plans and specifications will be prepared in 2005 if Federal funds are available.

38. EAST ROCKAWAY INLET TO ROCKAWAY INLET & JAMAICA BAY, NY

Location. Atlantic Coast of New York City, between East Rockaway and Rockaway Inlets, and

the lands within and surrounding Jamaica Bay. The coastal area (about 10 miles long) is a peninsula in Queens County separating the ocean and the bay. (See National Ocean Survey Charts 12327, 12350 and 12326).

Existing project. The projects consists of nourishing 100 foot wide beach at an elevation of 10 feet above mean low water from Beach 149th Street to 19th Street. Initial beach replenishment (5 contracts) previously took place between 1979 and 1988. Construction of a stone groin at Beach 149th St. was completed in September 1982. A Section 934 Report approved in February 1994, recommended continued nourishment over a nine year period. The total Federal participation includes first cost and periodic beach nourishment, the total estimated at $63,700,000 (Oct. 1996 P.L.) and non-Federal costs of $45,900,000. The Section 934 Report also recommended a

reformulation study to evaluate alternative methods of providing storm damage protection to the Rockaway area.

Local cooperation. Local interests have agreed to provide lands and rights-of-was, including borrow area: bear a portion of the total cost as a cash contribution; hold the United States freed from damages; maintain, during economic life of a project, continued public ownership and use of non-Federal publicly-owned shores upon which Federal participation in beach protection is based; maintain and operate all works after completion, control water pollution to the extent necessary to safeguard the health of bathers. The project cooperation agreement for additional renourishment over the nine year period was executed on 25 May 1995.

Operations and results during period and condition as of September 30. A final Environmental Impact Statement was filed with the Council of Environmental Quality on April 16, 1971. Initial beach restoration was completed in FY 1977. Contract for first increment of periodic nourishment was completed in August, 1982. Contract for construction of a stone groin at Beach 149th street was completed in September, 1982. Periodic nourishment contracts Nos. 3, 4, and 5 were completed between 1978 and 1988. Contract NO.6 was completed in 1997. The contract included beachfill placement of approximately 3 million cubic yards of sand from Beach 19th to Beach 149th Street. Contract No.7 was completed by Weeks Marine Inc. in February 2001. The contract included beachfill placement of approximately 1.01 million cubic yards of sand from beach 119 to beach 66th street and beach 40th to beach 19th street. Contract No. 8 was awarded to Weeks Marine Inc. on September 29,2003. The contract includes beachfill placement of 1.06 million cy of sand between Beach 26th and Beach 108th Streets.

39. FIRE ISLAND INLET TO MONTAUK POINT, NY

Location. That portion of Atlantic Coast of Long Island in Suffolk County extending from Fire Island Inlet easterly to Montauk Point, NY about 83 miles long. This frontage comprises about 70 percent of total ocean frontage of Long Island. Fire Island Inlet is about 50 miles by water east of the Battery, New York. (See Coast and Geodetic Charts 13209, 12354 and 12353.)

Existing project. Provides for Federal participation in improvement to prevent beach erosion and hurricane damages by; widening beaches along developed areas between Kismet and Mecox Bay, to a minimum, width 100 feet at elevation 14 feet above mean sea level; raising dunes to an elevation of 20 feet above mean sea level from Fire Island Inlet to Hither Hills State Park, at Montauk and opposite Lake Montauk Harbor; planting grass on dunes; constructing gated interior drainage structures at Mecox Bay, Sagaponack Lake, and Georgica Pond; constructing up to 50 groins, if needed; and Federal participation in cost of beach nourishment.

Local cooperation. The New York State Department of Environmental Conservation is the local cooperating agency. The State agreed to provide necessary land, rights-of-way and borrow areas, and furnish 30 percent of the project costs for the Interim Project along the Moriches Inlet to Shinnecock Inlet reach of the authorized project. The State has also agreed to be the local sponsor for the comprehensive reformulation study of the authorized project and for interim project immediately west of Shinnecock Inlet.

Project history. On July 30, 1963, the State reflecting the desires of Suffolk County, requested the inclusion of a minimum of 13 groins in initial construction of Moriches-Shinnecock reach. Chief of Engineers concurred in inclusion of up to 13 groins. Assurances were executed by Superintendent of Public Works, State of New York, on August 14, and accepted by the District Engineer August 20, 1963. On February 5, 1964, the State requested consideration of a plan, as proposed by Suffolk County, for initial construction of 13 groins of which 11 would be in the Moriches-Shinnecock reach, and 2 in the Southampton-Beach Hampton reach vicinity of Georgica Pond, and that sandfill and dune construction be withheld for the present except for 1 mile on each side of Shinnecock Inlet. On February 27, 1964, the Chief of Engineers accepted the proposals, in part, and supplemental assurances were executed by State of New York on April 20, 1964, and accepted by District Engineer April 27, 1964, as follows: the State of New York now elects to proceed with authorized combined beach erosion control and hurricane protection project for South Shore of Long Island; that Superintendent of Public Works hereby reaffirms his assurance of August 14, 1963, relative to complete project; that State of New York, as cooperating agency, will now agree that artificial fills will be added when and to extent found necessary by the Chief of Engineers, but not earlier than 3 years after completion of groins unless both the State of New York and the Chief of Engineers mutually agree to an earlier placement; that the superintendent agrees for State of New York to contribute the full amount of any increase in Federal costs resulting from the separate construction of the groins and subsequent fill; and that the State agree that construction of the two groins in the Georgica Pond area will depend on a favorable finding, following a study by the Chief of Engineers. Study was completed July 31, 1964, recommending construction, and approved by the Chief of Engineers on September 22, 1964. By letter dated November 5, 1964, the New York State Department of Public Works confirmed that title to all

properties and interests in properties necessary for constructing the 11 grains was fully vested in Suffolk County.

By letter dated December 7, 1964, the Department stated that the county had obtained easements or fee title for the parcels necessary for constructing the two groins. New York State Department of Public Works Furnished $884,600 and $830,330 required contributed funds October 30, 1964, and September 7, 1965, respectively, for construction of 11 groins in Moriches-Shinnecock reach and $439,900 on January 22, 1965, for construction of 2 groins in Georgica Pond area of the Southampton-Beach Hampton reach. The completed 2 groins and 11 groins were accepted by the New York State Department of Public Works for maintenance on May 11, 1966 and April 10, 1967 respectively.
On March 22, 1965, the State Recommended that planning priority be in the order; Southampton-Beach Hampton (Drainage structures first); Shinnecock Inlet-Southampton; Beach Hampton-Montauk Point; and Fire Island-Moriches Inlet. Planning on the drainage structures was initiated but was suspended, based on; meeting of October 28, 1965 with Georgica Pond Association and the Preservation Society of East End wherein concern was indicated regarding the effects of the proposed drainage structure on ecology, salinity, pond level and aesthetic values; meeting with the Congressional representative, State legislators, Federal agencies and local officials held on May 26, 1966; and resolution of the Suffolk County Board of Supervisors adopted June 13, 1966 requesting advancement of the planning of the Fire Island-Moriches Inlet reach (Fire Island National Seashore). On June 16, 1967, the New York State Department of Public Works requested the following works undertaken as immediate priority items; in Moriches-Shinnecock reach, beach and dine fill at 11 groins, beach and dune fill east of the 11 groins; in Southampton-Beach Hampton reach (at East Hampton), construction of two additional groins, and the outlet structure at Georgica Pond. On March 18, 1968 the Suffolk County Board of Supervisors adopted a resolution supporting construction of 4 groin in Reach 2 (Moriches-Shinnecock) and 2 groins in Reach 4 (Southampton-Beach Hampton). On April 22, 1968 the Board adopted a more inclusive resolution authorizing participation in beach erosion and hurricane protection for the Moriches-Shinnecock reach and in the Georgica Pond area of the Southampton-Beach Hampton reach.

On December 24, 1968, the Commissioner of the New York State Conservation Department executed the second supplement to the assurances of local cooperation, which was accepted by the District Engineer on January 24, 1969. The reaffirmed previous assurances contained provisions for constructing for additional groins in an area extending 6,000 feet west from the most westerly groin in the existing levee-groin field in the Moriches Inlet to Shinnecock Inlet Reach, and for placing beach and dune fill in this area to the full design cross section as defined in the authorized project report. A General Design Memo completed in 1980 recommended placement of sand fill in the existing 11 groin field and along 9,500 feet of shore to the west.

Condition as of September 30. Engineering and design began November 1962 and the project construction commenced in January 1965. Two groins in Reach 4; Southampton Beach Hampton, Section 3, were initiated in March, and completed in September 1964, at a total cost of $720,950 of which $382,109 were incurred against required contributed funds. Eleven groins in Reach 2: Moriches-Shinnecock, Section 2, were initiated in January 1965, and completed in October 1966 at a total cost of $2,845,656 of which $1,370,191 were incurred against required contributed funds. Initial beach fill placement for 750,000 cubic yards in Reach 2. Section 1A was completed on May 23, 1969. On August 4, 1969 work started on 4 groins and sandfill in Reach 2, section 1A and was completed November 14, 1970. 3,083 tons of stone and 1,111,000 cubic yards of sand was placed. Total cost for all Section 1A was $3,663,455 including $1,791,428 in required contributed funds. Funds in the amount of $70,000 were allotted on April 14, 1977 for initiation of the Phase 1 study in Reach 1, Fire Island Inlet to Moriches Inlet. The Final Environmental Impact Statement was filed with Environmental Protection Agency on January 28, 1978. On March 7, 1978, the Department of the Interior, supported by the other environmental resource agencies referred the Environmental Impact Statement to Council on Environmental Quality as unacceptable. On June 6, 1978 the Council agreed and recommended project reformulation.
Public meetings were held in October 1979 to delineate the scope and level of effort needed to reformulate the project. A final scoping session was held January 17, 1980 and agreement was reached between the Federal agencies although New York State had strong objections. A plan of study was completed in July 1980. However, because of New York State's inability to financially participate in construction at Westhampton Beach, reformulation was postponed.

Two breaches (new inlets) occurred in the vulnerable Westhampton area during periods of storm tides, one in Jan. 1980, just east of the Moriches Inlet, and the most recent in Dec. 1992, at the eastern end of Moriches Bay. Both breaches were filled in by contract, the last one completed in Sept. 1993, at a cost of $7 million.

In April 1993, the State provided a letter of intent to participate in an interim project for the Moriches Inlet to Shinnecock Inlet Reach. Based on this agreement in 1993 on a conceptual plan for the most critically eroded reach of

the authorized project between Moriches and Shinnecock Inlets, the Westhampton Interim Project, the Reformulation Study was reinitiated.

A construction contract for the Westhampton Interim Project was awarded in May 1996 to Great Lakes Dredge & Dock Company in the amount of $16 million. The contract was substantially completed in December 1997 and included beach placement of 4 million cubic yards of sand, dune creation, fencing and grass planting, groin modifications and construction of public dune walkovers. The first renourishment was completed in February 2001 at a cost of $5 million Renourishment is scheduled to continue at 3 year intervals until 2027. In January 1996, a Breach Contingency Plan was approved, which provides a mechanism for rapid response to breaches along the barrier island, within the authorized project.

The Reformulation Study, which has been consistently funded since 1993, is currently underway. Data has been collected including beach profile surveys and aerial topography maps of the entire 83mile long shoreline. Scoping for the preparation of an Environmental Impact Statement has been conducted. The study is scheduled to be completed in November 2006.

Due to the lack of non-Federal support, efforts on the Fire Island interim project have been deferred. It is currently anticipated that construction of an interim project West of Shinnecock Inlet could begin in the fall of 2004.

40. RARITAN BAY AND SANDY HOOK BAY, NJ

Location. Situated at the southern end of Lower New York bay between the Raritan River and Sandy Hook, in Middlesex and Monmouth Counties, NJ Shoreline area is typified by small developing communities built upon and near salt and freshwater marshes. The study area is largely located in low elevation regions with numerous small creeks providing drainage. Low-lying residential and commercial structures in the area are experiencing flooding caused by coastal storm inundation. Problem has progressively worsened due to loss of protective beaches and increased urbanization in the area with structures susceptible to flooding from rainfall and coastal storm surges, erosion and wave attack, combined with restrictions to channel flow in the tidal creek.

Existing project. Existing Federal project was authorized by the Flood Control Act of 12 October 1962 as a dual purpose Beach Erosion Control and Hurricane Protection Project in accordance with House Document No.464, 86th Congress, Second session. This project provided for beach fill, groins, and levees for various sections of the study area. The constructed project consists of segmented sections of beach fill and levees surrounding the communities at Old Bridge Township and Keanburg and East Keanburg. A study was authorized by a resolution of the Committee on Public Works and Transportation, U.S. House of Representatives, adopted August 1, 1990. The study seeks to determine the advisability to the recommendations in the authorizing report for Raritan Bay and Sandy Hook Bay, Section 506 of WRDA 1996 authorized periodic nourishment, if determined necessary, for a period of 50 years from initiation of construction of the period of 50 years from initiation of construction of the project, in accordance with section 156 of WRDA 1976 and Section 934 of WRDA 1986.

Local cooperation. The non-Federal sponsor, NJDEP, is currently cost sharing a number of Raritan Bay and Sandy Hook Bay, NJ feasibility studies with USACE: Port Monmouth, Union Beach, and Cliffwood Beach. The non-Federal sponsor would also be required to cost share in feasibility studies for the communities of Leonardo, Highlands and Keyport in order for them to proceed. (The non-Federal sponsor also operates and maintains the existing, constructed project).

Operation and results during period, and condition as of Sept. 30. Construction of the authorized project for Old Bridge Township was initiated in 1965 and completed in 1966. Construction of the shoreline portion of the authorized project for Keansburg and East Keansburg was initiated in 1968 and completed in 1969. Construction of the closure portion (levees, closure

gate and pumping station) of the authorized project for Keansburg and East Keansburg was initiated in 1970 and completed in 1973. Cliffwood Beach and Union Beach were the only portions of the authorized project that were not constructed. After construction of the closure work all of the completed works were formally turned over to the State of New Jersey in 1974.

A reconnaissance study was completed in March 1993. Subsequently, a feasibility study for Port Monmouth was initiated in February 1994, and for Union Beach and Cliffwood Beach in April 1997. In FY 2002, the final feasibility report and EIS for Port Monmouth were issued. Feasibility study activities for Union Beach and Leonardo continued. The feasibility study for Cliffwood Beach was completed by the project was not recommended for continued Federal involvement. The pre-feasibility activities for Highlands were finalized in preparation for a scheduled FY 2001 FCSA execution. Pre-feasibility activities continued for Keyport. A design agreement was executed with the NJDEP for the Raritan 934 (Keansberg, East Keansberg, Old Bridge) reevaluation study in November 1999. The study was initiated in January 2000.

This reevaluation report will serve as a basis for extension of periodic nourishment for the constructed portions of the existing project for Keansberg East Keansburg and Old Bridge Township.

41. ROCKAWAY INLET TO NORTON POINT (CONEY ISLAND AREA), NY

Location. Atlantic Coast of New York City, in Brooklyn (Kings County), approximately nine miles south of the Battery, New York City.

Authorized project. Authorized by the Water Resources Development Act of 1986. The authorized plan provides for beach erosion control by restoring the Coney Island public beach up to 250 feet beyond its historic shoreline; the extension of the westerly terminal groin; construction of a terminal groin at the easterly end of the restored beach, and a fillet of beachfill from the terminal groin at W. 37th Street extending approximately 2300 feet into the community of Sea Gate. The authorized plan also provides for restoration of the beach by periodic beach nourishment. The project was modified by the Intermodel Surface Transportation and Efficiency Act (ISTEA) of 1991 to include the relocation of existing comfort and lifeguard stations at full Federal expense. The total Federal cost of the project is $112,200,000 and non-Federal cost is $56,600,000. The project was further modified by Section 329 of WRDA 2000, which authorized the construction of T-groins west of the West 37th Street groin.

Local cooperation. The local sponsor is the NY State Department of Environmental Conservation. In accordance with the provisions of the Project Cooperation Agreement, the sponsor will; provide without cost to the United States all lands easements, and rights-of-way including borrow areas necessary for construction of the project, hold and save the United States free from claims for damages which may result from the construction works and subsequent maintenance of the project: provide a cash contribution toward the total first cost; assure that water pollution that would affect the health of bathers will not be permitted; assure continued conditions of public ownership and use of the shore upon which the amount of Federal participation is based, during the economic life of the project; maintain public use facilities open and available to all on equal terms and maintain all improvements after completion in accordance with regulations prescribed by the Secretary of the Army, including periodic nourishment during the economic life of the project as may be required to serve the intended purpose, subject to Federal participation in the cost of periodic nourishment for the economic project life.

Operations and results during period, and condition as of September 30. Initial construction of the beach and the West 37th Street jetty was completed in January 1995. The design of the comfort and lifeguard stations was completed in 1996. Adequate funding is not available to proceed with construction. Post-construction monitoring continued in FY ’01. A study was conducted that evaluated the causes of the accelerated beach erosion downdrift of the W. 37th Street groin and the sand accumulation along Gravesend Bay the study identified alternatives for a long-term solution. The report was completed in March 1998. The report recommended three alternative solutions. A draft limited re-evaluation report that includes an environment assessment of the alternatives is underway and scheduled to be finalized in FY 2004. The report recommends the construction of T- groins as a solution to the beach erosion and sand accumulation problems. Construction of the T-groins may begin in the fall of 2005 if Federal and State funds are available.

42. SANDY HOOK TO BARNEGAT INLET, NJ

Location. The northern portion of the Atlantic coast of New Jersey extending from Sandy Hook southerly to Barnegat Inlet-length about 48 miles. Erosion has seriously reduced the width of most beaches in the study area with consequent exposure of the shore to storm damage. Because of this erosion of the shore the area does not provide sufficient recreational beaches for the proper accommodation of the present and prospective tributary population.

SECTION I – SEA BRIGHT TO OCEAN TOWNSHIP, NJ

Location. That portion of the Atlantic coast of New Jersey in Monmouth County extending from Sea bright southerly to Ocean Township – length about 12 miles. Sea Bright is about 30 miles by water south of the Battery, New York City.

Authorized project. The Water Resources Development Act of 1988 (PL 100-670) authorized a plan substantially in accordance with the plan recommended in the General Design Memorandum for the project dated May, 1988. In general the plan provides for beach erosion control along approximately 12 miles of coastline, extending from Sea Bright southward to Ocean Township, New Jersey, by artificial placement of sand to widen the beach berm to 100 feet at an elevation of 10 feet above mean low water with an additional 2 foot high berm cap to provide an extra increment of protection from overtopping. The project also provides for the notching of 15 existing stone groins, and periodic nourishment throughout the 50 year economic life of the project. Existing storm outfall pipes are extended beyond the new , wider beach. Total estimated Federal cost for Section 1 is $461,200,000. Total

estimated non-Federal cost for all requirements of local cooperation is $248,400,000.

Local cooperation. Includes reconstruction of sea wall at Sea Bright and all lands easements, rights-of-way and drainage outfall extensions.

Operations and results during period and condition as of September 30. The Local Cooperation Agreement for Section I was executed with the State of New Jersey on July 30, 1992. Work under Contract 1A (Monmouth Beach) was completed in November 1995. Work under contract 1B (Sea Bright) was completed in October 1996. Construction on Contract 2 (Long Branch) began in May 1997 and was completed in September 1999. Plans and specifications for Contract 3 (Deal) are near completion but contract award is delayed indefinitely due to local real estate and funding issues. The first renourishment contract for Sea Bright and Monmouth Beach was awarded in August 2001. Sand placement commenced in Sea Bright in May 2002 and was completed in November 2002.

SECTION II – ASBURY PARK TO MANASQUAN, NJ

Location. That portion of the Atlantic coast of New Jersey in Monmouth County extending from Asbury Park southerly to Manasquan – length about 9 miles.

Authorized project. Provides for Federal participation in the restoration and protection of the shore from Asbury Park to Manasquan by artificial placement of sand to widen the beach berm to a minimum width of 100 feet at an elevation of 10 feet above mean low water with a 2 foot high berm cap. The project provides for the notching of 20 existing stone groins and periodic nourishment for a period of 50 years from construction. Existing outfall pipes are extended beyond the new wider beach. Total estimated Federal cost is $457,600,000. Total estimated non-Federal costs for all requirements of local cooperation is $246,400,000.

Operations and results during period and condition as of September 30. The local cooperation agreement for Section II was executed with the State of New Jersey on August 20, 1996. The contract for the Southern Reach (Belmar to Manasquan) was awarded in March 1997. Construction began in June 1997 and was completed in August 1999. The award of the Northern Reach (Asbury Park to Avon-by-the-Sea) contract was in June 1999. Beachfill placement commenced in July 1999 and was completed in December 1999. Work on the groin notching and outfall extensions was completed in January 2001. The first renourishment contract is currently scheduled to start in the summer of 2005 if Federal funds are available.

43. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

(See Table 2-H at end of chapter)

44. BEACH EROSION CONTROL WORK UNDER SPECIAL AUTHORIZATION

Beach Erosion Control activities pursuant to Section 103 Publ. Law 826, 84th Congress as amended (See Table 2-O at end of chapter).

Flood Control

45. THE HACKENSACK MEADOWLANDS AREA, NJ

Location. The project location is the Hackensack Meadowlands River Basin in Bergen and Hudson Counties, New Jersey.

Existing project. The program was authorized by Section 324 of the Water Resources Development Act of 1992 and amended by Section 550 of the Water Resources Development Act of 1996. The program was authorized for $5,000,000. The objective of the program is to provide design and construction assistance for the development of the Environmental Improvement Program within the Hackensack Meadowlands District of New Jersey. The intent of the program is to assist the New Jersey Meadowlands Commission in: tide gate improvements to control flooding in the Berry's Creek drainage basin, the mitigation, enhancement and acquisition of wetlands, the development and implementation of a system to provide for water quality monitoring and wetland control in the Hackensack Meadowlands River Basin. A hydraulic modeling study of the Hackensack River will be performed and it will also examine a proposed tide gate on Berry's Creek, among other alternatives. The Corps of Engineers Engineer Research and Development Center is performing the modeling study.

Local cooperation. The non-Federal sponsor is the New Jersey Meadowlands Commission (NJMC).

Operations and results during the period and condition as of September 30. The General Management Plan, which outlines the management process for implementing the program, was completed in October 1998. A total of $2.5 million was appropriated for the program in FY 1996. The design agreement was executed between the Corps of Engineers and the NJMC in March 2000. The parent model and two child models have been

completed. Two additional child models are scheduled to be completed in 2004.

46. JOSEPH G. MINISH PASSAIC RIVER WATERFRONT AND HISTORIC AREA, NJ

Location. The project area is located along the west bank of the Passaic River between Bridge and Brill Streets in the City of Newark, New Jersey. This reach of the Passaic River is eroded, deteriorated and environmentally degraded due to past heavy commercial and industrial use and flooding. The most recent flooding occurred in December 1992. In light of the renewal of the commercial downtown area of Newark near the Passaic River, the project area is viewed as an environmental resource to be restored.

Authorized project. The project was authorized in the Water Resources Development Act (WRDA) of 1990 (Public Law 101-640) as an element of the Passaic River Flood Damage Reduction Project on November 28, 1999, modified in the Water Resources Development Act of 1992 (Public Law 102-580) by extending the project area, and further modified in the Water Resources Development Act of 1996 (Public Law 104-303).

The project has three phases. The first phase will provide 6,000 feet of new bulkhead, 3,200 feet of restored riverbank and wetlands. The second phase adds a 9,200 foot waterfront walkway and the third phase adds park facilities, plazas and landscaping. Links to the Arts Center, Riverbank Park, and other sites will also be provided. The project will reduce the flooding and erosion and provide environmental restoration, recreation and economic development benefits. The cost of the first phase is $37,300,000, adding the second phase increases the cost to $60,000,000 and the third phase brings the total project cost to $78,800,000. The sponsor of the first phase is the New Jersey Department of Environmental Protection and cost sharing is set a 75% Federal and 25% non-Federal. The State may reduce its share through credit provisions in WRDA 1992. The credit consists of the value of lands in the basin that the State puts into wetlands bank.

Local cooperation. Project will be operated and maintained by sponsor as each portion is completed.

Operations and results during period and condition as of September 30. Construction on the first phase started in September 1999 and 1,700 feet of new bulkhead is complete. Additional appropriations will be required to complete the first phase. Interest is also being expressed by the city of Newark by its letter of March 7, 2000 will sponsor the second and third phases. Design efforts and a project cooperation agreement will be prepared.

47. NEW YORK CITY WATERSHED ENVIRONMENTAL ASISTANCE PROGRAM, NY

Location. The project location is the New York City Watershed, which is located within the following counties in New York State: Delaware, Greene, Schoharie, Ulster, Sullivan, Westchesteer, Putnam and Dutchess.

Existing project. The program was authorized by Section 552 of the Water Resources Development Act (WRDA) of 1996 and amended in WRDA 1999. The program was authorized for $42,500,000 in Federal funds. The objective of the program is to provide design and construction assistance for water-related environmental infrastructure and resource protection and development projects in the New York City Watershed, including projects for water supply, storage, treatment and distribution facilities and surface water resource protection and development. Twenty-eight projects have been certified by the New York State Department of Environmental Conservation (NYSDEC) and recommended for implementation. The types of projects include stream restoration, installation of sanitary sewer lines, stormwater studies, pathogen monitoring, planning and implementation of agricultural non-point source pollution reduction and watershed protection training.

Local cooperation. The non-Federal sponsor is the NYSDEC. The projects will be accomplished by the local sponsors, the New York City Department of Environmental Protection, municipalities and counties.

Operations and results during the period and condition as of September 30. The General Management Plan, which outlines the management process for implementing the program, was completed in September 1998. A total of $13 million has been appropriated for the program in FY 1997 through 2003. The request for proposals, under which the proposed projects were submitted, evaluated and certified for implementation, was completed in February 1999. A total of 23 Project Cooperation Agreements have been executed to date Discussions with the local sponsors and negotiations of the PCA's for the other certified projects are underway.

48. PASSAIC RIVER BASIN, NJ & NY

Location. The Passaic Basin, comprising 787 square miles in northeastern New Jersey and 148 square miles in southern New York State, is located

in the greater New York City Metropolitan area. The Passaic River Basin is roughly elliptical in shape 26 miles long and 56 miles wide – and contains portions of Bergen, Essex, Morris, Passaic, Hudson, Somerset, Sussex and Union Counties in New Jersey. The Basin also includes parts of Orange and Rockland Counties in New York.

Previous projects. Three Federal flood control projects have been completed by the Corps of Engineers in the Passaic River Basin. A $67,400 de-snagging, debris removal, and channel restoration project was completed in 1951 along Beaver Brook and the Pequannock Township Ditch, tributaries of the Pompton River in Pequannock Township, NJ.

Along the Pompton River, a channel clearing project including shoal removal and channel restoration was implemented in the two mile reach from the Delaware, Lackawanna and Western Railroad Bridge to the Erie Railroad (Greenwood Lake Branch) Bridge. This work, in Pequannock Township, Wayne Township and Lincoln Park Borough, NJ, was completed in 1954 at a cost of $50,000.

A $1.5 million basin-wide project to improve the Flood Warning and Preparedness System was completed in 1988. The project was implemented by the Corps of Engineers in conjunction with the National Weather Service and U.S. geological Survey, The State of New Jersey is the non-Federal sponsor of the project.

Project history. U.S. Army Corps of Engineers involvement in Passaic River planning was first authorized in the Flood Control Acts of 1936. Since then reports recommending plans of action were issued in 1939, 1948, 1962, 1972, and 1973. None of these plans were implemented because they did not receive widespread public support. In 1976, Congress authorized a Phase I Advanced Engineering and Design Study in Section 101(a) of the Water Resources Development Act of 1976. Congressional Guidance on the conduct of the study was provided in House Report 94-1702. Local protection plans were completed for tributary flood damage areas along the Ramapo and Mahwah Rivers at Mahwah, NJ, and Suffern, NY, Molly Ann's Brook at Haledon, Prospect Park and Paterson, NJ, the Ramapo River at Oakland, NJ, and the Lower Saddle River in Bergen County, NJ. These projects were authorized in the Water Resources Development Act of 1986. Construction began on the Molly Ann's Brook project in 1995. The Ramapo River at Oakland project received construction funds in Fiscal year 1995 and was reauthorized in WRDA 1996 and in the Energy and Water Development Appropriate Act of 2001.

In April 1984, the Passaic Basin experienced flooding estimated to be the worst in 40 years. In June 1984, the State of New Jersey selected a dual inlet diversion tunnel plan as the preferred Bain-wide alternative for detailed plan formulation. The Phase I General Design Memorandum and draft Environmental Impact Statement, (EIS), recommending the Pompton River/Passaic Dual Inlet Tunnel Diversion Plan, were completed during FY 1998. The final EIS was filed with EPA in December 1988.

Section 101(a) 18 of the Water Resources Development Act (WRDA) 1990 (PL 101-640), as modified by section 102(p) of WRDA '92 (PL 102-580) authorizes construction of the Passaic River Flood Protection Project for the Passaic River Basin which will address both environmental and engineering objectives of the Act. The Passaic River Flood Protection Project combines diversion tunnels, levees, flood walls channel modification, and natural flood storage to provide flood protection to about 35 towns in the Passaic River Basin.

Pre-construction, Engineering and Design for the Passaic River Flood Protection Project was initiated in FY 1989 and is continuing with preparation of a General Design Memorandum and Supplemental Environmental Impact Statement with accompanying project cost estimate, and update of buy-out plans. A draft report was completed in Sept. 1995.

The final report was completed in July 1996 with the State's decision to implement various separable clients as described below. Engineering and design for the Joseph G. Minish, Passaic River Waterfront Part and Historic Area project element, consisting of environmental and streambank restoration measures in the city of Newark was completed in May 1996.

Condition as of September 30. Construction has been completed on Molly Ann's Brook. Construction is continuing on the Ramapo River at Oakland and Joseph G. Minish Passaic River and Waterfront Park and Preservation of the Natural Storage Areas. The purchases of the national flood storage areas is underway. The Saddle River, Harrison Levee Project, Mahwah River projects, and Passaic River Floodway Buyout are in the design phase.

49. PRESERVATION OF NATURAL FLOOD STORAGE – PASSAIC RIVER FLOOD DAMAGE REDUCTION REPORT, NJ

Location. Flooding has long been a problem in the Passaic River Basin. Since colonial times, floods have claimed lives and damaged property. The most severe flood, the "flood of record", occurred in 1903, and more recent floods in 1968, 1971, 1972, 1973, two in 1975, 1984 and 1992 were sufficiently devastating to warrant Federal Disaster declarations. The flood of 1984 resulted in the

loss of three lives and caused $493 million in damages (October 1994 dollars).

Authorized project. The U.S. Army Corps of Engineers has been working on plans to reduce flooding in the basin since 1936, but no plan has yet been implemented. Congress authorized a new study of the Passaic River Basin for the State of New Jersey in the Water Resources Department Act (WRDA) of 1976 (Public Law 94-587) which led to a plan authorized in WRDA 1990 and modified in WRDA 1992. The project includes several elements (see separate fact sheet on Passaic River). The element described herein is the Preservation of Natural Flood Storage Areas which the State has asked to Corps to implement. The Preservation element includes the acquisition of 5,350 acres of natural storage areas. 5,200 acres of which are wetlands and could conceivably be developed, worsening existing flood problems. The State of New Jersey has an agreement with the Corps to continue to protect 6,300 floodway acred, thus avoiding any secondary development. About 9,500 acres of the Central Basin are already protected as designated parkland, bringing the total of natural storage areas that would be permanently protected with the project to 21,000 acres. The Preservation element will prevent flood damages from becoming worse. It will not reduce flooding in the Passaic River Basin. The cost sharing is set a 75% Federal and 25% State. The State may reduce its share by applying credits included in the authorization.

Local cooperation. Project lands will be operated and maintained by non-Federal sponsors as each parcel is acquired.

Operations and results during period and condition as of September 30. The General Design Memorandum for the element was completed in July 1996 and the State has requested that the Corps proceed with its implementation. Project Cooperation Agreement was signed in 1999. Purchases started in spring 2000 and continue. 1300 acres have been acquired to date. Total estimated Federal cost is $20,400,000. Total non-Federal costs for all requirements of local cooperation is $1,700,000.

50. RAMAPO RIVER AT MAHWAH, NEW JERSY & SUFFERN, NY

Location. Flooding has occurred frequently on the Ramapo River, with flood events in 1968, 1971, 1973, 1977, 1979, 1980, 1983, 1984, 1987, 1996, and 1999. The 1977 and 1984 floods were the most severe causing extensive damages to the project area. Tropical Storm Floyd in September 1999 also cause significant damage.

Authorized project. The Ramapo River and Mahwah Rivers Flood Control Project is authorized for construction under the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662). The authorized project involves the construction of features for flood protection along the Ramapo and Mahwah Rivers in Mahwah, NJ and Suffern, NY. The authorized plan for flood damage reduction includes channel modification to approximately 13,000 feet of the Ramapo River, Mahwah River, and Masonicus Brook. The modifications would include the widening and deepening of the channels, sheet pile walls, and bridge modifications. The project will provide protection to residential, commercial, and industrial developments in Suffern and in Mahwah.

Local Cooperation. The non-Federal sponsors, New York and New Jersey will sign a project design agreement summer 2002. Assuming a favorable project is recommended and implemented, a construction project cooperation agreement would be executed and upon completion of constuction the project would be turned over to the non-Federal sponsors for operation and maintenance. The sponsors will also provide all lands required for the project.

Condition as of September 30. The project design memorandum was completed and approved in September 1987. Plans and specifications were substantially complete in 1990. Construction funds were appropriated, but work was never initiated due to the lack of project cooperation agreements. After the flooding in 1999, the involved States, counties, and towns expressed interest in resuming the project. Letters of support from New York and New Jersey documented the interest and requested an update of the project to determine whether further interest is warranted. A project management plan has been developed. An updated design is underway.

51. RAMAPO RIVER AT OAKLAND, NJ

Location. The project involves the construction of features for flood protection along the Ramapo River from Pompton Lake in Wayne Township and the Borough of Pompton Lakes, upstream through the Borough of Oakland to West Oakland Avenue, a distance of 3.3 miles.

The principal problem along the Rampo River is flooding caused by backwater effect produced by the Pompton Lake Dam, the hydraulic construction produced by bridges crossing the river, and insufficient channel capacity. Flooding has occurred frequently, with the most recent events in 1968, 1970, 1971, 1973, 1977, 1978, 1979, 1980, 1983, 1984, 1987, 1993 and as September 1999 from Tropical Storm Floyd.

Authorized project. The Ramapo River was studied as part of the Passaic River Basin Phase I Advanced Engineering and Design Study which was authorized by the Water Resources Development Act of 1976 (Public Law 94-587, October 22, 1976). Congressional guidance for the for the conduct of the study is included in House of Representatives report 94-1702. The study was authorized for construction under the Water Resources Development Act (WRDA) of 1986 (Public Law 99-62) and reauthorized in WRDA 1996 (PL 104-303). The sponsor is the New Jersey Department of Environmental Protection. The authorized plan for flood damage reduction along the study area includes channel modification of 5,800 feet of the Ramapo River. The authorized plan also calls for the installation of flood control gates at the existing Pompton Lake Dam. Mitigation for the environmental impacts of the plan includes the creation of a five acre wetland in Potash Lake. The recommended plan would provide a consistent 40 year level of protection to the project area. The plan has an estimated cost of $21,600,000. The cost is shared by the Federal Government (75%) and the State (25%). The State share includes the cost for all lands easements, and right-of-way as well as a cash contribution. The State share may be reduced through the use of credits available for Passaic River Basin projects\

Local cooperation. Non-Federal sponsor will operate and maintain project once construction is complete and project is turned-over to sponsor.

Operations and results during period and condition as of September 30. Engineering and design commenced in October 1987. The final general Design Memorandum was completed in May 1994 and approved in July 1994. Permits were issued in January 1999. The Project Cooperation Agreement was executed in April 1999. The channel modification and wetland creation are substantially complete. This construction is followed by the ongoing installation of the flood control gates.

52. RARITAN RIVER BASIN GREEN BROOK SUB-BASIN, NJ

Location. The Green Brook Basin lies in central New Jersey within the counties of Somerset, Middlesex and Union and is one of the major tributaries in the Raritan River Basin. The Green Brook, which originates in the Watchung Mountains, has a 65 square mile watershed. The bell shaped basin widens markedly as Green Brook flows southwesterly to its mouth at the Raritan River.

Project History. The Green Brook Flood Control Project is the result of efforts over the past three decades by the U.S. Army Corps of Engineers, other Federal agencies, state and local agencies, civic organizations and the general public. In 1968, a reconnaissance investigation was conducted, under the Corps of Engineers Continuing Authority Program for small projects, for Ambrose, Bound and Bonygutt Brooks. The resulting report recommended further study all three locations. Detailed project reports concluded that individual flood protection projects were not economically feasible at any of the locations. Subsequently, record floods occurred in 1971 and again in 1973, causing catastrophic damage throughout the basin. As a result of the devastating events, the need for basin-wide studies of the entire Green Brook Basin was apparent. The Corps of Engineers, North Atlantic Division (NAD) issued the *Feasibility Report for Flood Control, Green Brook Sub-Basin*, dated August 1980. The plan recommended in this report consisted of a system of levees and floodwalls to provide protection against a 150 year flood in the lower portion of the Green Brook Basin only. A more comprehensive, basin-wide solution would have also extended 150 year protection to the upper and Stony Brook portions of the basin. The Board of Engineers for Rovers and Harbors (BERH) reviewed the NAD report and issued its report on 16 March 1981, in which they endorsed all plan formulation decisions in the 1980 Feasibility Report. However, the BERH also stated the "the recommended 150 year level of protection is inadequate for this highly urbanized floodplain". To avoid catastrophic consequences of levee overtopping, the BERH recommended protection to 500 year level. The Chief of Engineers Report dated 4 September 1981. In February 1984, the Secretary of the Army expressed the administration's views in his letter transmitting the report to Congress in which he recommended that the August 1980 report should be authorized.

The Water Resources Act of 1986 authorized construction of a project, providing protection in all three portions of the Green Brook Basin. Section 401a of the Water Resources Development Act (WRDA) 1986 authorized construction of the Green Brook Flood Control Project for the Green Brook Sub-basin, which will address both environmental and engineering objectives of the Act. The Green Brook Flood Control Project combines levees, floodwalls, channel modification, flood proofing, and natural flood storage to provide flood protection to about 13 municipalities in the Green Brook Sub-basin

On the basis of this authorization, funds were budgeted and appropriated for preconstruction engineering and design. Surveying, mapping and other studies necessary to provide the basis for actual construction commenced toward the end of 1986. However, delays wee incurred due to conflict between the needs and desires of the non-Federal sponsor and national economic development which affected the quest for a comprehensible implementable plan. In January 1994, a general reevaluation study was initiated. Unfortunately, the area was hit with another record storm in

September 1996 causing more damages, the draft General Reevaluation Report was issued in December 1996 and opened for public comment for the period between January 7 and March 7, 1997. As a result comments expressed with significant concerns over the flood protection plan proposed for the upper portion of the basin, the Corps and the NJDEP agree to defer action on the flood protection plan for the upper portion of the basin. The Final General Reevaluation Report and Supplemental Environmental Impact Statement was approved in May 1997 with the support of the New Jersey Department of Environmental Protection (NJDEP) who is the non-Federal sponsor for the project. In FY 1998, an Upper Basin Task Force (UBTF) was formulated to develop potential plan alternatives to the upper basin. The UBTF released their final report on November 12, 1998. In September 1999, again the area saw another record storm which not only caused catastrophic damage but resulted in 3 deaths. The Corps of Engineers, New York District released a Project Study Plan (PSP) to determine the feasibility of the alternatives discussed in the UBTF report in June 2000.

Pre-construction Engineering and Design for the Green Brook Flood Control Project was initiated in FY 1997 and the Project Cooperation Agreement

(PCA) between the NJDEP and the Federal Government was executed on June 24, 1999.

Condition as of September 30. The first construction contract was awarded on September 29, 2000 to begin work in the lower portion of the basin which includes a temporary bridge demolition, replacement of a bridge and demolition of 3 houses on East Street of Bound Brook. As a result of the 1999 storm event, a resolution was submitted by Middlesex Borough in October 1999 requesting buyouts along Prospect Place and Raritan Avenue. In August 2001, the Federal Emergency Management Agency (FEMA) purchased houses on Raritan Avenue under their Hazard Mitigation Program and are scheduled to be demolished by November 2001. The Corps of Engineers, New York District reviewed alternatives to the proposed flood proofing measures for the remaining structures and determined that the Locally Preferred Plan (LPP) of voluntary buyouts is the recommended alternative. Act language to authorize this project change is expected in WRDA 2002. Buyout offers were extended to 22 properties on Prospect Place in Middlesex Borough.19 properties accepted the buyouts and these properties were obtained by 31 December 2002. Demolition began in December 2002 and was completed in July 2003. In addition, the levee system in the Borough of Bound Brook was reanalyzed, and construction began 2nd quarter 2002.

53. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspections of the following completed flood control works and beach eros
ion and hurricane protection projects were performed to determine the extent of compliance by local interests with operation and maintenance requirements.

New England Inspection Date:

Adams, MA – Hoosie River	Oct. 03
Bennington, VT – Roaring Branch, Walloomsac River	Sept.03
East Barre Dam, VT – Jail Branch Winooski River	Sept. 03
Montpelier Dam, VT – Winooski River	Sept. 03
North Adams, MA – Hoosie River	Oct. 03
Richford, VT – Missiquoi River	Sept. 03
Waterbury Dam, VT – Little River	Sept. 03
Wrightsville Dam, VT – North Branch Winooski River	Sept. 03

NY – NJ Areas

*E. Rockaway Inlet to Rockaway Inlet	Oct. 99
Elizabeth, NJ – Elizabeth River	Jul 03
*Fire Is. Inlet to Montauk Rt., NY	Oct. 03
Herkimer, NY – Bellinger Brook & Mohawk River	Oct. 03
Holland Patent, NY – Thompson Creek	Oct. 03
Hoosic Falls, NY – Hoosic River	Oct. 03
Kingston, NY – Esopus Creek	Oct. 03
North Ellenville, NY – Beer & Fantine Kills & Snadburg Creek	Sept. 03
Rahway, NJ – Rahway River, S.Branch Rahway River	Aug 03
*Raritan Bay & Sandy Hook Bay, NJ Old Bridge, Keansburg & Middletown, NJ	NI
Rosendale, NY – Roundout Creek	Oct. 03
So. Amsterdam, NY – S. Chuctanunda Creek & Mohawk River	Oct. 03
S. Orange NJ – E. Branch, Rahway River	Jul 03
Yonkers, NY – Saw Mill River	Apr 03
Chappaqua, NY – Saw Mill River	May03
Ardsley, NY – Saw Mill River	Jun 03
Sandy Hook to Barnagat Inlet, NJ	NI
Ballston Spa- Kayadersoseras Creek,NY	Oct. 03
Highland Mills- Woodbury Brook, NY	Oct. 03
Mt. Pleasant- Esopus Creek, NY	Oct. 03
Mt.Tremper- Esopus Creek, NY	Oct. 03
Pleasant Valley- Wappinger Creek,NY	May 03
Lincoln Park/Pequannock-	Sep. 03

Beaver Brook,NJ	
Shandaken- Esopus Creek, NY	May 03
Wallkill River- Wallkill River	May 03
*Beach Erosion & Hurricane Protection Projects	NI

(NI= Not Inspected FY 2003)

54. OTHER AUTHORIZED FLOOD CONTROL PROJECT

(See Table 2-1 at end of chapter.)

55. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205, Public Law 858, 80th Cong. As amended Pre-authorization. (See Table 2-P at end of chapter)

Chapter 1 Natural Disaster and Emergency Flood Control Activities. Pursuant to Public Law 84-99 and antecedent legislation provides for disaster preparedness, emergency operation, rehabilitation, advance measures, emergency water, and drought assistance.

Under disaster preparedness, the New York district initiated revisions to emergency response plans to include lessons learned from previous disasters, attended meetings and seminars dealing with emergency response planning and purchased supplies and equipment to maintain its' flood fight and response capability.

Under emergency operations, the New York District conducted field investigations, provided technical assistance and sandbags to local and county government in response to flooding events.

In response to Presidential disaster declarations under P.L. 93-288 the New York District received mission assignment from the Federal Emergency Management Agency (FEMA) for Temporary Housing, ESF#3, AND Debris Management during Hurricane Isabel in September 2003.

General Investigations

56 SURVEYS

(See Table 2-J at end of chapter.)

57. COLLECTION AND STUDY OF BASIC DATA

Costs for the period of $143,839 for flood plain management services are set forth in Table 2-L at the end of chapter.

58. DEAUTHORIZED PROJECTS

Projects having all, or inactive or uncompleted portions de-authorized by Congressional Action pursuant to Water Resources Development Acts
(See Table 2-M at end of chapter)

TABLE 2-A COST AND FINANCIAL STATEMENT

	Projects Funding	FY00	FY01	FY02	FY03	Total Coast to Sept 30, 2003
1. Aquatic Plant Control	New Work					
	Approp.	311,000	300,000	300,000	400,000	3,641,183[1]
	Cost	311,571	298,664	298,672	398,860	3,636,717[2]
2. Arthur Kill Channel Howland Hook Marine Terminal , NY&NJ	New Work					
	Approp.	—	800,000	146,000	—	6,528,918
	Cost	—	716,187	209,184	85,747	6,614,665
	Maint.					
	Approp.	—	—	—	—	—
	Cost	—	—	—	—	—
3. Burlington Harbor, VT	New Work					
	Approp.	—	—	—	—	706,414
	Cost	—	—	—	—	706,414
	Maint.					
	Approp.	283,117	2,138,850	2,283,000	704,000	6,550,850
	Cost	283,117	2,123,391	2,296,601	706,856	6,551,984
4. East River, NY	New Work					
	Approp.	—	—	—	—	32,750,745
	Cost	—	—	—	—	32,723,662
	Maint.					
	Approp.	242,089	249,387	1,727,625	62,000	8,277,584
	Cost	242,089	247,762	1,727,375	62,000	8,274,620
5. East Rockaway Inlet, NY	New Work					
	Approp.	—	—	—	—	83,969
	Cost	—	—	—	—	533,334
	Maint.					
	Approp.	136,000	2,236,562	440,000	1,625,000	23,117,122
	Cost	136,502	2,230,106	446,455	1,621,846	23,127,022
6. Fire Island to Jones Inlet, NY	New Work					
	Approp.	4,239,734	489,000	9,453,300	572,000	54,911,000[3]
	Cost	1,710,337	6,381,366	-19,321	504,876	54,634,783
	Maint.					
	Approp.	2,303,000	147,269	3,528,000	299,000	28,338,319
	Cost	2,331,840	147,268	3,527,849	292,959	27,709,749
7. Flushing Bay and Creek, NY	New Work					
	Approp.	—	—	—	—	2,182,905
	Cost	—	—	—	—	2,182,905
	Maint.					
	Approp.	293,000	372,946	261,000	4,335,000	14,106,748
	Cost	293,001	372,412	2,230,106	4,335,057	14,106,455
8. Glen Cove Creek, NY	New Work					
	Approp.	—	—	—	—	165,882
	Cost	—	—	—	—	165,882
	Maint.					
	Approp.	694,599	1,300,000	1,572,000	175,000	3,984,358
	Cost	694,598	1,298,939	1,572,002	174,844	3,983,142
9. Great Kills Harbor NY	New Work					
	Approp.	—	—	—	—	—
	Cost	—	—	—	—	—
	Maint.					
	Approp.	—	—	1,120,000	435,000	1,555,000
	Cost	—	—-	1,120,000	434,751	1, 554,751
10. Great South Bay, NY	New Work					
	Approp.	—	—	—	—	—
	Cost	—	—	—	—	—
	Maint.					
	Approp.	—	—	—	70,000	70,000
	Cost	—	—	—	70,000	70,000

TABLE 2-A (Continued) COST AND FINANCIAL STATEMENT

Projects	Funding	FY00	FY01	FY02	FY03	Total Coast to Sept 30, 2003
11. Hudson River, NY	New Work					
	Approp.	—	—	—	—	44,249,800[4, 5]
	Cost	—	—	—	—	44,249,865
	Maint.					
	Approp.	1,895,000	3,689,000	2,655,000	4,988,000	68,592,450[6, 7]
	Cost	3,501,224	1,713,221	3,776,614	4,992,378	68,432,076
12. Hudson River, NY	New Work					
(New York City to	Approp.	—	—	—	—	9,290,000
Waterford: Athens Channel)	Cost	32,264	396,043	444,506	268,925	1,377,525
13. Jamaica Bay, NY	New Work					
	Approp.	—	—	—	—	4,545,750
	Cost	—	—	—	—	4,454,75
	Maint.					
	Approp.	470,000	1,286.968	140,000	2,190,000	16,426,718
	Cost	470,500	1,286,475	140,493	2,145,241	16,319,767
14..Jones Inlet, NY	New Work					
	Approp.	—	—	—	—	1,822,530
	Cost	—	—	—	—	1,822,530
	Maint.					
	Approp.	50,000	18,570	46,000	60,000	24,170,070
	Cost	50,275	18,571	44,674	61,326	24,170,070
15.Kill Van Kull-Newark	New Work					
	Approp.	28,580,000	46,216,000	34,678,658	2,864,000	402,563,617[8]
	Cost	10,398,616	35,858,098	45,477,510	5,624,194	402,305,518
16. Lake Montauk Harbort, NY	New Work					
	Approp.	—	—	—	—	791,680
	Cost	—	—	—	—	791,680
	Maint					
	Approp.	590,570	10,000	10,000	76,000	2,089,633
	Cost	590,571	10,012	9,443	76,557	2,089,633
17. Long Island Intracoastal	New Work					
Waterway, NY	Approp.	—	—	—	—	235,964
	Cost	—	—	—	—	235,964
	Maint					
	Approp.	130,000	324,291	2,338,000	1,635,000	16,634,462
	Cost	131,924	288,379	2,373,450	1,634,452	16,633,453
18. Mattituck Harbor, NY	New Work					
	Approp.	—	—	—	—	681,811
	Cost	—	—	—	—	681,811
	Maint					
	Approp.	—	—	—	116,000	116,000
	Cost	—	—	—	115,607	115,607
19. Moriches Inlet, NY	New Work					
	Approp.	—	—	—	—	9.801,000
	Cost	—	—	—	—	9.799,000
	Maint					
	Approp.	138,125	74,893	77,000	35,000	1,399,440
	Cost	40,961	64,694	113,964	60,562	1,351,766
20. Narrows of Lake	New Work					
Champlain, NY	Approp.	—	—	—	—	681,811
	Cost	—	—	—	—	681,811
	Maint					
	Approp.	207,000	794,900	307,000	90,000	3,148,265
	Cost	208,949	767,837	333,002	69,569	3,049,183

TABLE 2-A (Continued) COST AND FINANCIAL STATEMENT

Projects	Funding	FY00	FY01	FY02	FY03	Total Coast to Sept 30, 2003
21. New York Harbor and Adjacent Channels,	New Work					
	Approp.	715,000	580,000	25,000	1,113,667	6,022,516
	Cost	538,514	713,009	232,788	296,560	5,181,436
22. New York and New Jersey Channel	New Work					
	Approp.	—	—	—	—	73,052,435
	Cost	—	—	—	—	73,052,435
	Maint					
	Approp.	656,000	4,837,549	355,000	5,937,000	58,678,639
	Cost	668,153	4,826,836	365,403	5,883,246	58,666,797
23. New York Harbor-Collection and Removal of Drift	New Work					
	Approp.	358,000	—	-119,000	—	45,980,000
	Cost	228,592	42,729	5,187	—	45,962,183
	Maint					
	Approp.	4,623,000	4,810,000	4,855,000	6,350,489	124,846,739 [9]
	Cost	4,570,944	4,859,837	4,855,000	6,350,435	120,113,368
24. New York Harbor-Entrance Channels & Anchorage Areas	New Work					
	Approp.	—	—	—	—	45,009,710
	Cost	—	—	—	—	45,009,710[10]
	Maint.					
	Approp.	8,544,000	3,260,000	3,825,000	3,529,000	114,497,170
	Cost	8,442,420	3,437,544	3,852,541	3,242,402	114,205,479
25. New York and New Jersey Harbor NY & NJ	New Work					
	Approp.	—	—	49,363,842	110,819,333	165,357,827[11]
	Cost	—	—	34,936,273	100,132,387	139,854,381
26. NewarkBAY,Hackensack Passaic Rivers,NJ	New Work					
	Approp.	—	—	—	—	29,014,500
	Cost	—	—	—	—	29,014,500
	Maint.					
	Approp.	—	1,039,742	1,491,000	250,000	2,780,742
	Cost	—	1,036,853	387,369	1,356,476	2,780,698
27. Plattsburgh Harbor,NY	New Work					
	Approp.	—	—	—	—	198,415
	Cost	—	—	—	—	198,415
	Maint.					
	Approp.	—	220,000	2,211,869	650,000	3,338,284
	Cost	—	188,022	2,197,451	664,134	3,306,022
28. Raritan River, NJ	New Work					
	Approp.	—	—	—	—	1,551,470
	Cost	—	—	—	—	1,551,470
	Maint.					
	Approp.	2,418,000	124,742	—	70,000	18,623,011
	Cost	2,418,271	124,742	—	70,000	18,623,011
29. Raritan River, To Arthur Cutoff Channel, NJ	New Work					
	Approp.	—	—	—	—	810,510
	Cost	—	—	—	—	810,510
	Maint					
	Approp.	972,000	38,775	—	—	4,931,356
	Cost	972,778	38,775	-1,000	1,000	4,931,356
30. Sag Harbor. NY	New Work					
	Approp.	—	—	—	—	121,805
	Cost	—	—	—	—	121,805
	Maint.					
	Approp.	355,000	1,614,559	3,188,000	1,700,000	6,880,532
	Cost	366,264	1,614,386	3,187,980	1,463,475	6,643,814
31. Shark River. NJ	New Work					
	Approp.	—	—	—	—	150,000
	Cost	—	—	—	—	150,000
	Maint.					
	Approp.	—	—	96,000	1,081,000	5,384,185
	Cost	—	—	96,000	1,080,991	5,384,177

TABLE 2-A (Continued) COST AND FINANCIAL STATEMENT

Projects	Funding	FY00	FY01	FY02	FY03	Total Coast to Sept 30, 2003
32. Shinnecock Inlet. NY	New Work					
	Approp.	—	—	—	—	14,863,000
	Cost	—	—	—	—	14,823,090
	Maint.					
	Approp.	100,470	1,455,699	166,000	1,281,000	6,811,715
	Cost	105,510	1,453,835	166,587	1,279,599	6,764,926
33. Supervisor of New York Harbor	New Work					
	Approp.	747,000	740,000	867,000	714,000	38,840,960
	Cost	729,765	763,192	868,908	713,518	38,840,464
37. Long Beach Island NY	New Work					
	Approp.	—	-259,000	-259,000	325,000	2,848.000
	Cost	115,031	115,031	77,530	216,007	2,678,589
38. East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, NY	New Work					
	Approp.	1,547,000	4,088,000	174,700	648,583	53,355,972 [12]
	Cost	1,421,411	3,707,862	253,699	348,134	51,795,377
39. Fire Island Inlet to Montauk Point, NY	New Work					
	Approp.	5,065,000	7,964,000	2,309,000	4,882,750	78,700,189 [13]
	Cost	3,906,736	9,483,613	1,803,061	3,556,225	76,213,877
	Maint.					
	Approp.	—	—	—	—	113,970
	Cost	—	—	—	—	143,753
40. Raritan Bay and Sandy Hook Bay, NJ	New Work					
	Approp.	368,000	12,500	-164,000	—	1,395,500 [14]
	Cost	178,880	120,015	22,095	131	1,212,299
41. Rockaway Inlet to Norton Point (Coney Island), NY	New Work					
	Approp.	957,000	419,000	1,736,000	333,000	29,121,765
	Cost	733,296	2,275,497	411,461	416,096	26,928,146[15]
42. Sandy Hook to Bamegat Inlet, NJ	New Work					
	Approp.	17,287,648	8,749,000	13,806,590	6,143,000	181,494,811[16]
	Cost	18,007,294	7,016,396	10,226,844	7,761,029	173,323,502
45. Hackensack Meadowlands, NJ	New Work					
	Approp.	487,500	—	—	—	2,987,500[17]
	Cost	300,013	658,471	686,523	316,926	2,240,761
46. Joseph G. Minish Waterfront Park, NJ	New Work					
	Approp.	5,887,000	194,000	1,600,000	815,000	15,396,000
	Cost	2,518,295	245,418	3,345,811	3,069,964	10,394,720
47. New York City Watershed, NY	New Work					
	Approp.	—	1,371,000	21,000	1,480,000	4,898,000
	Cost	762,265	735,055	1,681,565	1,500,452	4,898,000
48 Passaic Mainstem NJ	New Work					
	Approp.	—	—	—	—	63,459,669
	Cost	71,817	5,112	27,741	47,796	63,260,872
49. Preservation of Natural Storage Areas, NJ	New Work					
	Approp.	1,510,000	1,825,000	2,837,000	2,296,000	9,648,000
	Cost	507,541	2,867,330	3,142,091	2,076,120	9,257,288
50. Ramapo at Mahwah NJ	New Work					
	Approp.	—	29,000	84,000	651,000	1,914,460
	Cost	4,203	17,747	76,146	587,831	1,810,314
51. Ramapo at Oakland NJ	New Work					
	Approp.	-409,000	2,349,500	3,012,000	1,989,000	11,924,500[18]
	Cost	288,073	3,284,767	2,919,740	888,162	9,384,012

TABLE 2-A (Continued) COST AND FINANCIAL STATEMENT

Projects	Funding	FY00	FY01	FY02	FY03	Total Coast to Sept 30, 2003
52. Green Brook Sub-basin	New Work					
	Approp.	4,930,420	3,449,000	14,450,000	9,905,000	62,351,420 [19]
	Cost	2,227,640	3,394,693	11,751,767	6,730,593	52,508,402

[1] Of which $12,500 is for North Atlantic Division Accounts.
[2] Of which $12,127 is for North Atlantic Division Accounts.
[3] Excludes $90,190 for new work expended from contributed funds. Additional NY State Funds were $200,000 in 1990, $581,000 in 1991, $611,574 in 1996, $2,093,194 in 1997, $1,280,000 in 2000, $1,468,734 in 2001, $3,654,000 in 2002 and in 2003 $292,959.
[4] Includes $5,112,694 for new work for previous project.
[5] Includes $238,350 for new work expended from public works funds and $311,461 emergency relief funds. Excludes $81,373 expended from contributed funds.
[6] Excludes $454,273 expended between August 18, 1915 and June 30, 1935, for operation and care of lock and dam at Troy, NY, under permanent indefinite appropriation. Excludes $23,735 reimbursement for repairs to Troy Lock.
[7] Includes $346,797 for maintenance for previous project.
[8] Includes $107,991,000 from contributed funds.
[9] Includes $115,000 for new work for previous projects.
[10] Includes $2,491,206 expended to date for construction of land-based overfire air pit incinerator ($1,493,393 in maintenance funds and $997,813 in O & M funds.) and $116,500 applied to removing wrecks authorized by acts prior to adoption of existing projects.
[11] Includes$53,802,633 from contributed funds.
[12] Includes $9,893,583 from contributed funds.
[13] Includes $12,828,750 from contributed funds.
[14] Includes $438,000 from contributed funds.
[15] Includes $12,792,100 from contributed funds.
[16] Includes $54,776,000 from contributed funds
[17] Includes $487,500 from contributed funds.
[18] Includes $1,022,500 contributed funds.
[19] Includes $14,072,420 from contributed fund

TABLE 2-B AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	AQUATIC PLANT CONTROL (See Section 1 of Text)	
River and Harbor Act of 1959	Control and progressive eradication of obnoxious Aquatic Plant growths	H. Doc. 37 85th Cong. 1st sess.
Section 104 and Harbor Act of 1958	Provided that all research and planning cost to be borne fully by the United States.	
Section 302 River and Harbor Act of 1965	Modified project to include control of waterchestnut	
	ARTHUR KILL CHANNEL,HOWLAND HOOK, MARINE TERMINAL,NY&NJ (See Section 2 OF TEXT)	
River and Harbor 23 June 1874	Original Project for a "channel between Staten Island and New Jersey "; 150 feet wide, 16 feet deep	Report of the Chief of Engineers 1873,S. x.52 42nd Cong., 3rd Session
River and Harbor 14 August 1876	Indicated that improvements recommended in 1873 and actually commenced in 1874 were no longer necessary and that a Channel 11 feet deep and 500 feet wide would serve tows and sailing vessels most expeditiously	Report of the Chief of Engineers 1876,H..44 44th Cong., 1st d Session
River and Harbor 13 June 1902	Recommended a channel between New York and New Jersey passing south of Shooters Island , 21 feet deep and 300 feet wide width would be 400 feet.	H.D. 393,56th Cong.,. 1st,session
River and Harbor 25 June 1910	Authorized a channel north of Shooters Island 1 mile long , 300 feet wide, 16 feet deep.	H.D. 337,59th ,. Cong.,2nd sess
River and Harbor 22 September 1922	The original project for " New York and New Jersey " provided for a channel 400 feet wide and 30 feet deep	H.K. 653, 66th Cong. 2nd Session
River and Harbor 30 August 1935	Provided for present project depth of 35 feet and channel 600 -800 feet wide.	H.K. 133, 74th Cong. 1st d Session
None	Feasibility study for the rehabilitation of the dike north of Shooters Island initiated 1960.	District Engineers April 1964
River and Harbor 27 October 1965	Provided for widening and deepening entrance to Kill Van Kill at Robbin's Reef at a 35 foot depth.	H.D. 108,89th Cong.,. 1st session
None	Investigation into the effects of the removal of Shooters Island And shore modifications on tides, currents, and shoaling in the Kill Van Kull channels. Study noted no detrimental effects.	Waterways Experiment . Station U.S. Army Corps., Dec 1967
None	Investigation into widening and deepening NY and NJ Channels in response to House Committee on Public Works Resolutions 30 March 1995, and 27 June 1956 resulted in negative reports.	District Engineer, NY 9/21/73

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
28 May 1975	Investigation into the feasibility of deepening the triangular area Just east of Shooters Island to 35 feet MLW. Initiated in 1974. Built in 1976.	District Engineer, NY H.D. 494,89th Cong, 2nd session
None	Investigation into the impacts caused by the removal of Shooters Island; noted a lack of economic justification and significant potential environmental impacts. Chief of Engineers recommended 6 August 1979 that no Federal funds be provided.	District Engineer, Feb 1979
None	Investigation into widening and deepening Kill Van Kull and Newark Bay in response to House Committee on Public Works Revolution Dated 14 June 1972 . Currently under review by the Office of Management and Budget.	District Engineer, NY July 1980
House Committee On Public Works Arthur Kill Channel, Howland Hook Terminal Resolution 9 May 1979	Review the reports of the Chief of Engineers on NY and NJ Channel contained in H.D.133,74th Cong., 1st Sess., and and Transportation 1st Cong. To determine the feasibility of deepening and easing the bends of NY and NJ Channels from deep water in Upper Harbor westward to Howland Hook Marine Terminal, Howland Hook, Staten Island, NY, and creating a turning basin to serve that facility; all to accommodate Deeper draft and otherwise larger ongoing general cargo and container vessels	Final Feasibility Report H.D. 108,89th Cong., NY and NJ March 1986
Water Resources Development Act Of 1986 (PL99-662) Sec.202(b)	AK Channel deepening to 41 feet to Howland Hook Terminal, and to 40 feet to Exxon Bayway Gulfport facilities, as per the project for navigation , Report of BERH dated 31 March 1986.	
Water Resources Development Act Of 1996 (PL 1014-303) Sec.303(b)(11)	Modified WRDA 86 to authorize AK Channel deepening to a depth of not to exceed 45 feet , at cost $83,000,000.	Final Limited Reevaluation Report , Arthur Kill Channel, Howland Hook Marine Terminal,NY&NJ Dec 1997.
Water Resources Development Act Of 1999 (PL106-53) Sec.338	Modified WRDA 86 and WRDA 96 to authorize AK Channel deepening at a total cost of $315,700,000.	Addendum to Final Limited Reevaluation Report ,Arthur Kill Howland Hook Marine Terminal,NY&NJ May 2001.
	BURLINGTON HARBOR,VT (See Section 3 of Text)	
July 4,1836	Construction of first 1,000 feet of breakwater	H. Doc. 131 ,23rd Cong. 1st sess.

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
June 23,1866	Extension of 1,500 feet to breakwater	H. Ex.Doc 56,39th Cong 2nd sess.
March 3,1875	Extension of 2,000 feet to breakwater Chief of Engineers authorized extension southerly of 1,000 feet and northerly 500 feet.	Annual Report,1874, p274, Annual Report 1887,p240
	EAST RIVER,NY (Section 4 of Text)	
March 2,1915	Removal of Coenties Reef to 35 feet , conditional upon local Local interests increasing depth to 40 feet	H. Doc. 188 ,63rd Cong. 1st sess.
July 27,1916	Channel across Diamond Reef 35 feet deep and 1,000 feet wide.	
August 8,1917	Channel east of Blackwells Island to 20 feet; channel between South Brother and Berrian Islands, to 20 feet; channel between North and South Brother Islands to 26 feet. Channel 40 feet deep through East River and Hell Gate	H. Doc.140,65th Cong. 1st,sess
July 18,1989	Secure a depth of 40 feet deep in channel through East River and Hell Gate as soon as practicable.	Specified in act
Sep.22,1922	Depth limited to 35 feet in through channel between Wallabout Channel and Throgs Neck, Channel east of Blackwells Island,30 Feet to English pl. Eliminated channel between North and South Brother Islands except as authorized prior to existing project. Remove certain rocks and reefs and construct dike in Pot cove, Hell Gate.	Rivers &Harbor Com Doc.3,67th Cong.2nd ses .
E.Pub.Wks.Comm. Res., Dec.15 1970 S.Pub.Wks.Comm	Spur channel to Astoria waterfront 37 feet in rock, 35 feet in Material, for a length of 0.95 mile for varying widths, and Turning basin.(South Brother Channel).	S.Doc. 91-60,91stCong. 2nd sess, Dec.1970
	EAST ROCKAWAY INLET,NY (Section 5 of Text)	
July 3,1930	Channel 12 feet deep and 250 feet wide, and a jetty.	H. Doc. 19 ,71th Cong 1st sess
	FIRE ISLAND TO JONES INLET,NY (Section 6 of Text)	
August 26,1937	Construction of jetty .	Rivers & Harbor Com Doc.75th Cong., 1st sess
May 17,1950	Channel 10 feet deep.	H. Doc. 762 ,80th Cong 2nd sess
1958 River & Harbor Act	Three dredging operations with sand serving as nourishment. to the beaches westerly of the inlet.	H. Doc. 411 ,84th Cong 2nd sess

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
1962 River & Harbor Act	Extension of existing jetty, a littoral reservoir, a navigation. channel and dikes, sand deposit on westerly beaches.	H. Doc. 115 ,89th Cong 1st sess
March 1988	14 foot channel with sand placed along Gilgo Beach.	
	FLUSHING BAY AND CREEK, NY (Section 7 of Text)	
Oct 23,1962	15 foot bay, creek and branch channel; 15 foot maneuvering area; 6-foot anchorage basin; revetment of dike extension; & abandonment of portion of creek channel & repair of dike	H. Doc. 551 ,87th Cong 2nd sess
	GLEN COVE CREEK,NY (Section 8 of Text)	
March 1988	Channel 8 deep and 100 feet wide.	H. Doc. 207 ,68th Cong 1st sess
	GREAT KILLS HARBOR,NY (Section 9 of Text)	
January 21,1927	Entrance channel to Crooks Island .	H. Doc. 252 ,69th Cong 1st sess
June 20,1938	Extension of entrance channel and anchorage area..	H. Doc. 559 ,75th Cong 3rd sess
	GREAT SOUTH BAY, NY (Section 10 of Text)	
December 4,1900	Construction of a channel in Great South Bay, from Fire Island . Inlet to the Patchogue River, not less than 10 feet in depth and 200 feet in width, with an 8 feet in depth in the Patchogue River	Rivers and Harbors Act in June 13,1902, modified in 1970
	HUDSON RIVER,NY (Section 11 of Text)	
June 25,1910	Channel 12 feet deep from Hudson to Waterford, remove State lock and dam at Troy and construct a new lock and dam.	H. Doc. 719,61st Cong 2nd sess
March 3,1925	Channel 27 feet deep from Hudson to Albany, NY	H. Doc. 350,68th Cong 1st sess
July 3,1930	Channel 27 feet below Hudson	H. Doc. 210,70thCong 1st sess
July 1,1935	Operation and care of lock and dam at Troy were included in Project.	
August 30,1935	Relocation of 12 foot channel between Troy and Waterford.	S. Doc. 155,72th Cong. 2nd sess
June 20,1938	Deepen channel between Albany and Waterford to 14 feet With no change in depths for harbors in front of Albany & Troy	H. Doc. 572,75th Cong 3rd sess

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
September 3,1954	Deepen channel between New York City and Albany to 32 feet And construct a turning basin and two anchorages.	H Doc. 228,83rd Cong. 1st sess
P.L. 89-72	Mooring facilities Note: The 12 and 27 foot classification have been de-authorized.	
September,1996	**HUDSON RIVER AT ATHENS,NY** (See Section 12 of Text) The District will coordinate the assessment report to address The need for additional formulation and economic analysis To determine economic viability.	Rivers & Harbors Act of 1910 modified by Sect 110 of the WRDA 1
September,1996	**JAMAICA BAY** (See Section 13 of Text) Construction of 1 jetty.Interior channel along west shore	H.Doc.1488,72nd Cong 2nd sess
March 2,1945	Bay, 18 and 12 feet deep; interior channel along south Shore, 15 feet deep; entrance channel 20 and 18 feet deep And 1 riprap jetty all in lieu of work heretofore authorized. Modified conditions of local cooperation.	H.Doc.700,76thCong 3rd sess
May 17,1950	Channel 15 feet deep in Mott Basin including its 2 branches	H.Doc.665,80thCong 3rd sess
March 2,1945	**JONES INLET, NY** (See Section 14 of Text) Construction of jetty and channel 12 feet deep and 250 feet wide	H. Doc 409,77th Cong.
FY 1985 Supplemental Approp. Act	**KILL VAN KULL-NEWARK BAY,NY&NJ** (See Section 15 of Text) Deepening existing 35 foot channels in increments to 40 feet and then 45 feet	P.L. 99-662 P.L. 91-611
March 2,1945	**LAKE MONTAUK HARBOR, NY** (See Section 16 of Text) Channel 12 feet deep and 150 feet wide, 70 feet boat basin; repair and extension of two jetties; and addition of sport facilities on top of jetties.	H. Doc 369,76th Cong. 1st sess.
August 26,1937	**LONG ISLAND INTRACOASTAL WATERWAY, NY** (See Section 17 of Text) Channel 6 feet deep and 100 feet wide.	H. Doc 181,75th Cong. 1st sess.
	MATTITUCK HARBOR, NY (See Section 18 of Text) A channel 7 feet deep from Long Island Sound to the Village of Mattituck, 100 feet wide at the entrance and 80 feet wide tand a 460 by 570 feet anchorage area at the upper end	Rivers & Harbors Act of 1986 modified in 1935 and 1964.

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	MORICHES INLET, NY (See Section 19 of Text)	
	Channel 100 feet deep and 200 feet wide in inlet and 6 feet and 100 feet wide in the Bay and of two jetties	H. Doc 126,86th Cong. 1st sess.
	NARROWS OF LAKE CHAMPLAIN, NY&VT (See Section 20 of Text)	
August 8,1917	Channel 12 feet deep and 150 wide	Rivers & Harbors Comm
	NEW YORK HARBOR AND ADJACENT CHANNELS PORT JERSEY, NY (See Section 21 of Text)	
WRDA 1986	Deepening existing 35 foot channel and turning basin.	PL99-662
	NEW YORK AND NEW JERSEY CHANNEL NY&NJ (Section 22 of Text)	
	Anchorage off Perth Amboy to 35 feet	H.Doc.1386,62ndCong
September 6,1933		H.Doc.17,71thCong
August30,1965		2nd sess
May 28,1935	Channel 35 feet deep from lower bay to upper bay , except between vicinity of Smith Creek and vicinity of Piles Creek to 30 feet with anchorage 38 feet deep at Sandy Hook and Perth Amboy	H.Doc.133,74thCong 1st sess
May 17,1950	Channel 35 feet deep from vicinity of Smith Creek to the vicinity of Piles Creek	H.Doc.133,74thCong 1st sess
October 27,1965	Widen entrance to Kill Van Kull to 1,400 feet narrowing minimum width of 1,000 feet	H.Doc.108,98thCong 1st sess
	NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT,NY&NJ (See Section 23 of Text)	
March14, 1915	Allotment from appropriatins made for New York Harbor and its Immediate tributaries may be used for collection and removal of drift in these waterways.	
July3, 1930 December31, 1970	Carrying on this work as a separate and distinct project. Increase scope of project to include removal and disposal of derelict vessels, some deteriorated shore structures and debris along shores; and the repair of other structures; all subject to approval by Secretary of the Army and the President.	PL91-611,91st Cong., H.R.1987
March7, 1974	Removal and disposal of derelict vessels, some deteriorated shore	PL91-611,93rd Cong.,

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	structures and debris along shores and the repair of other shore structures.	
	NEW YORK HARBOR ENTRANCE CHANNEL AND ANCHORAGE AREAS (See Section 24 of Text)	
July5, 1884	Main-Ship-Bayside –Gedney to 30 feet deep for width of 1,000 feet (Dimensions fixed by Secretary of War , December 27,1886 by authority of Act of August 5, 1886).	Annual Reports 1887, p62 and 1888,p63
March3, 1899	Ambrose Channel (East Channel)	H.Doc.159,55th Cong., 2nd sess.
June25, 1910	Maintenance of entrance channel under I head.	
August8, 1917	Anchorage Channel, extension of Ambrose Channel into Upper Bay	H.Doc.518,63rd Cong., 2nd sess.
August8, 1917	Removal of Craven Shoal	H.Doc.557,64th Cong., 1st sess.
August8, 1917	Channel between Staten Island and Hoffman and Swinburne Islands	H.Doc.625,64th Cong., 1st sess.
August30, 1935	Dredging south end of Red Hook Flats, Liberty Island Anchorage, And channel along New Jersey pier-head line.	H.Doc.183,73rd Cong., 2nd sess.
August30, 1935	Deepen Bayside-Gedney Channel to 35 feet for a width of 800 feet.	H.Doc.133,74th Cong., 1st sess.
August26, 1937	Deepen Ambrose and Anchorage Channels to 45 feet for a width of 2,000 feet.	Senate Commerce Doc 75th Cong, 1st sess.
July3, 1958	Dredging South Channel, elimination of portion of Bayside-Gedney Channel.	S. Doc. 45 84th Cong. 1st sess.
October27, 1965	Deepen and expand Red Hook Flats Anchorage, deepen Gravesend Bay Anchorage	S. Doc. 17 89th Cong., 1st sess
March31, 1982	Further expansion of Red Hook Flats Anchorage and the Relocation of Anchorage channel.1982	OCE Letter 31 Mar
	NEW YORK AND NEW JERSEY HARBOR NY&NJ (Section 25 of Text)	
May 2000	Deepen the Ambrose Channel from its existing/ previously authorized depth to 53 feet below mean low water, deepen the	WRDA 2000
	NEW YORK AND NEW JERSEY HARBOR NY&NJ (Section 25 of Text)	
May 2000	Deepen the Ambrose Channel from its existing/ previously authorized depth to 53 feet below mean low water, deepen the	WRDA 2000

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	Anchorage, Bay Ridge, Port Jersey, Kill Van Kull ,Newark Bay and Arthur Kill(to Howland Hook) Channels from their previously authorized depths to 50 feet (52 feet in rock or otherwise hard material) below MLW. Authorized associated mitigation for aquatic and air quality impacts.	
	NEWARK BAY, HACKENSACK & PASSAIC RIVER, NJ (Section 26 of Text)	
March 2, 1907	16 foot channel of Passaic River ,	H.Doc.441,59th ,Cong 2nd sess
February 27, 1911	Widening 16 foot channel in Passaic River	H.Doc.441,59th Cong 2nd sess
July 25, 1912	20-foot channel in Passaic River	H.Doc.707,62nd Cong 2nd sess
January 21, 1927	10-foot channel in Passaic River	H.Doc.284,60th,Cong 2nd sess
July 3, 1930	30-foot channel in Passaic River	H.Doc.156,71st,Cong 2nd sess
March 22, 1945	35 and 37 feet in main channel of Newark Bay and branch Channel to an inshore channel Port Newark terminal and remove Portion of rock area at Bergen Point to same depths.	S.Doc.250,79th Cong 2nd sess
March2, 1945	Modification of local cooperation for 10 - foot channel	H.Doc.430,76th Cong 1st sess
September3, 1954	34-32 foot channel in Hackensack River including approach channel in Newark Bay from branch channel at Port Newark terminal and remove portion of rock area at Bergen Point to same depths.	H.Doc.252,82th Cong 1st sess
October23, 1962	35 - foot channels at Port Elizabeth	H.Doc.289,88th Cong 2nd sess
November7, 1966	Widening 35-foot channel in Newark Bay, provision of two Maneuvering areas, widening entrance into Port Elizabeth and Newark Bay branch channels, deepening and widening ewark Bay 32-foot channel and provision of a turning basin At junction of Hackensack and Passaic Rivers; and deepening 2 foot –channel in Hackensack River at 15 feet..	H.Doc 494,89t Cong 2 nd sess

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	PLATTSBURGH HARBOR, NY (See Section 27 of Text)	
July4, 1836	Construction of 1,000 feet of breakwater	H.Doc. 131,23th, Cong 2nd sess
July11,1870	Extension of 400 feet to breakwater, dredging between breakwater and wharves and beach revetment.	H.Doc. 494,89th Cong 2nd sess
September19, 1890	Extension of 300 feet to 1,250 feet of breakwater already Built.	Annual Report 1870,pg55 Annual Report 1889, Pg.2458
June25, 1910	Completion of improvement by dredging areas not Heretofore dredged to 9 feet.	H.Doc.759th,61st, Cong 2nd sess.
	RARTAN RIVER, NJ (See Section 28 of Text)	
March 2, 1919	Channel 15 feet deep and 20 feet wide to Washington Canal 10 feet deep and 150 feet wide to canal locks and 10 feet deep thru South Channel	H.Doc. 1341,62nd Cong 3rd sess
July 3,1930	Channel 25 feet deep and 300 feet wide up to New York and Long Branch Railroad bridge.	H.Doc. 454,70th Cong 2nd sess
July 3,1930	Channel 10 feet deep in earth and 11 feet in rock to New Brunswick Width reduced to 100 feet.	H.Doc. 127,70th Cong 1st sess
July 3,1930	Relocation of lower reach to South Channel	Rivers & Harbors Comm H.Doc.31,71th Cong 2nd
August 26, 1937	Channel 25 feet deep and 300 feet wide to junction of main and south channels, thence of same depth on South Channel Titanium Pigment Co.	Rivers & Harbors Comm H.Doc. 74,74th Cong 2sess
October 17, 1940	Channel 25 feet deep and 300 feet wide to junction of main south channels to government wharf, including a turning basin	Report on file in the Office Chief of Engineers (report not printed)
October 23, 1962	In South Channel, maintenance of 15 foot channel to dock of Middlesex County Sewerage Authority.	H.Doc. 455,86th Cong 2nd sess
	RARTAN RIVER TO ARTHUR KILL CUT-OFF CHANNEL, NJ (See Section 28 of Text)	
September 6, 1933 August 30, 1935	Channel 1 mile long, 20 feet deep, 800 feet wide, connecting Raritan River and Arthur Kill channels	H.Doc. 50,73 Cong., 1st sess

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	SAG HARBOR,NY (See Section 30 of Text)	
June13,1902	Breakwater	H.Doc.77th,56th Cong 1st sess (Annual Report 190,p1451)
	SHARK RIVER,NJ (See Section 31 of Text)	
March2,1945	Channel 18 feet deep 150 feet wide across entrance bar, 12 feet Deep 100 feet wide to Route 35 bridge,8 feet deep 100 feet wide To upper limit of Belmar boat basin; and 12-foot anchorage.	H.Doc.102, 76th Cong 1st sess
	SHINNECOCK INLET, NY (See Section 32 of Text)	
July14,1960	Channel 10 feet deep and 20 feet wide in inlet, and 6 feet deep and 100 feet wide in the Bay, and 2 jetties.	H.Doc.126,86th Cong 1st Sess FY 83 Supplemental Appropriatins Act.
	ATLANTIC COAST OF LONG ISLAND,JONES INLET TO EAST ROCKAWAY,LONG BEACH ISLAND NY (See Section 26 of Text)	
October1,1986	Storm damage protection , rehabilitation of existing groins Construction of new groins.	Section 101(a) 21 of WRDA 1996
	EAST ROCKAWAY INLET TO ROCKAWAY INLET AND JAMAICA BAY, NY (See Section 27 of Text)	
1974 & 1986 WRDA	Beach nourishment of 100 to 200 foot wide beach elevation. 10 feet MSL	
	FIRE ISLAND TO MONTAUK POINT, NY (See Section 28 of Text)	
1960 Rivers &Harbor	Raising dunes, widening beaches, interior drainage structures, groins beach replenishment , annual renourishment	H.Dov.425,86th , Cong.,2nd sess.
1974 WRDA	Project modified to provide that non-Federal interest shall contribute 30 percent of first costs.	P.L.93-251,93rd H.R.10203
1974 & 1992	**SANDY HOOK TO BARNEGAT INLET,NJ** (See Section 31of Text)	
July3, 1958 1988 WRDA	Restoration of beach to minimum width of 100 feet at height 10 feet above MLW, and construction of 23 new groins and extension of 14 existing groins.	H.Doc.332,85th Cong 2nd sess, modified by Appr.Act for Energy & Water Dev.1985
	HACKENSACK MEADOWLANDS,NJ (See Section 32 of Text)	
February,1996	Tide gate improvements to control flooding in the Berry's Creek damage basin, the mitigation enhancement and Acquisition of wetlands, the development and Implementation of a system to provide for water quality Monitoring and wetland monitoring, storm water. Magement and watershed clean-u	WRDA of 1992,sect Amended by WRDA of 1996 sect. 550

TABLE 2-B (Continued) AUTHORIZATION LEGISLATION

Acts	Work Authorized	Documents
	JOSEPH G. MINISH PASSAIC RIVER WATERFRONT PARK AND HISTORIC AREAS (See Section 35of Text)	
November28, 1990	The first phase restores riverbanks and wetlands,. The The second phase adds a 9,200 foot waterfront walkway And third phase adds park facilities, plazas and landscaping	WRDA 1990;PL101- 640 WRDA 1992;PL101-580 WRDA 1996;PL104-303
	NEW YORK CITY WATERSHED,NY (See Section 36 of Text)	
April 1997	Provide design and construction assistance for water -related environmental infrastructure and resources management	WRDA1996, sect 552CR52 HR.36
	PASSAIC RIVER BASIN, NJ (See Section 37of Text)	
WRDA1976, 1990&1992	Advanced engineering and design study; involving reformulation of plans for flood control and water resource management	H.Report 94-1702
	PRESERVATION OF NATURAL FLOOD STORAGE AREAS,PASSAIC RIVER,NJ (See Section 38 of Text)	
October22, 1976	The preservation element includes acquisitions 5,350 areas of natural storage , 5,200 acres of which are wetlands and could conceivably be developed.	WRDA1976;PL94-587 WRDA1990&1996
	RAMAPO AT MAWAH,NJ AND SUFFERN,NY (See Section 39 of Text)	
WRDA1986	Plan for flood damage reduction includes channel modification to approximately 13,000 feet of the Ramapo River, Mahwah River and Masonicus Brook.	H.Doc.99-1013,Cong 2nd sess.
	RAMAPO AT OAKLAND,NJ (See Section 40 of Text)	
October22, 1976	Phase I Advanced Engineering and Design Study was authorized. Congressional guidance for the conduct of the study. The study was authorized for construction.	WRDA1976,PL94-587 WRDA1986,PL99-662 WRD 1996,PL104-303
	RARITAN RIVER BASIN,GREENBROOK SUB-BASIN,NJ (See Section 41 of Text)	
March16,1981	Recommended 150 flood protection in lower portion.	
February 1984	Recommended protection to 500 year level. Authorizes construction of Greenbrook Flood Control .Flood control combines levees ,flood walls, channel modification ,flood proofing and natural flood storage to provide protection	WRDA 1986 ,sect 401(a)

TABLE 2-C HUDSON RIVER, NY

FEATURES OF LOCK AND DAM INCLUDED IN EXISTING PROJECT (Section 6 of Text)	Location
Below Waterford	2.2 miles
Above Battery, New York City	152.6 miles
Locks:	
Clear Width	44.4 feet
Greatest length available for full width	492.5 feet
Lift at lowest stages	17.3 feet
Depth on miter sills:	
Upper (at normal pool level)	16.3 feet
Lower (at lowest low water)	13.0 feet

Character of foundation: Rock
King of dam: Fixed Crest
Type of construction: Concrete
Complet: 1917
Cost: $1,463,014

TABLE 2-E SUPERVISOR OF NEW YORK HARBOR

Statement of Activities FY 2003

1. Number of Patrols:	
a. Shore	91
b. Vessel	180
c. Air (helicopter)	0
Total	271
2. Number of Inspections:	
a. Shore Facilities	218
b. Vessels	108
Total	326
3. Disposition of Cases:	
a. Voluntary Restoration	34
b. After-the-Fact Permit Applications Accepted	8
c. Permit Not Required or Already Under Permit	38
d. Submitted for Litigation to OCE or U.S. Attorney	0
e. Other Misc.	62
f. Cases Pending as of 10/1/03	154
Total	272

TABLE 2-F RECONNAISSANCE AND CONDITION SURVEYS FY 03

NAME OF PROJECT	DATE SURVEY CONDUCTED
NEW JERSEY	
Cheesequake Creek	Sep03
Hackensack River	Jul03
Keyport Harbor/Matawan Creek	Aug03
New York New Jersey Channel, Secondary Channel	Dec02
New York New Jersey Channel, Seguine Pt. to OBX	Mar03
New York New Jersey Channel, Raritan Reaches	Jan 03
New York New Jersey Channel, Arthur Kill	Jun/Jul03
New Jersey Pierhead Channel	Oct 02
Newark Bay Port Elizabeth	Feb 02
Newark Bay Main Channel	Feb-Jun03
Newark Bay Port Newark	Dec02
Newark Bay South Elizabeth Channel	Oct 03
Passaic River	Jul 03
Perth Amboy Anchorage	Dec02
Raritan River	Jun 03
Raritan River to Arthur Kill Cutoff	Mar/Apr03
Sandy Hook Channel	Aug03
Sandy Hook Bay at Leonard	Nov03
Shark River	Jul03
Shoal Harbor & Compton Creek	Sep03
Shrewsbury River	Jul03
NEW YORK	
Bayridge & Red Hook Channel, NY	Oct/Nov02
Eastchester Creek	Jun/uJul03
East River Spur Channel	Apr03
East Rockaway Inlet	Apr03
Fire Island Inlet	Mar03
Gravesend Bay	Oct 02
Great Kills Harbor Inlet	Mar03
Hudson River	Nov 02
Jones Inlet	May 03
Lake Montauk Harbor	May 03
Main Ship Channel	Oct 02
Mamaroneck Harbor	Aug03
Moriches Inlet	May03
Rockaway Inlet	Sep 03
Shinnecock Inlet	Jul 03
Westchester Creek	Jun/uJul03

Total cost of Reconnaissance and Condition Surveys in Fiscal Year 2003 was $1,541,853

TABLE 2-G OTHER AUTHORIZED NAVIGATION PROJECTS

	For Last Full Report See Annual Projects Report for	Cost to September 30, 2003 Construction	Operation & Maintenance
Bay Ridge-Red Hook Channels, NY	1992	5,523,297	41,200,035
Bronx River, NY	1991	1,149,946[3]	3,802,517
Browns Creek, NY	1995	33,976 [12]	1,072,040
Burlington Harbor, VT	1966	706,414[9]	303,555
Channel between North & South Hero Islands, VT	1909	31,000	1,288
Cheesequake Creek, NJ	1953	40,000	210,675
Coney Island Channel, NY	1973	111,371	423,148
Coney Island Creek, NY	1952	69,489	6,203
East River, NY	1997	32,723,662 [13]	8,225,184
East Rockaway Inlet, NY	1997	83,969	16,624,362
Echo Bay Harbor, NY	1953	64,584	21,571
Fire Island Inlet, NY	1973	594,355	2,908,786
Flushing Bay & Creek, NY	1997	2,102,905	8,878,900
Gordon's Landing, VT	1982	34,750	115
Gowanus Creek Channel, NY	1972	346,831	394,004
Great Chazy River, NY	1980	18,000	292,919
Great Kills Harbor, NY	1962	137,301[1]	88,029
Great Lakes to Hudson River W/W, NY	1976	33,562,640 [20]	457
Greenport Harbor, NY	1953	74,681	21,720
Harlem River, NY	1969	3,616,119	493,491
Hempstead Harbor, NY	1993	3,687,949	76,497
Hudson River Channel, NY	1997	6,771,870	37,136,037
Huntington Harbor, NY	1953	91,081 [17]	57,527
Keyport Harbor, NJ	1990	40,475	1,417,437
Lake Montauk, NY	1991	791,680	1,288,163
Larchmont Harbor, NY	1970	76,065	267,768
Little Neck Bay, NY	1969	1,741,210 [19]	537
Mamaroreck Harbor, NY	1990	513,764	1,351,086
Matawan Creek, NJ	1984	21,000	315,613
Mattituck Harbor, NY	1990	177,925	1,417,832
Milton Harbor, NY	1984	151,373	1,057,26
Newton Creek, NY	1986	1,168,354	1,760,745
New Rochelle Harbor, NY	1971	73,214 [8]	212,411

TABLE 2-G (Continued) OTHER AUTHORIZED NAVIGATION PROJECTS

	For Last Full Report See Annual	Cost to September 30, 2003	Operation &

[3] Excludes $496,250 for new work for previous projects.

[12] Includes $69,036 for new work an d$26,921 for maintenance for previous projects. Excludes $10,000 for new work expended from contributed funds.

[9] Includes cost of maintenance prior to July 1, 1886. Excludes $1,415,133 for rehabilitation.

[13] Includes $6,187,690 for new work and $37,664 for maintenance for previous projects.

[1] Excludes $104,800 for new work expended from contributed funds.

[20] Included $4,456,400 for new work expended from emergency relief funds.

[17] Excludes $19,546 for new work expended from contributed funds and $31,454 to be contributed.

[19] Excludes $1,741,210 for new work expended from contributed funds

[8] Includes $43,175 for new work for previous projects.

	Projects Report for	Construction	Maintenance
New York State Barge Canal, NY	1988	—	—
Northport Harbor, NY	1956	78,644	61,487
Peconic River, NY	1953	25,000	116,500
Peekskill Harbor, NY	1951	19,400	66,037
Plattsburgh Harbor, NY	1986	198,415	256,415
Port Chester Harbor, NY	1990	433,470[6]	1,742,097
Port Henry Harbor, NY	1931	69,406[25]	1,299
Port Jefferson Harbor, NY	1977	221,128[31]	359,294
Raritan River, NJ	1991	1,551,470	16,114,463
Raritan River to Arthur Kill Cut-Off Channel, NJ	1991	810,500	3,965,631
Roundout Harbor, NY	1989	142,437	3,185,437
Rouses Point, Lake Champlain, NY	1895	98,468	249
Sag Harbor, NY	1964	212,805[26]	11,710
Sandy Hook Bay, NJ	1985	508,936	4,002,330
Sandy Hook Bay @ Leonardo, NJ	1991	56,479	679,916
St. Albans Harbor, Lake Champlain, VT	1917	3,125	385
Saugerties Harbor, NY	1988	81,905	429,180
Shark River, NJ	1987	150,000	1,254,813
Sheepshead Bay, NY	1948	33,828	64,078
Shoal Harbor & Compton Creek, NJ	1990	124,572[7]	1,822,938
Staten Island Rapid Transit Railway Bridge, Arthur Kill, NY	1973	7,730,476	—
Sumpawanus (Babylon Creek) Inlet, NY	1895	7,000	—
Wallabout Channel, NY	1953	18,174	36,312
Wappinger Creek, NY	1950	13,000	44,691
Washington Canal and South River, NJ	1953	206,116[30]	212,827
Woodbridge Creek, NJ	1953	48,823	178,398

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6 Includes $16,369 for maintenance for previous projects.

25 Excludes $1,000 for new work expended from contributed funds.

31 Includes $84,934 for maintenance for previous projects.

26 Excludes $66,758 for rehabilitation.

7 Includes $17,000 for new work for previous projects.

30 Includes $84,934 for maintenance for previous projects.

TABLE 2-H OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

Projects	For Last Full Report See Annual Report for	Cost to Sept 30, 2003 Construction	Operation & Maintenance
Atlantic Coast of NJ, Sandy Hook to Barnegat Inlet[1]	1959		
Raritan Bay and Sandy Hook Bay, NJ	1981	$11,061,256	262
Fire Island Inlet to Jones Inlet, NY[2]	1981	18,044,667	217,900

[1] Reactivated as a modified project in 1985 (Sec. 21)
[2] Listed since 1982 as a navigation and beach nourishment project (Sec. 4)

TABLE 2-I OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Projects	For Last Full Report See Annual Report for	Cost to Sept 30, 2003 Construction	Operation & Maintenance
Adams, Hossic River Basin, Mass. [1]	1964	6,282,307 [2]	—
Ardsley, NY	1990	5,477,281	—
Atlantic Coast of NJ, Sandy Hook to Barnegat Inlet[1]	1959		
Byram River at Pemberwick, Conn. [1, 3]	1959	363,515	—
East Barre Dam, Winooski River, Vt. [1]	1963	2,898,334	—
Elizabeth, NJ	1985	54,374,070	—
Fire Island Inlet to Jones Inlet, NY[2]	1981	18,044,667	217,900
Herkimer, NY	1973	1,249,530 [9]	—
Hoosic Falls, Hoosic River Basin, NY [1]	1956	1,064,626	—
Lamoille River, Vt: Hardwich Dams [5, 6]	1939	—	—
Liberty State Park Levee and Seawall, NJ	1990	17,888,670	—
Missisquoi River at Richford, Vt [13]	1965	238,169	—
North Adams, Hoosic River Basin, Mass.	1968	15,572,988 [7]	—
Rahway, NJ	1971	973,142 [8]	—
Rahway, South Branch, NJ	1979	15,863,723	—
Raritan Bay and Sandy Hook Bay, NJ	1981	$11,061,256	262
Rosendale, NY	1975	3,684,966	—
Sandburg Creek, Spring Glen, NY	1976	109,702	—
Sawmill R. Elmsford & Greenburgh, NY	1987	62,917	—
South Amsterdam, Mohawk River, NY	1967	1,564,976	—
South Ellenville, NY	1984	289,702	—
South Orange, NJ	1981	6,857,484	—
Staten Island, NY	1983	664,998	—
Wappinger Creek at Pleasant Valley, NY [1-3]	1959	142,075	—
Waterbury Reservoir Winooski River Basin, Vt.	1976	1,438,845	8,200
Winooski River, Vt.	1940	5,897,427	—
Wrightsville Dam, Winooski River Basin, Vt.	1970	1,549,929	—
Yonkers, NY	1984	113,754,475 [10]	—

[1] Completed.
[2] Excludes costs of $913,360 under other contributed funds.
[3] Authorized by Chief of Engineers pursuant to Sec. 205, Public Law 858, 80th Cong., as amended.
[4] Inactive.
[5] Includes $213,507 emergency relief funds.
[7] Excludes cost of $21,000 under other contributed funds.
[8] Excludes cost of $51,500 under other contributed funds.
[9] Uncompleted portion has been deauthorized.
[10] Includes $622,8176 contributed funds.

TABLE 2-J SURVEYS

Study Class	FY 03 Cost
Navigation Studies	$106,652
Flood Control Studies	$947,756
Beach Erosion Studies	$1,428,878
Special Studies 1	$2,911,608
TOTAL	$5,394,894

[1] Includes watershed/ecosystems, special investigations, FERC licensing activities, Intra Army water resources, Nat'l Estuary studies, Marine Fisheries Service, Planning Ass't to States, Coord. studies of other agencies.

TABLE 2-K PRECONSTRUCTION ENGINEERING AND DESIGN

Authorized Projects	FY 03 Cost
Navigation	
Arthur Kill Channel - Howland Hook Terminal, NY & NJ	$ 66,490
New York and New Jersey Harbor, NY & NJ	260,660
TOTAL	327,150
Beach Erosion	
Raritan & Sandy Hook Bay, Port Monmouth, NJ	$590,172
Flood Control	
Lower Saddle River, NJ	3,422
Passaic River, Harrison, NJ	490,333
Passaic River Mainstem, NJ	47,796
Passaic River Mainstem	70,824
Preservation of Natural Flood Storage Areas, NJ	
Sawmill River @ Elmsford-Greenburgh, NY	69,257
TOTAL	$681,632

TABLE 2-L COSTS FOR FLOOD PLAIN MANAGEMENT SERVICES

Study Class	FY 03 Cost
Flood Plain Technical Servic	$37,023
Flood Plain Management Unit	36,608
Camp Robinson, NY	17,923
Detention/Retention Study, VT	500
Kaaterskill Creek, NY	6,240
Quick Response	23,992
Bryant Park, VT	223
Searcy Park, NY	9,469
Aowa Creek NE-FPI, NY	42,939
SS-Project College of Mt. St Vincent, NY	9,491
Pine Grove Lake, NY	8,400
Chazy Lake, NY	2,825
SS-Black Creek, VT	34,354
TOTAL	$229,987

TABLE 2-M DEAUTHORIZED PROJECTS

Projects Maintenance	For Last Full Report See Annual Report for	Date And Authority	Federal Funds Expended	Funds Expended: Construction	Funds Expended: Operation And Maintenance
Bennington, VT (1936 & 41 Acts)	1974			670,000	
Bronx River, NY	1981	Aug. 1982	1,149,946	1,159,946 [12]	1,947,853
Brown's Creek, NY	1980	Aug. 1977	33,976	33,976 [8]	505,369
Cheesequake Creek, NJ 4	1953	Aug. 1982	40,000	40,000	30,675
Coney Island Creek, NY 4-6	1952	Aug. 1982	69,489	69,489	1,622
East Chester Creek, NY (1950 Act)	1992	July 1992	—	—	—
East Rockaway (Devs) Inlet, NY 4	1963	Aug. 1977	3,503,96913	100,000	—
East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, NY (Part 11)	1976	1988	—	1,185,365	—
Elizabeth, NJ	1948	Aug. 1977	60,481	60,481	59,391
Glen Cove Harbor, NY	1966	Aug. 1977	165,882	165,8824 [11]	2,455
Hempstead Harbor, NY (68 Act) 14	1989	Jan. 1990	—	39,468	76,497
Hudson RIver, NYC to Albany (12 ft, 27 ft) 18	1982	Aug. 1987	—	—	—
Huntington Harbor, NY	1953	Aug. 1977	49,035	68,5814 [5]	51,566
Irvington Harbor, NY	1947	Aug. 1977		—	—
Lamoille River, VT	1939	Aug. 1977	49,837	49,837	—
Lemon Creek, NY	1937	1988	—	6,621	1,621
Manhasset Bay, NY	1948	1988	—	—	4,636
Matawan Creek, NJ (1881 Act)	1984	1988		21,000	257,237
N. Shore of Long Island, Suffolk County, NY	1979	Jan. 1990	—	—	—
Newark Bay, Hackensack and Passaic River, NJ 16	1982	Aug. 1982	—	—	—
NY & NJ Channels 4, 18	1982	Aug. 1982	—	—	—
Orowoc Creek, NY	1949	1988	—	—	4,951
Otter Creek, VT	1937	Jan. 1990	—	—	—
Perth Amboy, NJ	1966	Jan. 1990	—	—	—
Port Chester Harbor, NY 2,3	1967	Aug. 1977	433,470	433,470 [4]	441,656
Port Jefferson Hbr. NY (1890, 1930 & 68 Acts)	1977	Jan. 1990	—	—	—
Rahway River, NJ 6, 7	1948	Aug. 1982	—	37,000 [4]	307
Raritan River, NJ 4, 6	1981	Aug. 1982	1,551,470	1,617,470 [15]	10,113,903
Rome Mohawk River, NY 6, 7	1959	Aug. 1982	7,000	7,000	—
Rutland, Otter Creed, VT	1963	1988	—	211,015	—
Sag Harbor, NY (Channel) 1	1964	Oct. 1992	—	—	—
Shooters Island, NJ & NY 9	—	July 1992	—	—	—
Shrewsbury River, NJ (1950 & 1965 Act)	1992	Jan. 1990	—	—	—
Swanton Harbor, VT 6	1888	Aug. 1977	—	70,500 [4]	235

TABLE 2-M (Continued) DE-AUTHORIZED PROJECTS

Projects	For Last Full Report See Annual Report for	Date And Authority	Federal Funds Expended	Funds Expended: Construction	Funds Expended: Operation And Maintenance
Ticonderoga River, NY 1-6	1895	Nov. 1983	167,760	16,500	1,260
Waterbury, VT (1941 Act) 7, 8	1951	Nov. 1981	9,253	9,253	—
Waterford, NY 6, 7	1939	Aug. 1982	—	—	—
Waycake Creek, NJ	1949	1988	—	2,781	—
Westchester Creek, NY 4	1981	Aug. 1982	175,933	175,933	2,921,311

[1] No Commerce reported
[2] Completed
[3] A portion of this project is classified "inactive"
[4] Uncomplete portion deauthorized
[5] Excludes $19,546 for new work expended contributed funds
[6] Inactive
[7] Entire project deauthorized
[8] Excludes $71,423 for rehabilitation
[9] Removal for navigation
[10] Deepening 8 foot project to 10 feet
[11] Includes $93,882 for Rehabilitation
[12] Includes $10,000 expended from contributed funds
[13] Includes $100,000 expended from contributed funds
[14] Deepening project to 13 feet
[15] Includes $66,000 expended from contributed funds
[16] 1912 authorization
[17] 1935 authorization
[18] 1910 construction dikes

TABLE 2-N SECTION 14

Project	FY 03 Cost
PLANNING AND DESIGN ANALYSIS	
Wallkill River, Rosendale, NY	$710,268
Elizabeth River, Valley View Rosendale, NJ	45,446
Coordination Account	13,731
Hudson River Poughkeepsie, NY	75,977
Richford Water Supply, VT	77,622
South Branch, Rahway River, NJ	27,844
Mt. Pleasant Ave., Hanover, NJ	26,897
Town of Wells, NY	40,883
Delaval, Bulkhead, Hudson River, NY	559

TABLE 2-O SECTION 103

Project	FY 03Cost
CONSTRUCTION FUNDING	
Rikers Correctional Facility , NY	$ 6,659
Hudson River, Dutchess City, NY	$19,553

TABLE 2-P SECTION 107

Project	FY 03Cost
COORDINATION ACCOUNT	$17,084

TABLE 2-Q SECTION 111

Project	FY 03Cost
FEASIBILITY STUDY	
Coordination Account	$13,757
Mattituck Harbor, NY	2,361

TABLE 2-R SECTION 205

Project	FY 03Cost
FEASIBILITY STUDY	
Poplar Brook, Monmouth City NJ	$6,749
Fulmer Creek, Village of Mohawk, Herkimer City, NY	209,828
Moyer Creek, Village of Frankfort, Herkimer City, NY	140,792
Steele Creek, Village of Ilion, Herkimer City, NY	126,474
Mad River Basin, VT	118,241
Jackson Brook, Morris City, NJ	63,176
PLANS AND SPECIFICATIONS	
Sauquoit Creek, Whitesboro, NY	$4,340
Coordination Account	14,300
CONSTRUCTION FUNDING	
Elizabeth River, Hillside, NJ	$34,651
Mc Keel Brook Morris County, NJ	1,688,387
PRELIMINARY RESTORATION PLANS/INITIAL APPRAISALS NG	
Wynantskill Creek, North Greenburgh , NY	43,902
Branch Brook, Mt Kisco, NY	6,564
Plattekill Creek, Saugerties, NY	45,230
Brentwood Brook, Harrison, NY	15,849
Larchmont Reservoir, Larchmont, NY	58,204
Northvale, Spark Hill , NJ	61,873
Acid Brook, Pompton Lakes, NJ	55,438

TABLE 2-S SECTION 206

Project	FY 03Cost
FEASIBILITY STUDY	
Gerritsen Creek NY	$380,026
Lower Hempstead Harbor, Town of North Hempstead, NY	72,009
Manhasset Bay, Town of North Hempstead, NY	63,909
Oriskany Flats, NY	134,904
PRELIMINARY RESTORATION PLANS/INITIAL APPRAISALS	
Crossway Field, Village of Scarsdale, NY	$366
Coordination Account	15,404
Edith Read Natural Park and Wildlife Sanctuary , NY	757
Essex County, Weequahic Park , NJ	694
Fair Haven, Monmouth County, NJ	6,896
Former Flushing Airport, College Park , NY	829
Hackensack Meadowlands NJ	23,144
Harbor Island, Mamaroneck NY	389
Mad River Basin, VY	11,022
Mamaroneck Reservoir, Mamaroneck, NY	39
Mill Pond, Bay Shore, NY	1,567

Mud Creek, East Patchogue, NY	18,652
Nepperhan River Outlet, Yonkers, NY	323
New Haven, River Basin, VT	9,000
New Rochelle, (Echo Bay), NY	1,356
Port Jefferson Harbor, NY	144
Potash Brook , VT	11,014
Rye , NY Nursery Wetland	744
Sheldrake/Goodlife Pond, New Rochelle, NY	14,488
Spring Creek , NY	307,128
Soundview Park, City of Bronx, NY	25,499
Sunset Park, Bush Piers, Brooklyn, NY	1,687
Tresure Lake, Cliffwood Beach, NJ	6,357
Weir Creek, NY	499
West Shore of Penataquit Creek, Bay Shore , NY	517
Wild Branch River, VT	200

TABLE 2-T SECTION 1135

Project	FY 03Cost
FEASIBILITY STUDY	
Coordination Account	16,790
Hoosic River,Ma	88,562
Lincoln Park West, Jersey City, NJ	167,957
Northport Harbor,, Town of Huntington, NY	75,814
Rahway River,Rahway, NJ	82,083
Jamaica Bay Marsh Islands, NY	151,515

PHILADELPHIA, PA DISTRICT

This district comprises a portion of southeastern New York, eastern Pennsylvania, western and southern New Jersey, northern and southern Delaware, and a small part of northeaster Maryland embraced in the drainage basins tributary to the Atlantic Ocean from Manasquan River, NJ inclusive, to south boundary of Delaware. It also includes Chesapeake and Delaware Canal and approach channel thereto in Chesapeake Bay and Elk River, MD.

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Navigation:

1. BARNEGAT INLET, NJ

Location: On the east coast of New Jersey about 50 miles south of Sandy Hook, between Island Beach on the north and Long Beach on the south (See U.S. Coast and Geodetic Chart Nos. 825 and 1216). This inlet is the main entrance to Barnegat Bay, largest of the bays on New Jersey coast, which are separated from the ocean by narrow barrier beaches.

Previous Project: None

Existing project: The existing project, adopted as HD 73-19 in 1935 and modified as HD 74-85 in 1937 and HD 79-358 in 1946, provides for a channel eight feet deep through the inlet and ten feet deep through the outer bar, protected by two converging stone jetties and a channel of suitable hydraulic characteristics extending in a northwesterly direction from the gorge in the inlet to Oyster Creek channel and through the latter channel to deep water in the bay. The project was modified in 1946 to provide for the maintenance of a channel eight feet deep and 200 feet wide to connect Barnegat Light Harbor with the main inlet channel. The project length is about 4.5 miles. (For details see page 203, Annual Report 1964.)

The Supplemental Appropriation Act of 1985 contained language stating that the existing project has not worked as projected and, in fact has created a hazard to navigation. As a result, the following administratively approved modifications were constructed as design deficiency correction measures: a new south jetty 4,270 feet in length along an alignment generally parallel to the existing north jetty, extending from the old groin located near the Barnegat Lighthouse to the tip of the existing south jetty; a navigation channel 300 feet wide to a depth of 10 feet below mean low water from the outer bar in the Atlantic Ocean to the north end of the existing sand dike in Barnegat Bay; remove the shoal located between the north jetty and the proposed navigation channel; jetty sport fishing facilities on the new jetty. All dredged material from initial construction was placed on the shores of Barnegat Light between the existing and new south jetties, and is being stabilized by vegetation and sand fence. Dredged material from maintenance operations are placed on the down draft beaches, the area between the existing and new south jetties, or in other locations as determined by a shoreline monitoring program. Estimated cost for new work (October 1990) Federal share is $31,200,000 and non-Federal is $14,230,000. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: Fully complied with. A local cooperation agreement for the approved modification was executed on 19 May 1986 and a modification to the local cooperation agreement was executed on 20 March 1987.

Terminal facilities: There are four docks or terminals in inner harbor at Barnegat Light that furnish adequate facilities for present commerce of locality.

Operation during fiscal year: Maintenance: Condition surveys were accomplished. Began construction of 1,850 linear feet of revetment along the northern side of the inlet. Dredging by the U.S. Government Dredge Currituck removed a total of 269,819 cubic yards of material at a total of $1,174,000.

2. COLD SPRING INLET, NJ

Location: In Cape May County, southern New Jersey, about 3 miles east of Cape May City and about 16 miles northeast of Delaware breakwater. Inlet connects Cape May Harbor and New Jersey Intracoastal Waterway with the Atlantic Ocean and is about 1 mile long. (See Coast and Geodetic Survey Charts 234, 827 and 1219).

Existing project: An entrance channel 25 feet deep and 400 feet wide, protected by two parallel jetties, and extending from the 25-foot depth curve in the Atlantic Ocean to a line 500 feet harborward of a line joining the inner ends of the jetties, thence 20 feet deep and 300 feet wide to deep water in Cape May Harbor. The total length of the section included in the project is about 2.25 miles. Extreme tidal range, due to ocean storms, is about 11 feet. Project was completed in 1942. (For details see page 238, Annual Report for 1962. See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: Complied with Act of 1907, except work of deepening and enlarging inner harbor that is 80 percent complete.

Terminal facilities: See page 238 Annual Report for 1962.

Operations during fiscal year: Maintenance: Dredging by the U.S. Government Side Casting Dredge

Fry removed a total of 72,900 cubic yards of material from the inlet at a total cost of $250,300. Dredging by Barnegat Bay Dredging Company removed a total of 89,140 cubic yards of material from the Cape May Harbor at a total cost of $175,650.

3. DELAWARE RIVER BETWEEN PHILADELPHIA, PA AND TRENTON, NJ

Location: Rises in southeastern New York, flows generally southerly 367 miles, forming boundary line between New York and New Jersey on the east and Pennsylvania and Delaware on the west, and empties into Delaware Bay. (See U.S. COAST and Geodetic Survey Charts 1218, 280, 294, 295, and 296.)

Previous project: For details see page 1778 of annual report for 1915, page 311 of Annual Report for 1924, page 220 of Annual Report for 1934, and page 296, Annual Report for 1938.

Existing project: A channel from Allegheny Avenue, Philadelphia, 23.5 miles to upstream end of Newbold Island 40 feet deep and 400 feet wide, with suitable widening of bends, including relocation of channel at Delair Railroad bridge, and reconstruction of bridge, thence 5.5 miles to upper end of Trenton Marine Terminal, 35 feet deep and 300 feet wide, with a turning basin 800 feet wide and 1,700 feet long at the terminal; and maintenance of a channel 12 feet deep and 300 feet wide from upper end of 34-foot channel to Penn Central railroad Bridge at Trenton, dredged under a previous project. Project also provides for an auxiliary channel 20 feet deep and 200 feet wide east of Burlington Island, extending easterly from main channel to upper end of U.S. Pipe and Foundry Co.'s property at East Burlington, with a turning basin 450 feet wide at upper end; for initial excavation, only, of a cross channel 8 feet deep and 200 feet wide through artificial island opposite Delanco, NJ, and for construction of such bank protection works as may be necessary. Section included in project is about 30.5 miles long, excluding auxiliary channel east of Burlington Island, which is 1.4 miles long, and cross channel opposite Delanco. Lower end is about 55 miles above river mouth at Liston Point and about 105 miles above Harbor of Refuge at mouth of Delaware Bay. Freshets, which occur usually during February and March, attain a height of 9 to 20 feet above mean low water in the vicinity of Trenton. Navigation is occasionally suspended during a portion of winter months due to ice. Existing project is 90 percent complete. A 40-foot channel under the 1954 modification from Allegheny Avenue to upper end of Newbold Island was completed April 1964. Work remaining is dredging from upper end of Newbold Island to Trenton Marine Terminal and widening turning basin at terminal that is in deferred category. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: Modification authorized by 1954 River and Harbor Act provides local interests must provide suitable terminal facilities, furnish lands and rights-of-way for construction and future maintenance, and hold the United States free from damages. Local interest complied with requirements, except city of Trenton has not provided suitable terminal facilities.

Terminal facilities: There are 21 piers, wharves, and docks from Allegheny Avenue, Philadelphia, PA to Trenton, NJ facilities are considered adequate for existing commerce. (For details see Port Series No. 8 (revised 1966-Corps of Engineers.)

Operations during fiscal year: Maintenance: Work included channel examination surveys and topographic surveys and preliminary design of several disposal areas provided by the State of New Jersey. Work also included dredging by the U.S. Government Dredge McFarland removing a total of 128,807 cubic yards of material at a cost of $1,432,067.

4. DELAWARE RIVER MAINSTEM CHANNEL & DEEPENING, NJ, PA, & DE

Location: The project area is located within the Delaware Estuary and borders Pennsylvania, New Jersey and Delaware. It extends over 100 miles of the Delaware River from Philadelphia Harbor, Pa. and Beckett Street Terminal in Camden, NJ to the mouth of the Delaware Bay.

Existing project: Delaware River Federal Navigation Channel (Philadelphia to the Sea Project) completed in 1942. The project calls for modifying the existing Delaware River Federal Navigation (Philadelphia to the Sea Project) channel from 40 to 45 feet below Mean Low Water (MLW) with an allowable dredging over depth following the existing channel alignment from Delaware Bay to Philadelphia Harbor and the Beckett Street Terminal, Camden New Jersey, a distance of about 102.5 miles. The channel width (same as the existing 40-foot project) would range from 400 feet in Philadelphia

Harbor to 800 feet from Philadelphia Naval Business Center to Bombay Hook and then 1,000 feet in Delaware Bay. The plan includes appropriate bend widening as well as provision of a two-space anchorage for safety purposes to a depth of 45 feet at Marcus Hook. Dredged material would be placed in confined upland disposal areas and for beneficial uses in Delaware Bay.

The improved channel will have a significant impact in allowing more efficient vessel loading, reducing the lightering requirements of crude oil tankers in the lower Delaware Bay, and attracting larger, more efficient container and dry bulk vessels. It is estimated that the proposed deepening will result in annual transportation savings of $24.1 million. Project estimate cost (October 2002) is Federal, $270,250,000, which includes $1,250,000 of Coast Guard contributions. Non-Federal costs are $144,380,000. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: Project Cooperation Agreement (PCA) to be coordinated with the project sponsor.

Operations During Fiscal Year: New Work: Completed refinement of project benefits, continued coordination associated with State of Delaware Permit, and coordination with State of New Jersey concerning Federal Coastal Zone Determination (CZM).

5. DELAWARE RIVER, PA, NJ, AND DE, PHILADELPHIA TO THE SEA

Location: See U.S. COAST and Geodetic Survey Charts 1218, 394, 295, and 280.

Previous project: For details see page 1779 of Annual Report for 1915, and page 299, Annual Report for 1938.

Existing project: Provides for a channel from deep water in Delaware Bay to a point in the bay, near Ship John Light, 40 feet deep and 1,000 feet wide; thence to Philadelphia Naval Base, 40 feet deep and 800 feet wide, with 1,200-foot width at Bulkhead Bar and 1,000-foot width at other bends; thence to Allegheny Avenue, Philadelphia, PA, 40 feet deep and 500 feet wide through Horseshoe Bend and 40 feet deep and 400 feet wide through Philadelphia Harbor, along west side of channel; and for anchorages at Reedy Point, Deepwater Point, Marcus Hook, and Mantua Creek, each 40 feet deep and 2,300 feet wide with respective length of 8,000, 5,200, 12,650, and 11,500 feet; anchorage at Gloucester 30 feet deep and about 3,500 feet long. Project also provides for construction of dikes and training works for regulation and control of tidal flow; for maintenance of an area on north side of channel opposite Philadelphia Naval Base between Shipway 3 and Schuylkill River to 40 feet deep and width of 150 feet on Mifflin Range and 200 feet on West Horseshoe Range; and for maintenance of any areas dredged by local interests to 35 feet deep between channel and a line 100 feet channelward of pierhead line between Point House wharf and Philadelphia Naval Base, when in opinion of Chief of Engineers such areas are so located as to be of benefit to generate navigation. Section included in project is about 96.5 miles long. All depths refer to plane of mean lower low water. Under influence of heavy and long-continued winds extreme tidal range is about 14 feet. Normal maximum velocity of tidal currents in the dredged channel varies between 2 and 3.5 miles per hour. Storm tides may increase maximum to as much as 4.5 miles per hour. Estimated cost for new work is $71,630,000 (July 1972) exclusive of amounts expended on previous projects. Channel to 37 deep and 500 feet wide through Horseshoe Bend and 37 feet deep and 60 feet wide through Philadelphia Harbor along east side of channel and Port Richmond anchorage to 37 feet deep, except for that portion of channel which forms a part of 40 feet deep and 400 feet wide channel portion is to be restudied and excluded from foregoing cost estimate. Estimated cost (July 1960) of this portion of project is $2,951,000. Existing project, excluding work deferred for restudy, is about 66 percent complete. The 40-foot channel from Naval Base to the sea was completed in 1942. Dredging Naval Base to Allegheny Avenue to 40 feet deep was completed in 1962. Enlarging anchorage at Marcus Hook was completed in 1967. Work remaining is to construct new anchorages at Reedy Point and Deepwater Point, and enlarge Mantua Creek anchorage, channel dredging from 35 to 37 feet deep over a width of 500 feet through Horseshoe Bend and about 600 feet through Philadelphia Harbor, and deepening Port Richmond Anchorage to 37 feet, all of which have been deferred for restudy. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Requirements under 1938 River and Harbor Act for maintaining channel and anchorage in Philadelphia Harbor annually by cities of Philadelphia and Camden were removed (see 1962 Annual Report for details.)

Terminal facilities: There are 217 piers, wharves, and docks between Allegheny Avenue, Philadelphia and

the sea, 135 on the waterfront of Philadelphia, Camden, and Gloucester, and 82 below Philadelphia. Facilities are considered adequate for existing commerce. (For further details see Port Series Nos. 7, revised 1967, and 8, revised 1966-Corps of Engineers.)

Operations during fiscal year: Maintenance: Routine maintenance of Government owned disposal areas, channel examination surveys and maintenance dredging of the forty foot channel in Marcus Hook and New Castle ranges. Work also included dredging by the U.S. Government Dredge McFarland at a cost of $10,594,999.

6. INLAND WATERWAY FROM DELAWARE RIVER TO CHESAPEAKE BAY, DE & MD

Location: The Waterway begins at Reedy Point on Delaware River, about 41 miles below Philadelphia, PA, and passes through the sea level Chesapeake and Delaware Canal, a distance of 14 miles, to Back Creek, at Chesapeake City, MD. It then passes for 5 miles down Back Creek, thence 9 miles down Elk River to Chesapeake Bay and thence 18 miles down Chesapeake Bay to a point near Pooles Island. A branch channel connects Delaware River at Delaware City, DE, with main channel at a point about 1.5 miles west of Reedy Point. (See U.S. COAST and Geodetic Survey Charts 294, 1226, 570, and 572.)

Previous project: For details see Annual Report for 1934, page 242, and Annual Report for 1938, page 312.

Existing project: A channel 35 feet deep and 450 feet wide from Delaware River through Elk River and Chesapeake Bay to water of natural 35-foot depth in Chesapeake Bay including a cutoff at Penn Central Railroad crossing, and having a maximum radius of curvature of 7,000 feet at bends; a high-level, fixed railroad bridge with vertical clearance of 135 feet and horizontal clearance of 600 feet at the railroad crossing over the cutoff (economic study of railroad crossing requested by Office of Management and Budget resulted in construction of a single track vertical lift bridge in lieu of a high-level fixed railroad bridge); high-level fixed highway bridges over canal at Reedy Point, St. Georges, Summit, and Chesapeake City; a bascule drawbridge across Delaware City Branch Channel; extension of entrance jetties at Reedy Point; and anchorage in Elk River, 35 feet deep and 1,200 feet wide, with an average length of 3,700 feet; enlargement of anchorage and mooring basin in Back Creek to afford an area about 400 feet wide, 1000 feet long, and 12 feet deep; dredging Delaware City Branch Channel to 8 feet deep and 50 feet wide, and deepening existing basin to same depth; revetment of banks of canal as required between Delaware and Elk Rivers, and on banks of Delaware City Branch Channel east of Fifth Street Bridge; and construction of bulkheads. Total of section included in project, excluding Delaware City Branch Channel, which is about 2 miles long, is about 46 miles. All depths refer to plane of low water in Delaware River. Extreme tidal range is from 6.3 feet above mean high water to 3 feet below mean low water.

High-level fixed highway bridges were completed at St. Georges (4-lane) in 1942; at Chesapeake City (2-lane) in 1949; at Summit (4-lane) in 1960; and at Reedy Point (2-lane) in 1969. Relocation of Penn Central Railroad bridge was completed December 21, 1965. Enlargement to 35 feet deep and 450 feet wide was completed in the third quarter of FY 1975 with the exception of the anchorage at Elk River. Removing the old Penn Central railroad bridge was completed on January 21, 1972. Deepening of the Delaware City Branch Channel from 6 to 8 feet from a point 400 feet east of Fifth Street Bridge to its junction with the canal has been deferred for study.

Original cost of canal including purchase was $10,709,755; estimated cost of new work for modifications of 1935 and 1954 are federal cost $166,000,000 (October 1992). This portion is deauthorized. Major Rehabilitation of St. Georges and Summit Bridges was completed in fiscal year 1991 at an approximate federal cost of $20,868,000 (90 price level). Portion of project comprising completion of Delaware City Branch Channel from a point 400 feet east of Fifth Street Bridge to its junction with canal is to be restudied and excluded from foregoing estimate. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: River and Harbor Act of 1954 provided that local interests furnish lands and rights-of-way required for bridges. Assurances accepted and approved February 16, 1955. Requirements for Summit and Reedy Point Bridges have been met.

Terminal facilities: Ample mooring facilities at eastern and western ends of canal and bulkheads at Delaware City and St. Georges were constructed by the United States. A small-boat harbor was provided and a wharf constructed at Chesapeake City. Facilities are considered adequate for existing commerce.

Operations during fiscal year: Maintenance: Work included general maintenance of traffic control television, dispatch service, operation of traffic, administration building, bridges, roadways, grounds, museum, auxiliary works, and periodic bridge inspection. Also included in work was maintenance night lighting, lease of equipment, surveys, environmental monitoring, electrical maintenance, property management, plans and specifications, engineering and design, and supervision and administration. There was also work on the Disposal Material Management Plan, Geographical Information System, Environmental Review Guide for Operations assessment, mosquito control, monitoring data, monitoring stabilization banks, and miscellaneous repairs. There was also maintenance dredging by B+B Dredging Company removing a total of 574,569 cubic yards of material at a total cost of $3,634,000.

7. INLAND WATERWAY, REHOBOTH BAY TO DELAWARE BAY, DE

Location: A tidal canal in southeasterly part of Sussex County, DE. It extends 12 miles northward from Rehoboth Bay through high land west of town of Rehoboth to Gordon Lake; thence down Lewes River to its junction with Broadkill River near its mouth. An entrance to the waterway from Delaware Bay is about 4 miles above Cape Henlopen. (See U.S. Coast and Geodetic Survey Charts 379, 1218, and 1219.)

Previous project: A canal along a slightly different route formed a part of projected waterway from Chincoteague Bay, Va. to Delaware Bay, begun in 1886 and abandoned in 1905.

Existing project: This provides for an entrance channel near Lewes 10 feet deep and 200 feet wide protected by two parallel jetties 500 feet apart; thence a channel 10 feet deep and 100 feet wide to South Street Bridge at Lewes, and a basin of the same depth 1,200 feet long and up to 375 feet in width at the latter point; thence a channel 6 feet deep and 100 feet wide (40 feet wide through Deep Cut near Rehoboth Bay) to Rehoboth Bay; a channel 6 feet deep and 100 feet wide from the entrance to Broadkill River; two parallel rubble jetties 725 feet long at the Rehoboth Bay entrance; and the construction of the one highway bridge and one railroad Bridge to Rehoboth. The total length of the section included in the project is about 12 miles.

The extension of the jetties at the Delaware Bay entrance is considered to be inactive and is excluded from the foregoing cost. The cost of the portion was last revised in 1960 and was estimated to be $816,000. Existing project is about 70 percent complete. For details on completed work see page 241 of Annual Report for 1963. Work remaining, extension of existing jetties at Delaware Bay entrance, is considered inactive. The Sheet Pile Jetty at the Delaware Bay entrance was removed during Fiscal Year 1987. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Complied with except local interest must furnish suitable terminal facilities and necessary spoil-disposal areas.

Terminal facilities: See page 228, Annual Report 1962.

Operations during fiscal year: Maintenance: Work included a real estate inspection of all government outgrants for use of Federal property as well as all lands the government holds an interest in, be it by fee or easement right, from Savannah Ave. Bridge to Rehoboth Bay. Also, a channel examination of the Federal channel from Roosevelt Inlet to Savannah Ave. Bridge was performed by our in-house survey force.

8. MANASQUAN RIVER, NJ

Location: This small stream flows in eastern part of New Jersey, rises near Freehold, flows easterly and empties into the Atlantic Ocean, about 26 miles south of Sandy Hook. (See U.S. Coast and Geodetic Survey Chart No. 795).

Previous projects: For details see Annual Report for 1909, page 186, and Annual Report for 1938, page 269.

Existing project: A channel 14 feet deep and 250 feet wide, protected by jetties and other works, extending from the Atlantic Ocean to inner end of north jetty, thence 12 feet deep and 300 feet wide to within 700 feet of New York and Long Branch Railroad bridge, thence of same depth and narrowing to 100 feet wide to within 300 feet of bridge; for a widening on northerly side of channel of 200 feet for 3,150 feet and 8 feet deep on south side of channel and for a 27.5-acre anchorage to 12 feet deep about 0.5 miles west of Route 35 highway bridge. Section included in project is about 1.5 miles long. Mean tidal range is 3.7 feet at inner end of inlet and 4 feet at ocean end; mean range of spring tides, 4.4 and 4.8 feet, respectively, irregular fluctuations due to wind and barometric pressure vary from 2.7 feet below to 7.5 feet

above mean low water at inner end of inlet. Project, excluding 10-and 12-foot anchorages, cost $518,243. Estimated cost (1958) for 10 and 12-foot anchorages portion of project considered inactive is $504,000. Restoration of bulkheads completed 16 August 1965 at a cost of $117,807. Existing project was completed in June 1963. Dredging 19-acre anchorage south of channel and 27.5-acre anchorage west of highway bridge is in the inactive category. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: River and Harbor Act of 1945 provides that local interests must furnish lands and rights-of-way for construction and future maintenance and hold the United States free from damages. Assurances to date have been complied with.

Terminal facilities: Five landings with a total wharfage of 700 feet used by commercial fishermen, and 7 landings and boat basins for pleasure craft. Existing facilities are considered adequate for present requirements.

Operations during fiscal year: Maintenance: Emergency channel dredging by the U.S. Government hopper dredge Currituck removed 36,130 cubic yards of material at a cost of $84,000.

9. MISPILLION RIVER, DE

Location: Rises in Kent County and Sussex Counties, DE, flows northeasterly 15 miles along the boundary line between the two counties and empties into Delaware Bay about 16 miles above Cape Henlopen. (See Coast and geodetic Survey Chart 1218.)

Previous project: For details see page 1786, Annual Report for 1915, page 448 of Annual Report for 1918, and page 327 of Annual Report for 1938.

Existing project: Project is about 31 percent complete. Four cutoffs for 6-foot channel were completed in 1923; 6-foot channel from Delaware Bay to Milford in 1924; and jetties at the mouth in 1939. Work remaining is dredging channel to 9-foot depth, 80 feet wide in Delaware Bay to the mouth, thence 60 feet wide to Milford with the provision of three cutoffs to eliminate bends, and a turning basin at Milford. Controlling depths at mean low water, in October 1964 from Delaware Bay to mouth 7.1 feet, and thence to fixed highway bridge at Report 1957, (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Assurances required by 1954 River and Harbor Act has not been furnished. For details see page 243, Annual Report for 1957. Prior requirements fully complied with.

Terminal facilities: For details see page 244, Annual Report for 1957.

Operations during fiscal year: Maintenance: Condition surveys of the stone revetment and the Federal navigation channel were performed.

10. MURDERKILL RIVER, DE

Location: Rises in Kent County, DE, flows northeasterly 19 miles through county, and empties into Delaware Bay about 25 miles above Cape Henlopen. (See U.S. Coast and Geodetic Survey Chart no. 1218.)

Existing project: Provides for a channel 7 feet deep at mean low water, 150 feet wide in Delaware Bay to mouth, and thence 80 feet wide to Frederica, 7.5 miles above mouth. Total length of section included in project is about 8.5 miles. Extreme tidal range is from about 1 foot below mean low water to about 2 feet above mean high water.

Estimated cost for new work revised in 1954 is $38,000. Portion comprising widening channel to project width throughout its length is to be restudied and excluded from foregoing cost estimate. Estimated cost of this portion last revised in 1954 was $86,000. Project was authorized by River and Harbor Act of July 13, 1892 (H. Ex. Doc. 21, 52d Cong., 1st Sess. See page 981 Annual Report for 1892). Latest published map is in House Document 1058, 62d Congress 3rd Session.

Existing project about 30 percent complete, including revision to be restudied. Channel 7 feet deep and 60 feet wide was completed in 1911. Work remaining is widening the channel to project width. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: None required.

Terminal facilities: There are a number of light timber wharves on both sides of river near mouth and two wharves at Frederica, all privately owned. Facilities are considered adequate for existing commerce.

Operations during fiscal year: Maintenance: A channel examination of the project entrance channel was performed by our in-house survey group.

11. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645.

Name of Project	Cost to Sept. 30, 2003
Preliminary Restoration Plan	
Fortescue, NJ	$ 10,000

12. NEW JERSEY INTRACOASTAL WATERWAY

Location: A sea level inland water route approximately parallel with New Jersey coast, extends from Atlantic Ocean at Manasquan Inlet, about 26 miles south of Sandy Hook, NJ to Delaware Bay about 3 miles above Cape May Point. Waterway extends through inlet and up Manasquan River about 2 miles; thence by Point Pleasant Canal through high ground for 2 miles to head of Barnegat Bay. It then passes through a series of bays, lagoons, and thoroughfares along New Jersey coast to Cape May Harbor; thence across Cape May County to Delaware Bay through a land cut by way of New England Creek basin. (See U.S. COAST and Geodetic Survey Charts, 234, 795, 825, 826, 827, 1216, 1217, 1218, and 1219.)

Existing project: This provides for a channel 12 feet deep at mean low water and generally 100 feet wide, extending from the Atlantic Ocean at Manasquan Inlet, NJ to Delaware Bay above Cape May, NJ, by the further improvement of Manasquan River and Inlet, NJ, and the present New Jersey Intracoastal Waterway, and by the construction of a canal of similar dimensions from Cape May Harbor to Delaware Bay via the New England Creek basin, with adequate jetties at the Delaware Bay entrance. The total length of the project is about 117 miles. The unconstructed portion of the project, deepening the channel from 6 feet to 12 feet from the Atlantic Ocean at Manasquan Inlet to Cape May Harbor, was deauthorized on 1 January 1990, by PL 99-662. Normal tide range in sections of the waterway remote from inlets is 0.5 foot.

Estimated cost for new work is $71,549 (July 1969), exclusive of $1,824,940 Navy Department funds and $99,000 contributed by local interests. Portion of project extending from Manasquan River to Cape May Harbor is to be restudied and excluded from new work costs estimate. Estimated cost of this portion is $6,470,000 (July 1954). Existing project was adopted by 1945 River and Harbor Act (H. Doc 133, 76th Cong., 1st Sess.) Latest published map is in project document. River and Harbor Act of 1946 (Public Law 525, 79th Cong., 2nd Sess., as extended by Public Law 240, 82d Cong.), authorized use for a period not to exceed 6 years, of funds from appropriations heretofore or hereafter made for maintenance and improvement of rivers and harbors, for maintenance of canal from Cape May Harbor to Delaware Bay constructed as an emergency wartime project with Navy Department funds, including cost of maintaining temporary railroad and seashore highway bridges over canal.

A canal 12 feet deep and 100 feet wide from Cape May Harbor to Delaware Bay was completed in 1942 as well as two parallel stone jetties at Delaware Bay entrances and a temporary highway and a railroad bridge in 1944, all with Navy Department funds. The project between Ottens Harbor and Richardson Channel and from that point to Cape May are being maintained to 10 feet and 12 feet, respectively, since they were originally dredged to these depths by the State. Section 860 of the Water Resources Development Act of 1986 authorized, for preconstruction engineering and design, a 15 foot depth in the Vicinity of Cape May Harbor, titled as Cold Spring Inlet. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: The project is subject to the conditions that the State of New Jersey cede to the United States all right, title, and interest that it has acquired to lands, easements, rights-of-way, and structures other than bridges for the Bayhead-Manasquan Canal; that the State of New Jersey furnish, free of cost to the United States, all lands, easements, rights-of-way, and disposal areas required for construction of the Cape May Canal and for improvement of the proposed waterway and for their subsequent maintenance; that local interests provide, maintain, and operate suitable bridges over the waterway; that the State of New Jersey donate to the United States the navigation aids in use on the present New Jersey Intracoastal Waterway; and that the State of New Jersey hold and save the United States and its agents free from any claims for damages resulting from the work of improvement. Compliance with these conditions was completed January 15, 1954, except that local interests are required to furnish disposal areas for the construction

and the subsequent maintenance of the proposed improvements.

Terminal facilities: See Annual Report for 1962.

Operations during fiscal year: Maintenance: Work included general maintenance, surveys, and gabion repairs along the Cape May Canal. Maintenance dredging by Barnegat Bay Dredging Company removed 154,474 cubic yards of material at a total cost of $1,545,200. Real Estate inspections were also conducted.

13. RECONNAISSANCE AND CONDITION SURVEYS

Reconnaissance Surveys	Survey Conducted
Maurice River, NJ	April 2003

Condition Surveys	Survey Conducted
Barnegat Inlet, NJ	June 2003
Cape May Inlet, NJ	June 2003
Cohansey River, NJ	September 2003
Inland Waterway – C&D Canal Chesapeake Bay	September 2003
Manasquan Inlet, NJ	August 2003
Mispillion River, DE	June 2003
Murderkill River, DE	May 2003
New Jersey Intracoastal Waterway, Cape May Canal, NJ	June 2003
Roosevelt Inlet, Lewes & Rehoboth Canal, DE	June 2003
Salem River, NJ	August 2003

14. REGIONAL SEDIMENT MANAGEMENT PILOT PROGRAM

Location: Cape May Inlet, Cape May County, New Jersey.

Existing project: The beaches immediately east and west of Cape May Inlet experience problems related, respectively, to an excess and a deficit of sediment supply. Because the Cape May beachfill is located just downdrift of the Cape May Inlet jetties (completed in 1911), sediment transport from the north into the area is interrupted and erosion has been the predominate historical trend. Between 1943 and 1977, accretion as high as 1,000 feet occurred along the ocean frontage just south of Hereford Inlet. Prior investigations indicate that sand appears to be bypassing the inlet on the ebb-tidal shoal.

A Federal beach erosion control project was initiated in 1990 for the US Coast Guard Base and the City of Cape May, immediately west of Cape May Inlet. Sand for construction and subsequent nourishment of this project has been obtained from an offshore borrow site, but that site has an insufficient reserve of material for future nourishment needs. The District is investigating alternative sources for the approximate 200,000 cubic yards a year demand at Cape May City and the USCG Base. Contrasting the erosion on the downdrift (southwest) side of Cape May Inlet is the accumulation of sediment on the updrift beaches of Wildwood Crest and Wildwood City. The excess of sediment supply there has resulted in at least two problems: storm water outfalls that do not drain because of beach width accretion, and excessive beach widths that make recreational beach user access to the "shoreline" problematic.

The District is presently evaluating a range of options for removing sediment from the updrift beaches for use in nourishing the beach downdrift of Cape May Inlet. Two essentially different concepts are being considered for remedy of the sediment excess/deficit problems on the updrift/downdrift shorelines adjacent to Cape May Inlet. The first would involve a more-or-less continuous (low) level of sand bypassing using a fixed bypass plant across Cape May Inlet. Excess sand would be obtained for Wildwood and Wildwood Crest by either mechanical pan scraping or small hydraulic plant and stockpiled at the bypass plant location. The second approach considered for bypassing sediment across Cape May Inlet involves periodic (i.e., once per year, or less frequently) dredging from the east jetty fillet by means of a conventional floating hydraulic pipeline dredge. In this plan, sediment would be bypassed across the inlet infrequently at large volume rates, as compared to the "continuous," low-volume transport rate associated with the first plan (above.) This alternative would still require a method of obtaining sand from the Wildwood and Wildwood Crest beaches, such as the mobile pan scraper concept. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Local and Federal interests must furnish lands and rights-of-way for construction and

future maintenance and hold the United States free from damages. Assurances to date have not been obtained.

Operations during fiscal year: Maintenance: Coordination with Environmental stakeholders, Engineer Research and Development Center, and Corps of Engineers Waterways Experiment Station. Database framework was developed and development of a rapidly deployed beach surveying system was completed and filed testing completed. Coordination with the local municipalities was begun.

15. SCHUYLKILL RIVER, PA

Location: Rises in Schuylkill County, PA, flows generally southeasterly 150 miles, and empties into Delaware River at Philadelphia, PA (See U.S. Coast and Geodetic Survey Charts 295 and 280.)

Previous project: For details see page 325, Annual Report for 1932.

Existing project: This provides for a channel 33 feet deep and 400 feet wide in Delaware River the mouth and within the river to 29th Street, .75 mile above the mouth; thence the same depth and 300 feet wide to Passyunk Avenue Bridge, 3.5 miles above the mouth; thence 26 feet deep and 300 feet wide to Gibson Point, 4.5 miles above the mouth; and thence 22 feet deep and 200 feet wide to University Avenue Bridge, 6 miles above the mouth, including widening at bends. The total length of the section included in the project is about 6.5 miles. All depths refer to the plane of mean lower water. The extreme tidal range, due to freshets and prolonged heavy winds, is about 14 feet.

The cost for new work for the completed existing project was $7,440,000. Existing project was completed in September 1962. For details see Annual Report for 1962. (See Table 3-B at end of chapter for acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: The River and Harbor Act of July 24, 1946, imposed the condition that the City of Philadelphia agree to remove 60,000 cubic yards, place measurement, of material annually from that portion of those portions of the project which the District Engineer may designate until such time as adequate municipal sewage-treatment works are constructed and placed in effective operation. Compliance with this condition has been met through the completion of sewage-treatment works by the City of Philadelphia. All other requirements have been fully complied with.

Terminal facilities: There are 38 wharves, piers, and docks within limits of improvement. Facilities are considered adequate for existing commerce. (For further details see Port Series No. 7, Revised 1967, Corps of Engineers.)

Operations during fiscal year: Maintenance: Maintenance dredging was performed from the mouth to the Passyunk Avenue bridge by Cottrell Engineering Corporation removing 265,664 cubic yards of material at a cost of $355,680.

16. WILMINGTON HARBOR, DE

Location: Formed by Christina River, which rises in New Castle County, DE, flows northeasterly 16 miles, passing through the City of Wilmington, DE, and empties into Delaware River about 29 miles below Philadelphia, PA (See U.S. Coast and Geodetic Survey Chart 294.)

Previous project: For details see page 1785 of Annual Report for 1915 and page 308 of Annual Report for 1938.

Existing project: This provides for a channel 38 feet deep and 400 feet wide from west edge of Delaware River ship channel to Lobdell Canal, a distance of about 1.2 miles; thence 21 feet deep and 250 feet wide for the distance of .8 mile to the mouth of Brandywine River; thence the same depth and 200 feet wide for a distance of about 2.2 miles to a point approximately 4.2 miles from the Delaware River ship channel; thence decreasing to a depth of 10 feet in a distance of 750 feet to Penn Central Railroad bridge No. 4; and thence 7 feet deep and 100 feet wide for a distance of about 5.6 miles to Newport, DE, approximately 9.9 miles above Delaware River ship channel, including a turning basin 38 feet deep opposite the Wilmington Marine terminal and extending upstream from the mouth to Lobdell Canal, 320 feet wide, 2,900 feet long on the north side of the channel and decreasing to a length of 2,000 feet on the north side of the basin. It also provides for the removal of about 1,200 feet of the outer end of a stone-filled, pile-and-timber crib jetty constructed 2,150 feet long on the north side of the entrance; for a steel sheet-pile jetty 2,300 feet long, with 120-foot inshore wing, on the south side of the entrance, and for a V-shaped stone-filled pile-and-timber jetty at the mouth of Brandywine River 430 feet along the north side of Brandywine and 260 feet long on the Christina. Depths refer to the plane of mean low water. The extreme tidal range, due to prolonged heavy winds, is about 13 feet. Existing project was completed in 1962.

(For details see page 222, Annual Report 1962). Authority from Section 107 of the River and Harbor Act of July 1960 provide for channel and turning basin deepening from 35 to 38 feet and the turning basin widened from 200 to 320 feet. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Fully complied with.

Terminal facilities: There are 18 piers, wharves, and docks within limits of the improvement. Facilities considered adequate for existing commerce. (For further details see Port Series No.8, revised 1966-Corps of Engineers.)

Operations during fiscal year: Maintenance: Routine maintenance of disposal areas, channel examination surveys, and contract administration. Also, a contract for maintenance dredging of both the 35-foot and 38-foot project channels was completed by Norfolk Dredging Company removing 893,565 cubic yards of material at a cost of $1,409,333. Contract work to raise dikes at Wilmington North was completed.

Shore Protection:

17. BRIGANTINE INLET TO GREAT EGG HARBOR INLET (ABSECON ISLAND, NJ)

Location: This project is located along the Atlantic Coast of New Jersey in Atlantic County, approximately 50 miles east of Philadelphia, Pennsylvania. It is 8.1 miles in length, extending from Absecon Inlet to Great Egg Harbor Inlet.

Existing project: The project consists of providing 7.1 million cubic yards of initial beachfill, with subsequent periodic nourishment of 1.7 million cubic yards every three years, for a 200-foot-wide berm at elevation 8.5 feet above mean low water and a dune to elevation 16 feet above mean low water for Atlantic City, and a 100-foot-wide berm at elevation 8.5 feet above mean low water and a dune to 14 feet above mean low water for Ventnor, Margate and Longport along 8.1 miles of shoreline. The plan also includes 0.3 miles of bulkhead construction along the Absecon Inlet frontage of Atlantic City. Project estimate cost (October 2002) is $560,000,000, of which $364,000,000 is federal costs and $196,000,000 is non-federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: The existing authority for this project is Section 101 (b) (13) of WRDA 1996. The Project Cooperation Agreement was signed by the New Jersey Department of Environment Protection July 31, 2003.

Operations during fiscal year: New work: Phase I on the project, 4.3 million cubic yards of initial beachfill placement in Atlantic City and Ventnor City, was awarded September 2003. Coordination efforts with the New Jersey Department of Environmental Protection and the local communities of Atlantic City, Margate and Longport. The work included coordination of real estate issues, environmental requirements, bulkhead plans, and the beachfill plans.

18. BRIGANTINE INLET TO GREAT EGG HARBOR INLET (BRIGANTINE ISLAND, NJ)

Location: This project is located along the Atlantic Coast of New Jersey in Atlantic County, approximately 50 miles east of Philadelphia, Pennsylvania. It is approximately 2 miles in length, extending from Brigantine Inlet to Great Egg Harbor Inlet, encompassing Brigantine Island.

Existing project: The project consists of providing 753,000 cubic yards of initial beachfill, with subsequent periodic nourishment of 312,000 cubic yards every six years, for a 100 foot-wide berm at elevation 6 feet above mean low water and a dune to elevation 10 feet above mean low water. The plan also includes 12,000 lineal feet of sand fencing and the planting of 10 acres of dune grass along the project's length. A bubble system will also be installed to divert municipal stormwater that requires 50 lineal feet of iron pipe and two catch basin structures. Estimated cost of project (October 2002) is $88,300,000, of which $57,400,000 is federal costs and $30,900,000 is non-federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: The local sponsor for this project is the New Jersey Department of Environmental Protection. Federal participation in the proposed project is recommended and contingent on the local sponsor

signing the Project Cooperation Agreement.

Operations during fiscal year: Work included real estate studies, engineering and design and negotiation of the Project Cooperation Agreement.

19. CAPE MAY INLET TO LOWER TWP., NJ

Location: The project is located in Cape May County and extends along the beach front from the western side of Cape May Inlet to the boundary of Lower Township, and Cape May City.

Existing project: The plan, as presented in HD 94-641, was authorized for the Phase I Design Memorandum Stage of Advance Engineering and Design by Section 101a of the Water Resources Development Act of 1976, proposes the following features: breakwater on the updrift side of Cape May Inlet; beachfill from Cape May Inlet to Cape May Point; provision of a dune with sand fence and grass from Cape May Inlet to Wilmington Avenue; construction of two groins in Cape May City and seven groins in Lower Township; inclusion of all groins comprising the existing project; and periodic nourishment of the beaches and maintenance of the dune and dikes.

The Phase I GDM, completed in August 1980 and approved by the Chief of Engineers in December 1981, determined that only beach erosion control measures in Cape May City are warranted. The plan proposed in that document consists of modifying the existing navigation project for Cape May Inlet to provide; a weir-breakwater at Cape May Inlet with construction being deferred pending demonstration of need; two new groins at Trenton and Baltimore Avenues in Cape May City; placement of beachfill between Cape May Inlet and the terminal groin at Third Avenue in Cape May City; maintenance of two new groins and existing groins in Cape May; periodic beach maintenance with material obtained from deposition basin on the northeast side of Cape May Inlet; and institution of a beach monitoring program in Lower Township area. Work for the initial beachfill was accomplished as follows; USGS feeder beach fiscal year 1989, Cape May City groin fiscal year 1990, and Beachfill Cape May City fiscal year 1991. Project estimate cost (October 2002) is Federal, $150,700,000, which includes $54,900,000 of Coast Guard contributions. Non-Federal costs are $10,600,000.

The existing authority is for Phase I studies as provided by Section 101(a) of the Water Resources Development Act of 1976 in accordance with the provision of House Document 94-641. Continuation of planning and engineering for this proposed project was initiated in October 1977. The Phase I GDM was completed in August 1980 and approved by the Chief of Engineers in December 1981. Phase II AE&D studies were completed in July 1983. The project was authorized for separable elements under Section 501(a) of the Water Resources Development Act of 1986, PL 99-662. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: The State of New Jersey furnished a letter of intent on 6 May 1981 regarding their willingness to comply with the above items of local cooperation. In addition, a draft Section 221 local cooperation agreement has been coordinated with letter of intent on May 31, 1983 regarding compliance with the items of local cooperation.

Operations during fiscal year: New Work: Work included periodic nourishment, supervision and administration, engineering and design, hydraulic studies including project performance monitoring and analysis, and monitoring data collection including beach profile surveys and aerial photography.

20. DELAWARE BAY COASTLINE, PORT MAHON, DE & NJ

Location: The Port Mahon environmental restoration and protection project is located in Kent County, Delaware along the Delaware Bay coastline. The study area is located on the south bank near the mouth of the Mahon River and extends for roughly 1.5 miles along the Delaware Bay coastline. Port Mahon is situated about 7.5 miles east of Dover, Delaware and approximately 3 miles northeast of Little Creek, the nearest town.

Existing project: The project consists of three elements designed to restore the ecosystem at Port Mahon. The first element consists of restoration of 19.2 acres of horseshoe crab habitat through the placement of 306,000 cubic yards (cy) of sand for approximately 4,900 feet along the shoreline with 150-foot tapers at each end to tie into the existing upland. The plan also includes construction of a 1200-foot revetment at the southern end of the proposed project to tie into the existing revetment from the termination of the beachfill to provide stability. Periodic nourishment of approximately 150,000 cubic yards of sand is scheduled to occur every 7 years for the 50-year project life. The second element of the project calls for raising State Road 89 to +7.0 feet North American Vertical Datum (NAVD) for a distance of

7,500 feet to protect 59.1 acres of wetlands to the west of State Road 89 from excessive damaging overwash. A total initial volume of 15,800 cubic yards of fill material would be required to raise State Road 89. In addition, 13,600 square yards of geotextile and 3,500 cubic yards of crushed stone would be used for the road surface. The third element consists of restoration of 21.4 acres of degraded marsh west of State Road 89. This calls for the reestablishment of daily tidal inundation into the wetlands and the creation of three open water ponds of 1-acre size. Removal of material to an elevation 6 inches below the mean high water line would enable replacement of the existing common reed (Phragmites) with smooth cordgrass (Spartina alterniflora), a more productive plant community. The excavation of the marsh, ponds, and ditches would generate approximately 96,000 cubic yards of material that would be placed adjacent to the active disposal area owned by the Delaware Department of Natural Resources and Environmental Control (DNREC). This placement is estimated to result in 10 acres of upland habitat, which would contribute to habitat diversity. Approximately 15,500 cubic yards of material would be accommodated at the DNREC site. Estimated cost of project (October 2002) is $65,700,000 of which $42,700,000 is Federal costs and $23,000,000 is required non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: Federal participation in the proposed project is contingent upon a signed Project Cooperation Agreement (PCA) with the local sponsor that identifies the required items of local cooperation.

Operations during fiscal year: New Work: Review and update plans and specifications, obtain environmental permits, prepare a Limited Reevaluation Report (LRR), prepare an Environmental Assessment (EA), and coordinate a Project Cooperation Agreement (PCA).

21. DELAWARE BAY COASTLINE, REEDS BEACH TO PIERCES POINT, DE & NJ

Location: The Reeds Beach/Pierces Point project area is located within Middle Township, Cape May County, bordering the Delaware Bay in New Jersey. The project area begins at Bidwell Creek and extends approximately three miles south to Pierces Point.

Existing project: The project consists of providing initial beachfill for the purposes of environmental restoration, and storm damage/erosion control. The project provides a total of 5,000 linear feet of berm (6,800 feet including tapers) with a minimum of 80-foot widths at a landward elevation of +5.5 feet NAVD and a bayward elevation of +3.5 feet NAVD with a 40H:1V slopes along two locations at Reeds Beach and Pierces Point. The estimated project cost (October 2002) is $5,100,000 of which $3,320,000 is Federal costs and $1,780,000 is required non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to September 30, 2003.)

Local Cooperation: Federal participation in the proposed project is recommended and contingent upon the local sponsor signing the Project Cooperation Agreement (PCA) that identifies the required items of local cooperation.

Operations during fiscal year: New Work: Coordinated Project Cooperation Agreement (PCA) with non-Federal sponsor and completed preconstruction engineering and design.

22. DELAWARE BAY COASTLINE, ROOSEVELT INLET/LEWES BEACH, DE

Location: The Roosevelt Inlet-Lewes Beach project area is located in Sussex County in Southern Delaware at the entrance to the Delaware Bay. Sussex County is one of three counties in the State of Delaware. It is bordered on the east by the Atlantic Ocean, on the south and west by Maryland and on the north by Kent County. The project area begins at Roosevelt Inlet and extends southeast along Lewes Beach for approximately 1,400 feet.

Existing project: The project consists of providing initial beachfill with subsequent periodic nourishment. The project for the purposes of navigation mitigation and hurricane and storm damage reduction provides for a 25-foot wide berm at an elevation of +8.0 feet North American Veritical Datum (NAVD), and a dune at an elevation of +14.0 feet NAVD over a total project length of 1,400 feet. The total project width of the berm and dune, including side slopes, is 100 feet. The project includes dune grass, dune fencing and suitable advance beachfill and periodic nourishment every six years over the 50-year project life to ensure the integrity of the design. The project also provides for reconstruction of the south jetty at Roosevelt Inlet. The south jetty will be parallel to and will extend into the bay an equal distance

as the north jetty on the opposite side of the inlet. The south jetty will have a top elevation of +5.1 feet NAVD and a bottom elevation of –6.0 feet NAVD. The top width of the jetty will be 12 feet and it will have 2H:1V side slopes. Estimated cost of project (October 2002) is $40,600,000 of which $31,400,000 is Federal costs and $9,200,000 is required non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to September 30, 2003.)

Local Cooperation: Federal participation in the proposed project is recommended. A Project Cooperation Agreement (PCA) with the local sponsor that identifies the required items of local cooperation was signed in November 2002.

Operations during fiscal year: New Work: Execute Project Cooperation Agreement (PCA), preconstruction engineering and design, real estate acquisition, and award of the initial construction contract.

23. DELAWARE COAST FROM CAPE HENLOPEN TO FENWICK ISLAND, DE (REHOBOTH BEACH TO DEWEY BEACH, DE)

Location: The Rehoboth Beach to Dewey Beach project area stretches for approximately 2 miles along the northern part of the Atlantic Ocean coast of Delaware in Sussex County, Delaware. From north to south the project area includes the Town of Rehoboth Beach, the unincorporated region in front of Silver Lake (under Sussex County jurisdiction), and the Town of Dewey Beach. (See NOAA Nautical Chart Number 12214).

Existing project: The project consists of providing initial beachfill with subsequent periodic nourishment. The proposed plan consists of one continuous project, from the northern end of Rehoboth Beach to the southern border of Dewey Beach, a distance of 13,500 linear feet. Along Rehoboth Beach, the plan provides for a 125-foot wide beach berm at elevation +7.2 feet North American Vertical Datum (NAVD) and a dune at elevation +13.2 feet NAVD. At Dewey Beach, the project would transition to a 150-foot wide beach berm at elevation +7.2 feet NAVD and a dune at elevation +13.2 feet NAVD. The plan requires the initial placement of 1,400,000 cubic yards of material and subsequent periodic nourishment of approximately 277,000 cubic yards of material every 3 years throughout the 50-year project life to ensure the integrity of the design. The material for the initial construction and subsequent periodic nourishment will be taken from an offshore borrow area. The plan also includes the extension of stormwater outfalls at Rehoboth Beach. Appurtenant project features such as dune grass planting, sand dune fencing, vehicle access ramps, and dune walkovers are included with the plan as well. Estimated cost of project (October 2002) is $170,000,000 of which $110,000,000 is Federal costs and $60,000,000 is required non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to September 30, 2003.)

Local Cooperation: Federal participation in the proposed project is recommended and contingent upon the local sponsor signing the Project Cooperation Agreement (PCA) that identifies the required items of local cooperation.

Operations during fiscal year: New Work: Obtained environmental permits, coordinate Project Cooperation Agreement (PCA), preconstruction engineering and design and real estate acquisition.

24. DELAWARE COAST FROM CAPE HENLOPEN TO FENWICK ISLAND, DE (FENWICK ISLAND, DE)

Location: The Fenwick Island project area is located in Sussex County, and is the southernmost point on the Delaware ocean coast. It extends for approximately 6,000 feet, and lies just north of the Delaware-Maryland state border. Fenwick Island is bordered to the north by Fenwick Island State Park, to the west by Little Assawoman Bay, and to the south by Ocean City, Maryland.

Existing project: The project consists of providing initial beachfill with subsequent periodic nourishment. The project for the purpose of storm damage reduction provides for a 75-foot wide berm at an elevation of +7.7 feet North American Vertical Datum (NAVD), and a 125-foot wide dune at an elevation of +17.7 feet NAVD, over a total project length of 6,500 feet. The total project width including the berm and dune is 200 feet. The plan requires the initial placement of 600,000 cubic yards of material and subsequent periodic nourishment of approximately 320,000 cubic yards of material every 4 years throughout the 50-year project life to ensure the integrity of the design. The material for the initial construction and subsequent periodic nourishment will be taken from an offshore borrow area. Appurtenant project features such as dune grass planting, sand dune fencing, vehicle access ramps, and dune walkovers are included

with the plan as well. Estimated cost of project (October 2002) is $155,000,000 of which $78,600,000 is Federal costs and $76,400,000 is required non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to September 30, 2003.)

Local Cooperation: Federal participation in the proposed project is recommended and contingent on the local sponsor signing the Project Cooperation Agreement (PCA).

Operations during fiscal year: New Work: Completion of preconstruction engineering and design.

25. DELAWARE COAST PROTECTION, DE

Location: The project is located in Sussex County, Delaware, on the Atlantic Ocean and starts immediately south of Delaware Bay extending in a southerly direction a distance of 24.5 miles to Fenwick Island on the Delaware-Maryland border.

Previous Project: The previous project, adopted as HD 85-216 in 1958 and modified by P.L. 87-874 in 1962, provided for Federal participation in the cost of restoration and subsequent periodic nourishment, and the initial periodic nourishment was completed in 1957 by local interests. The second increment of beach replenishment by local interest was completed in 1963.

Existing project: Provides a sand bypass system and periodic nourishment until 2021. (For details, see S. Doc. 90, 90th Cong. 2nd Sess.) Estimated cost of project (October 2002) is $29,100,000 of which $13,400,000 is federal costs and $15,700,000 is required non-Federal costs. The construction of the feeder beach north of Indian River Inlet was completed in 1973 and nourished in 1978, and 1984. Section 869 of the Water Resources Development Act of 1986 deauthorized the unscheduled portion of the project. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Assurances of local cooperation were provided by the State of Delaware, January 13, 1981.

Operations during fiscal year: New work: Work included supervision and administration, engineering and design, monitoring, environmental coordination, and sand bypassing.

26. GREAT EGG HARBOR INLET & PECK BEACH, NJ

Location: The project is located in Cape May and Atlantic Counties, New Jersey. Great Egg Harbor Inlet, an unimproved inlet, is about 1.1 miles wide at its narrowest point and provides a tidal connection between the Atlantic Ocean, Great Egg Harbor Bay, the New Jersey Intercoastal Waterway, and Great Egg Harbor River. Peck Beach is occupied in its entirety by the City of Ocean City and extends from Great Egg Harbor Inlet southward to Corson Inlet. The ocean frontage is about eight miles in length.

Existing project: The project consists of providing initial beachfill, with subsequent periodic nourishment, with a minimum berm width of 100 feet at an elevation of 8 feet above mean low water. The beachfill extends from Surf Road southwest to 34th Street with a 1000 foot taper south of 34th Street. This plan required the initial placement of 6,200,000 cubic yards of material and subsequent periodic nourishment of approximately 1,100,000 cubic yards every three years. The material for the initial construction, and periodic nourishment is being taken from the ebb shoal area located approximately 5,000 feet offshore of the Great Egg Harbor Inlet. Additionally, the construction of the project required the extension of 38 storm drainpipes. All work is programmed. Estimated cost for new work (October 2002) Federal share is $443,000,000 and non-Federal is $239,403,700. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: The Local Cooperation Agreement was executed in September 1991 with the State of New Jersey Department of Environmental Protection Agency.

Operations during fiscal year: New work: Work included plans and specifications, engineering and design, supervision and administration, hydraulic studies of project performance, and project performance monitoring including beach profile surveys, inlet bathymetry and aerial photography.

27. LOWER CAPE MAY MEADOWS, NJ

Location: The project area includes Lower Cape May Meadows, which consists of Cape May Point State Park and the Cape May Migratory Bird Refuge, and the Borough of Cape May Point. The Lower Cape May Meadows area consists of approximately 343 acres and extends through the Borough of Cape May Point, totaling about 2 miles along the southern Atlantic coast of New Jersey.

Existing project: The plan for the purposes of navigation mitigation, ecosystem restoration, and hurricane and storm damage reduction consists of an initial construction sand quantity of 1,400,000 cubic yards to be placed for a total length of 11,000 ft, and 650,000 cubic yards of periodic nourishment every 4 years over the 50-year project life; a dune with a 100 ft-wide base, and a 25 ft-wide crest at a height of 16.75ft (NAVD88); a berm 100-150 feet wide in the vicinity of Cape May Point and 200-450 feet wide in the vicinity of Lower Cape May Meadows; planting of 18 acres of dune vegetation; seaward restoration of 35 acres of emergent wetland; elimination of 95 acres of the nuisance plant Phragmites australis; planting of 105 acres of wetland vegetation; excavation of existing drainage ditches to restore fresh water flow; creation of drainage ditches to link hydrological segments of a project area; installation of two weir-flow control structures; creation of six fish reservoirs; and construction of elements to create 25 acres of tidal marsh. The project also includes monitoring and adaptive management over a 5-year period for the Lower Cape May Meadows freshwater wetlands restoration element. Estimated project cost is $191,000,000 of which $152,400,000 is Federal cost and $38,600,000 is non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local Cooperation: Project Cooperation Agreement (PCA) was signed July 28, 2003 with New Jersey Department of Environmental Protection. Federal participation in the proposed project is supported by the local sponsor.

Operations during fiscal year: New Work: Construction of ecosystem restoration.

28. SHORE PROTECTION WORK UNDER SPECIAL AUTHORIZATION

Name of Project	Cost to Sept. 30, 2003
Feasibility	
Seaside Heights, NJ	$6,116
Preliminary Restoration Plan	
Indian River Inlet, Sussex County, DE	$9,996

29. TOWNSEND INLET TO CAPE MAY INLET, NJ

Location: This project is located along the Atlantic Coast of New Jersey in Atlantic County, approximately 50 miles east of Philadelphia, Pennsylvania. The project area is located along the Atlantic Coast of New Jersey, extending approximately 15 miles from Townsends Inlet to Cape May Inlet, including the communities of Avalon, Stone Harbor, and North Wildwood.

Existing project: The recommended plan includes interim shoreline protection projects for Avalon, Stone Harbor and North Wildwood, New Jersey, and an environmental restoration project for Stone Harbor Point, as follows: (1) 4.3 miles of beachfill with a berm width of 150-foot at elevation 8.5 feet NGVD and dune height of +16-feet along with periodic nourishment for Avalon and Stone Harbor; The beachfill portion of the project consists of providing approximately 4 million cubic yards of initial beachfill, with subsequent periodic nourishment of 750,000 cubic yards every three years. (2) 2.2 miles of revetment construction along Townsends and Hereford Inlets frontages; (3) and ecosystem restoration of about 107 acres of natural barrier island habitat at Stone Harbor Point including beachfill, dune construction, and the planting of bayberry and red cedar rousting habitat. Estimated project cost is $476,000,000 of which $308,000,000 is Federal costs and $168,000,000 is non-Federal costs. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: The existing authority for this project is WRDA 1999, Section 101 (a) (26) that authorizes the construction of the Townsends Inlet to Cape May Inlet, NJ shore protection project. The Project Cooperation Agreement with the non-Federal sponsor was executed March 8, 2002.

Operations during fiscal year: New work: The beachfill portion of the project initiated construction. Construction of the major features of the project were

completed in June 2003. Work included coordination of real estate issues, environmental requirements, and the plans & specifications.

Flood Control:

30. BELTZVILLE LAKE, PA

Location: Damsite is on Pohopoco Creek about 4.5 miles upstream from its confluence with Lehigh River and 4 miles east of Lehighton, PA (See Geological Survey Quadrangle Map for Lehighton, PA-1960.)

Existing project: This is a multiple-purpose development project providing water supply, flood control, and recreation. Plan of improvement provides for an earth and rock fill dam 4,200 feet long rising 170 feet above creekbed; a spillway around the north end of dam; and gate control outlet works discharging through a conduit on rock along right abutment. The lake, a unit of comprehensive plan for flood control and other purposes of Delaware River Basin, has a reservoir capacity of 68,250 acre-feet at spillway crest level with 1,390 acre-feet of inactive storage, 39,830 acre-feet for water supply and recreation, and 27,030 acre-feet for flood control. The cost of project was $22,931,400 including $6,100,000 required non-Federal reimbursement for costs allocated to water supply storage during life of project. The construction of the dam and appurtenances was completed in 1971. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Project was approved subject to certain requirements of cooperation by local interests as defined in approved House Document. Resolution of Delaware River Basin Commission providing assurances of repayment of water supply and pollution control costs was accepted June 7, 1965. A contract for repayment of water supply costs was signed October 16,1966.

Operations during fiscal year: Maintenance: Normal operation and maintenance of the project continued.

31. BLUE MARSH LAKE, PA

Location: Dam site is on Tulpehocken Creek about 1.5 miles upstream from its confluence with Plum Creek and about 6 miles northwest of Reading, PA (See Geological Survey Quadrangle Sheet, Bernville, PA)

Existing project: This is a multiple-purpose development project providing water supply, flood control, and recreation. Construction started in 1974 and was completed in 1980. The dam is 1,775 feet long and rises 98 feet above creekbed, with spillway about 1,500 feet south of dam, and gate-controlled outlet works discharging through a conduit on rock along right abutment. The lake, a unit of comprehensive plan for flood control and other purposes of Delaware River Basin, has a capacity of 50,010 acre-feet at spillway crest level, with 3,000 acre-feet of inactive storage, 14,620 acre-feet for water supply and recreation, and 32,390 acre-feet for flood control. (For details see H.Doc 533 87th Cong., 2nd Sess.) Costs of project $63,163,791. Existing project was authorized by 1962 Flood Control Act. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.) (H. Doc. 533, 87th Cong., 2d Sess., contains latest published maps.)

Local cooperation: Project was approved subject to certain requirements by local interests, as prescribed in House Document cited above. Delaware River Basin Commission on December 29, 1964, adopted a preliminary resolution providing for repayment of water supply costs.

Operations during fiscal year: Maintenance: Normal operation and maintenance of the project continued.

32. EMERGENCY BANK PROTECTION

Emergency Bank Protection Section 14, Public Law 79-526.

Name of Project	Cost to Sept. 30, 2003
Coordination	
Section 14 Coordination	$ 16,293
Planning and Design Analysis	
East Point , NJ	$117,792
Basket Brook, Hancock, NY	$ 41,489
Beaverkill, NY	$ 30,076
Branchville Streambank	$ 67,945

Stabilization Project, Sussex County	
Delaware Canal, Paunnacussing Creek, Bucks County	$ 39,364
Fort Mifflin, Phila., PA	$111,337
Lackawaxen, PA	$164,010
Manasquan River, Howell Twp, NJ	$ 45,160
Milford, NJ	$ 44,908

33. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, Public Law 838, 80th Congress, as amended (Preauthorization).

Name of Project	Cost to Sept. 30, 2003
Coordination	
Section 205 Coordination	$45,679
Plans and Specifications	
Little Mill Creek, New Castle City, DE	$ 9,485
Preliminary Restoration Plan	
Stoney Run, Ridley Township, PA	$10,000
Feasibility	
Baeder Creek, Abington, PA	$14,812
Chester Creek, PA	$23,028
Little Mill Creek, Gravel Road	$29,366
Mill Creek, Neshaminy Basin	$ 9,972
Pennypack Creek Watershed, PA	$83,989
Perkiomen Creek Upper Providence, PA	$29,291
Port Jervis, NY	$ 1,095
Port Providence, Montgomery City, PA	$37,277
Tookany Creek, Church Road, PA	$ 9,995
Tookany Creek, Glenside Road, PA	$ 9,994

Emergency flood control activities-repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Fiscal year costs were $250,665 for disaster preparedness.

34. FRANCIS E. WALTER DAM, PA

Location: Reservoir is in northeastern Pennsylvania on Lehigh River between White Haven and Stoddartsville. Dam is about 0.4 mile below mouth of Bear Creek, about 60 miles above confluence of Lehigh River and Delaware River at Easton, PA (See Geological Survey Quadrangle Sheet, Stoddartsville, PA).

Existing project: Plan of improvement authorized by 1946 Flood Control Act (H. Doc. 587, 79th Cong., 2d Sess.) provided for a single-purpose flood control reservoir. Modification of project, authorized by 1962 Flood Control Act (H. Doc.522, 87th Cong., 2d Sess.), provides for a multiple-purpose development for water supply and recreation in addition to present single-purpose flood control project. Plan of improvement requires altering spillway, increasing height of dam, constructing a new intake tower, extending outlet tunnel by addition of a concrete conduit, and constructing new dikes and raising existing dikes. Modified dam will rise 264 feet above riverbed and be 3,500 feet long. Reservoir modification, a unit of comprehensive plan for flood control and other purposes of Delaware River Basin, will have a reservoir capacity of 181,000 acre-feet spillway crest level with 3,000 acre-feet of inactive storage, 70,000 acre-feet for water supply and recreation and 108,000 acre-feet for flood control. Total cost is $186,000,000, estimated Federal cost of new work (October 1993) is $30,000,000 including $156,000,000 required non-Federal reimbursement for costs allocated to water supply storage during life of project after use of this storage is initiated. Project as authorized under the 1946 Flood Control Act was completed June 1961. Settlement for lands was completed October 1962. The advance engineering and design for the modified project is completed. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: None required under 1946 Flood Control Act. Under 1962 Flood Control Act, project was approved subject to certain requirements by local interests, as defined in House Document 522 cited above. The Delaware River Basin Commission expressed its support by a resolution dated 23 April 1980 and reiterated its sponsorship for the modified project in August 1985, October 1985, and July 1988.

Operations during fiscal year: Maintenance: Normal operation and maintenance of the project continued.

35. GENERAL EDGAR JADWIN DAM AND RESERVOIR, PA

Location: In Dyberry Creek valley in central part of Wayne County, PA, between borough of Honesdale and village of Tanners Falls. Dam is about 3 miles above confluence of Dyberry Creek and Lackawaxen River in Honesdale and 29 miles above confluence of Lackawaxen and Delaware Rivers. (See Geological Survey Quadrangle Sheet, Honesdale, PA.)

Existing project: A single-purpose flood control reservoir with a capacity of 24,500 acre-feet formed by an earth embankment, about 1,225 feet long at crest and rising 109 feet above creek bed. It also has a tunnel with intake structure and a chute-type spillway with a stilling basin in left abutment. Reservoir controls runoff from a drainage area of 65 square miles which is 91 percent of watershed of Dyberry Creek and 39 percent of Lackawaxen River watershed above Honesdale, PA. Construction of project was authorized by 1948 Flood Control Act (H.Doc. 113, 80th Cong., 1st Sess.). Project completed in June 1960. (See Table 3-B at end of Chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: Assurances of Compliance with requirements of local cooperation were accepted July 30, 1956. For details see page 251, Annual Report for 1962.

Operations during fiscal year: Maintenance: Normal operation and maintenance of the project continued.

36. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

To ascertain whether local interests were maintaining and operating completed projects as required, inspections were made as follows:

PROJECT INSPECTION	DATES
Allentown	July 2003
Bethlehem	October 2002
Chester Creek	October 2002
Darby Creek	April 2003
East Branch	October 2002
Fort Mifflin	November 2002
Palmerton	June 2003
Pennypack Creek, Hatboro, PA	April 2003
Perkiomen Creek Streambank Erosion	April 2003
Poquessing Creek	May 2003
Port Jervis, NY, Delaware River Ice Division	May 2003
Rancocas Creek	May 2003

Local interests are satisfactorily maintaining and operating projects in accordance with regulation. Costs during the period were $91,016.

37. INSPECTION OF NON-FEDERAL LEVEES

Inspection of non-federal levees were conducted at the following sites:

PROJECT INSPECTION	DATES
Bristol, PA	July 2003
East Stroudsburg	May 2003
Morrisville	October 2002
Stroudsburg	May 2003
Weissport	May 2003

38. MOLLY ANN'S BROOK, NJ

Location: Approximately 12 miles northwest of New York City, located in Haledon, Prospect Park and Paterson, New Jersey along Molly Ann's Brook from the mouth below Totowa Avenue in Paterson upstream to Church Street in Haledon.

Previous project: None.

Existing project: The recommended plan modified the channel a total length of 2.5 miles. The channel includes both trapezoidal channel sections and walled sections. Five bridges were replaced and two buildings were removed. Estimated cost of project (October 1997) is $ 38,800,000 of which $20,600,000 is Federal costs and $18,200,000 is required non-Federal costs. Costs are in accordance with Section 401(a) of the Water Resources Development Act (Public Law 99-662), dated November 17, 1986. (See Table 3-B at end of chapter for Acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing Project to Sept. 30, 2003.)

Local cooperation: Fully complied with. A Project Cooperation Agreement was executed on December 16, 1993. The State of New Jersey Department of Environmental Protection and Energy, the non-federal sponsor, provided a portion of their support through the

Intermodal Surface Transportation Efficiency Act of 1991.

Terminal facilities: None.

Operations during fiscal year: New work: Work included engineering and design, supervision and administration, and work deferred from and repairs due to Hurricane Floyd.

39. NATIONAL EMERGENCY PREPAREDNESS

The total fiscal year cost for this category amounted to $49,297.

40. PROMPTON LAKE, PA

Location: In Lackawaxen River Valley in central part of Wayne County, PA, between borough of Prompton and village of Aldenville. Dam is within corporate limits of Prompton, 4 miles upstream from Honesdale, PA, and approximately 30 miles above confluence of Lackawaxen

and Delaware River. (See Geological Survey Quadrangle Sheet, Honesdale, PA)

Existing project: Plan of improvement authorized by 1948 Flood Control Act (H. Doc. 113, 80th Cong., 1st Sess.) provides for a single-purpose flood control reservoir. Modification of project authorized by 1962 Flood Control Act (H. DOC 522, 87th Cong., 2nd Sess.) provides for a multiple-purpose development for water supply and recreation in addition to present single-purpose flood control project. Plan of improvement requires construction of control tower with gates and service bridge, placing an impervious blanket on valley walls and floor upstream from dam, widening spillway, and clearing land and relocating roads in reservoir. Dam, completed under 1948 Flood Control Act which will not be modified, is 1,230 feet long and rises 140 feet above riverbed. Existing spillway, cut into rock of right abutment, will be modified and present uncontrolled outlet works discharging into a concrete conduit along right bank, and will be provided with gates and a control tower. Reservoir modification, a unit of comprehensive plan for flood control and other purposes of Delaware River basin has a capacity of 52,000 acre-feet: 3,500 acre-feet for inactive storage, 28,200 acre-feet for water supply and recreation, and 20,300 acre-feet for flood control. Estimated Federal cost of new work (October 1994) is $3,510,000 including $54,990,000 required non-Federal reimbursement for costs allocated to water supply storage during life of project after use of this storage is initiated. Project as authorized under the 1948 Flood Control Act was completed in November 1960. (For details, see page 358, Annual Report for 1963.) Work accomplished under the 1962 Flood Control Act was preconstruction engineering and design. (See Table 3-B at end of Chapter for Acts authorizing existing project. See table 3-A at end of chapter for total cost for existing project to Sept. 30, 2003.)

Local cooperation: Project modification was approved subject to certain requirements by local interests, as defined in House Document 522 cited above. Assurances of compliance under Flood Control Act of 1948 have been met. Delaware River Basin Commission on March 18, 1966, gave their view that the need for water supply was not urgent at that time. However recent studies conducted by DRBC have determined that there is now a need for water supply. In August 1983, DRBC expressed their strong support for the project modification. Preconstruction engineering and design was initiated in 1966, suspended in 1968 and again suspended in and resumed in 1986.

Operations during fiscal year: Maintenance: Normal operation and maintenance at the project continued.

Environmental Restoration:

41. ENVIRONMENTAL IMPROVEMENT WORK UNDER SPECIAL AUTHORIZATION

Activities pursuant to Section 1135, Public Law 99-662.

Name of Project	Cost to Sept. 30, 2003
Coordination	
Coordination Account Funds	$125,881
Construction	
Bark Camp Run Restoration Project, PA	$326,318
Feasibility	

Dredged Hole #6 Barnegat Bay, NJ	$ 74,796
Pine Mount Creek, NJ	$ 69,470

Plans & Specifications

Restoration of Grass Dale, DE	$145,061

Planning & Design Analysis

Fairmont Dam, PA	$169,533
Farnham Park, Camden, NJ	$212,128
Lehigh River, Bat Hibernacula, PA	$ 14,211
Mordecai Island Restoration, NJ	$ 34,879
Pond Creek, NJ	$ 38,252

Preliminary Restoration Plans

Delaware City, DE	$ 10,000
Preliminary Restoration Plan	$ 1,969
Russell W. Peterson Wildlife	$ 9,411

42. SOUTH CENTRAL PENNSYLVANIA ENVIRONMENTAL IMPROVEMENT, PA

Location: The south central Pennsylvania area includes twenty-one counties defined by the authorizing legislation. The program area within the Philadelphia District consists of Pike, Monroe, and Lackawanna Counties.

Existing project: Section 313 of the Water Resources Development Act of 1992, as amended, established a pilot program for providing environmental assistance to non-Federal interests in south central Pennsylvania. Such assistance may be in the form of design and construction assistance for water-related environmental infrastructure and resource protection and development projects, including projects for wastewater treatment and related facilities, water supply, storage treatment, distribution facilities, and surface water resource protection and development. The Federal share may be provided in the form of grants or reimbursements to the sponsor. FY 98 was the first year of funding for three project names in the Energy and Water Appropriations documents. Total project funds earmarked were $7,650,000 for work within Philadelphia District. The House Report (105-190) provides $10,000,000 in design and construction assistance under the Section 313 Program for projects in Lackawanna, Lycoming, Susquehanna, Wyoming, Pike and Monroe Counties in Pennsylvania. The Conference Report (105-271) specifies the funds among eight specific projects. Appropriations for those projects in the Philadelphia District are: Westfall Municipal Sewage Authority, Pike County; Jefferson Township, Lackawanna County; Township of Tobyhanna Sewer Authority, Monroe County. (See Table 3-B at end of chapter for acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

Local cooperation: The non-Federal sponsors are required to provide 25% of project costs including lands, easements, rights-of-way, and relocations and bear all costs of operation, maintenance, replacement, repair and rehabilitation of the project after construction.

Operations during fiscal year: New work: Continued design on Municipal Authority of the Westfall Township, PA and on Municipal Authority of the Borough of Milford, PA.

43. SOUTHEASTERN PENNSYLVANIA, PA

Location: Section 566 of the Water Resources Development Act (WRDA) of 1996 authorized a pilot program to provide for environmental assistance (design and construction) to non-Federal interests for publicly owned facilities in the five (5) county area surrounding the city of Philadelphia.

Previous project: None.

Existing project: Pilot program established for providing environmental assistance to non-Federal interests in southeastern Pennsylvania. Assistance under this section may be in the form of design and construction assistance for water-related environmental infrastructure and resource protection and development projects in southeastern Pennsylvania, including projects for wastewater treatment and elated facilities, water supply and related facilities, and surface water resource protection and development. The four pilot programs are the East Central Incinerator, Wissinoming, Logan (Feltonville), and Delaware Canal. (See Table 3-B at end of chapter for acts authorizing existing project. See Table 3-A at end of chapter for total costs for existing project to Sept. 30, 2003.)

The East Central Incinerator property is located on Municipal North Piers 31 through 35 at 601 North

Columbus Boulevard (at the intersection of North Columbus Boulevard and Spring Garden Street), in Philadelphia, Philadelphia County, Pennsylvania. The Delaware River bounds the property on the north and east. The property is bounded to the south by the Delaware River and a parking lot. North Columbus Boulevard bounds the property on the west. The East Central Incinerator property consists of approximately seven (7) acres of land which currently accommodates the Incinerator Building, a Service Building (built on piles in 1968 at the north side of the former Municipal pier 34), an electric switch building, a scale house, two (2) small parking attendant buildings and a parking lot.

Wissinoming and Logan (Feltonville) sections of Philadelphia are located in north/northeast Philadelphia. These areas are experiencing severe subsidence of residential properties that were built many years ago on fill material placed over old watercourses. Breaks in the pipes provide an avenue for the fill material to be transported by ground water away from building foundations. In an effort to determine the cause and extent of the subsidence, a topographic map will be prepared and compared to historic maps to show how much fill was placed in the old watercourses. Borings will be taken in the fill to confirm topographic data and to determine the engineering characteristics of the fill material. Water and sewer lines will also be mapped to determine if such lines are present in areas where subsidence has occurred and to predict where subsidence may occur due to leaking water lines and deteriorating sewer lines.

Local cooperation: 1. East Central Incinerator: The non-Federal sponsors are required to provide 25% of the project costs to include lands, easements and rights of way and bear all costs of operation and maintenance of the project after construction. The non-Federal sponsors receive credit for any design work completed prior to the federal involvement. 2. Wissinoming, Logan (Feltonville), and Delaware Canal studies are 100% Federal expense. Design and construction cost sharing will be in accordance with policy guidance.

Terminal facilities: None.

Operations during fiscal year: New Work: East Central Incinerator – Completed the demolition contract work. Received a request for Equitable Adjustment which is under review.

Miscellaneous:

44. AQUATIC ECOSYSTEM RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Activities pursuant to Section 206, Public Law 104-303.

Name of Project	Cost to Sept. 30, 2003
Coordination	
Section 206 Coordination Account Funds	$ 29,738
Feasibility	
Assunpink Creek, NJ	$238,955
Planning & Design Analysis	
Batso Fishladder, NJ	$ 16,492
Cuddebackville, NY	$706,619
Lake Ontelauntee, PA	$ 27,658
Rancocas Creek, Fishways, NJ	$ 42,050
Southampton Creek, Environmental Restoration	$ 25,578
Preliminary Restoration Plan	
Chrome Run, Middletown, PA	$ 9,630
Darby Creek, Darby Borough, PA	$ 10,000
Grover's Mill Pond	$ 10,037
Mill Creek Restoration, Morea, Schuylkill	$ 10,000
Newton Creek, NJ	$ 9,015
Preliminary Restoration Funds	$ 81,377
Wissahickon Creek at Henry Lane, PA	$ 10,000

General Investigations:

45. COLLECTION AND STUDY OF BASIC DATA

Cost and expenditures during the period for flood plain information studies were $154,657.

46. PRECONSTRUCTION ENGINEERING AND DESIGN

Cost and expenditures during the period totaled

$436,716.

47. SURVEYS

Cost for the period was $37 for navigation studies, $35,639 for flood damage protection, $230,734 for shoreline protection studies, $155,253 for ecosystem restoration studies, $225,372 for watershed/comprehensive studies, and $107,515 for special studies: a total of $754,550.

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
1.	Barnegat Inlet, NJ	New Work					
	(Regular	Approp.	—	—	—	—	31,083,849
	Funds)	Cost	—	—	—	—	30,994,363
		Maint.					
		Approp.	2,020,567	1,717,338	2,067,227	1,588,331	29,450,896
		Cost	2,044,553	1,710,229	2,077,314	1,470,261	29,321,381
	(Contributed	New Work					
	Funds)	Approp.	—	—	—	—	13,917,000
		Cost	—	—	—	—	13,793,140
2.	Cold Spring	New Work					
	Inlet, NJ	Approp.	—	—	—	—	879,275
	(Regular	Cost	—	—	—	—	879,275
	Funds)	Maint					
		Approp.	482,569	394,335	392,898	423,065	8,990,823
		Cost	482,569	394,335	392,898	425,965	8,990,821
		Rehab.					
		Approp.	—	—	—	—	1,134,346
		Cost	—	—	—	—	1,134,346
	(Contributed	New Work					
	Funds)	Approp.	—	—	—	—	150,000[8]
		Cost	—	—	—	—	150,000[8]
3.	Delaware River	New Work					
	between Phila-	Approp.	—	—	—	—	72,147,800[2]
	delphia, PA and	Cost	—	—	—	—	72,147,800[2]
	Trenton, NJ	Maint					
	(Regular	Approp.	2,622,824	2,999,562	4,408,000	2,510,589	66,209,012[3]
	Funds)	Cost	2,635,021	2,997,772	4,357,023	2,562,298	66,204,966[3]
	(Contributed	New Work					
	Funds)	Approp.	—	—	—	—	565,000
		Cost	—	—	—	—	565,000
4.	Delaware River	New Work					
	Mainstem Channel	Approp.	1,176,000	1,654,000	1,621,000	1,250,000	5,547,000
	& Deepening	Cost	2,254,649	1,641,677	1,648,110	1,285,662	5,490,826
	(Regular Funds)						
5.	Delaware River,	New Work					
	PA, NJ, and DE	Approp.	—	—	—	—	57,879,872[4]
	Philadelphia	Cost	—	—	—	—	57,879,872[4]
	to the Sea	Maint.					
	(Regular	Approp.	16,847,568	14,419,605	19,841,007	23,432,000	585,479,790[17]
	Funds)	Cost	16,889,458	14,375,369	19,639,016	23,396,248	584,835,527[17]
		Rehab.					
		Approp.	—	—	—	—	508,324
		Cost	—	—	—	—	508,324
6.	Inland Waterway	New Work					

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
	from Delaware River to Chesapeake Bay, DE and MD (Regular Funds)	Approp.	—	—	—	—	132,535,591[6]
		Cost	—	—	—	—	132,532,598[6]
		Maint.					
		Approp.	14,270,832	22,061,744	17,056,193	10,934,000	383,104,994[7]
		Cost	14,348,534	22,032,500	15,856,843	11,587,418	382,382,521[7]
		Rehab.					
		Approp.	—	—	—	—	17,356,292
		Cost	—	—	—	—	17,356,290
7.	Inland Waterway, Rehoboth Bay to Delaware Bay, DE (Regular Funds)	New Work					
		Approp.	—	—	—	—	561,514
		Cost	—	—	—	—	561,514
		Maint.					
		Approp.	58,000	415,255	1,018,536	42,062	6,332,729
		Cost	58,396	415,196	1,016,149	42,325	6,330,599
	(Contributed Funds)	New Work					
		Approp.	—	—	—	—	60,000
		Cost	—	—	—	—	60,000
8.	Manasquan River, NJ (Regular Funds)	New Work					
		Approp.	—	—	—	—	8,008,278[21,22]
		Cost	—	—	—	—	8,008,278[21,22]
		Maint.					
		Approp.	—	190,000	80,000	84,000	5,629,229[23]
		Cost	—	190,000	80,000	84,000	5,627,834[23]
9.	Mispillion River, DE (Regular Funds)	New Work					
		Approp.	—	—	—	—	738,839[11]
		Cost	—	—	—	—	738,839[11]
		Maint.					
		Approp.	—	—	303,000	47,339	5,228,985[16]
		Cost	—	—	298,385	52,260	5,228,096[16]
10.	Murderkill River, DE (Regular Funds)	New Work					
		Approp.	—	—	—	—	37,630
		Cost	—	—	—	—	37,630
		Maint.					
		Approp.	358,564	—	311,000	2,525	3,406,095
		Cost	356,488	—	304,407	9,118	3,404,050
12.	New Jersey Intracoastal Waterway (Regular Funds)	New Work					
		Approp.	—	—	—	—	71,549[9]
		Cost	—	—	—	—	71,549[9]
		Maint.					
		Approp.	2,292,165	2,057,232	1,928,000	2,541,712	60,886,276[10]
		Cost	2,293,803	2,062,528	1,920,740	2,538,078	60,862,999[10]
		Rehab.					

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
		Approp.	—	—	—	—	1,196,581
		Cost	—	—	—	—	1,196,581
	(Contributed Funds)	New Work					
		Approp.	—	—	—	—	99,000
		Cost	—	—	—	—	99,000
14.	Regional Sediment Management Pilot Program	Maint.					
		Approp.	—	93,400	95,880	—	189,280
		Cost	—	78,345	46,436	57,391	182,172
15.	Schuylkill River, PA (Regular Funds)	New Work					
		Approp.	—	—	—	—	3,334,007[1]
		Cost	—	—	—	—	3,334,007[1]
		Maint.					
		Approp.	1,514,421	1,406,409	—	926,133	39,801,256
		Cost	1,544,325	1,381,217	—	926,133	39,765,600
16.	Wilmington Harbor, DE (Regular Funds)	New Work					
		Approp.	—	—	—	—	1,954,725[12,5]
		Cost	—	—	—	—	1,954,725[12,5]
		Maint.					
		Approp.	7,107,246	6,432,612	4,225,000	5,705,000	117,496,583
		Cost	7,106,138	6,437,921	4,196,449	5,719,836	117,460,624
	(Contributed Funds)	NewWork					
		Approp.	—	—	—	—	160,000[15]
		Cost	100,000	—	—	—	160,000[15]
17.	Brigantine Inlet to Great Egg Harbor Inlet, NJ (Abecon Island, NJ) (Regular Funds)	New Work					
		Approp.	371,000	290,000	280,000	300,000	1,241,000
		Cost	201,603	385,688	312,642	230,915	1,130,848
	(Contributed Funds)	New Work					
		Approp.	—	—	—	105,000	105,000
		Cost	—	—	—	—	0
18.	Brigantine Inlet to Great Egg Harbor Inlet, NJ (Brigantine Island, NJ) (Regular Funds)	New Work					
		Approp.	—	—	—	150,000	150,000
		Cost	—	—	—	106,363	106,363
19.	Cape May Inlet to Lower Twp., NJ (Regular Funds)	New Work					
		Approp.	1,458,000	100,000	2,000,000	82,000	20,882,176
		Cost	1,458,028	99,996	340,002	1,730,775	20,469,439
	(Contributed Funds)	New Work					
		Approp.	225,000	—	500,000	—	3,749,558
		Cost	166,102	69,084	166,102	131,810	3,506,027
20.	Delaware Bay Coastline, Port Mahon, DE & NJ	New Work					
		Approp.	—	—	—	100,000	100,000
		Cost	—	—	—	77,640	77,640

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
	(Regular Funds)						
21.	Delaware Bay Coastline, Reeds Beach to Pierces Point, DE & NJ (Regular Funds)	New Work					
		Approp.	—	—	—	100,000	100,000
		Cost	—	—	—	85,189	85,189
22.	Delaware Bay Coastline, Roosevelt Inlet/Lewes Beach, DE (Regular Funds)	New Work					
		Approp.	—	—	100,000	284,000	384,000
		Cost	—	—	99,041	46,244	145,285
	(Contributed Funds)	New Work					
		Approp.	—	—	—	899,797	899,797
		Cost	—	—	—	—	0
23.	Delaware Coast Cape Henlopen to Fenwick Island, DE (Rehoboth Beach to Dewey Beach, DE) (Regular Funds)	New Work					
		Approp.	273,000	214,000	(150,000)	36,000	373,000
		Cost	76,910	109,142	111,864	74,837	372,753
24.	Delaware Coast Cape Henlopen to Fenwick Island, DE (Fenwick Island, DE) (Regular Funds)	New Work					
		Approp.	—	—	—	314,000	314,000
		Cost	—	—	—	191,237	191,237
	(Contributed Funds)	New Work					
		Approp	—	—	—	104,000	104,000
		Cost	—	—	—	0	0
25.	Delaware Coast Protection, DE (Regular Funds)	New Work					
		Approp.	222,000	254,000	353,000	292,000	6,427,953[20]
		Cost	222,041	253,988	343,665	228,698	5,934,305[20]
		Maint.					
		Approp.	—	—	—	—	215,350
		Cost	—	—	—	—	215,350
	(Contributed Funds)	New Work					
		Approp.	—	—	—	—	1,268,671[18]
		Cost	—	—	—	—	1,259,002[18]
26.	Great Egg Harbor Inlet & Peck Beach, NJ (Regular Funds)	New Work					
		Approp.	359,000	5,100,000	250,000	457,000	37,337,000
		Cost	356,563	5,099,795	246,771	431,731	37,295,844
	(Contributed Funds)	New Work					
		Approp.	—	4,885,767	286,790	4,500,000	28,379,610
		Cost	78,791	4,476,158	78,791	326,280	23,577,255
27.	Lower Cape May Meadows, NJ	New Work					
		Approp.	—	—	65,000	275,000	340,000

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
	(Regular Funds)	Cost	—	—	61,967	143,070	205,037
		New Work					
	(Contributed	Approp.	—	—	—	500,000	500,000
	Funds)	Cost	—	—	—	—	0
29.	Townsend Inlet	New Work					
	to Cape May	Approp.	—	352,000	3,607,000	12,093,000	16,052,000
	Inlet, NJ	Cost	—	209,253	3,255,020	12,566,501	16,030,874
	(Regular Funds)	New Work					
	(Contributed	Approp.	—	—	9,239,000	7,895,000	17,134,000
	Funds)	Cost	—	—	51,615	5,448,088	5,499,703
30.	Beltzville	New Work					
	Lake, PA	Approp.	—	—	—	—	22,931,831
	(Regular Funds)	Cost	—	—	—	—	22,931,831
		Maint.					
		Approp.	937,320	934,856	1,305,991	1,048,000	18,891,756
		Cost	948,030	932,644	974,918	1,027,774	18,503,178
31.	Blue Marsh	New Work					
	Lake, PA	Approp.	—	—	—	—	63,180,300
	(Regular	Cost	—	—	—	—	63,180,299
	Funds)	Maint.					
		Approp.	2,224,752	2,173,419	2,366,701	2,572,000	39,802,675
		Cost	2,260,124	2,128,660	2,320,347	2,508,390	39,607,506
34.	Francis E.	New Work					
	Walter Dam, PA	Approp.	—	—	—	—	12,449,682[13]
	(Regular Funds)	Cost	—	—	—	—	12,437,323[13]
		Maint.					
		Approp.	865,773	613,450	1,155,907	1,279,000	18,926,079
		Cost	875,544	603,928	1,068,462	1,245,999	18,791,960
35.	General Edgar	New Work					
	Jadwin Dam and	Approp.	—	—	—	—	4,073,105
	Reservoir, PA	Cost	—	—	—	—	4,073,105
	(Regular	Maint.					
	Funds)	Approp.	208,679	256,772	248,960	268,000	5,177,775
		Cost	208,608	257,241	248,934	263,370	5,140,893
38.	Molly Ann's Brook, NJ	New Work					
	(Regular	Approp.	300,000	300,000	16,000	—	21,829,000
	Funds)	Cost	411,959	9,443	303,617	(32,384)	21,768,487
	(Contributed	New Work					
	Funds)	Approp.	600,000	1,141,000	200,000	50,000	7,691,000[19]
		Cost	1,275,000	1,427,456	246,041	279,818	7,736,889[19]
40.	Prompton Lake	New Work					
	(Regular Funds)	Approp.	—	—	—	—	4,609,483[14]
		Cost	—	—	—	—	4,609,483[14]
		Maint.					

TABLE 3-A COST AND FINANCIAL STATEMENT

See Section in Text	Projects	Funding	FY00	FY01	FY02	FY03	SEPT. 30, 2003
		Approp.	948,608	664,354	484,049	473,000	12,916,652
		Cost	952,782	657,673	481,453	469,891	12,899,783
42.	South Central, PA Environmental Improvement, PA (Regular Funds)	New Work					
		Approp.	—	2,503,449	201	—	10,353,650
		Cost	1,068,472	117,347	1,392,094	22,184	3,894,496
43.	Southeastern Pennsylvania, PA (Regular Funds) (Contributed Funds)	New Work					
		Approp.	2,516,000	126,000	(372,000)	245,000	3,556,000
		Cost	386,215	197,663	2,667,066	93,034	3,393,622
		New Work					
		Approp.	—	—	1,150,000	—	1,150,000
		Cost	—	—	779,670	126,367	906,037

* Total adjusted to correct discrepancies in prior years.
1. Includes $525,000 for previous projects.
2. Includes $2,489,173 for new work for previous projects, $105,000 for preauthorization studies and minus $142,015 adjustment new work toDelaware River, Philadelphia to Sea project from this project under 1954 modification.
3. Includes $552,720 for maintenance for previous projects, and $685,000 Jobs Bill Funds.
4. Excludes $12,976,054 for new work for previous projects and $142,015 adjustment from Delaware River, Philadelphia to Trenton, NJ under 1954 modification.
5. Excludes $412,400 spent for Continuing Authority project.
6. Includes $10,709,755 for new work for previous projects.
7. Includes $6,903,748 for maintenance for previous projects, and $9,500 Job Bill Funds.
8. Includes $50,000 Navy Department Funds & $100,00 Contributed Funds.
9. Excludes $1,824,940 Navy Department Funds.
10. Excludes $286,953 Navy Department Funds expended for maintenance.
11. Includes $148,798 for new work on previous projects.
12. Includes $402,121 for new work for previous project, and $206,177 emergency relief funds.
13. Includes $40,000 appropriated and $61,551 expended under Code 710 Recreation Facilities.
14. Includes $63,000 appropriated and $61,551 expended under Code 710 Recreation Facilities, excluded $23,600.
15. Excludes $213,336 spent on Continuing Authority project.
16. Includes $61,172 for maintenance on previous projects.
17. Includes $1,025,409 for maintenance of previous projects, and $8,000 Jobs Bill funds.
18. Excludes $85,000 cash and $130,000 services furnished during preconstruction planning.
19. Includes $112,000 for work done for the State of New Jersey.
20. Includes $704,000 AE&D.
21. Includes $39,000 for new work for previous projects.
22. Includes $555,809 for previous projects.
23. Includes $2,054 for maintenance for previous projects.

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	BARNEGAT INLET, NJ (See Section 1 of Text)	
Aug. 30, 1935	An 8-foot depth through inlet to Oyster Creek Channel across inner bar, 10-foot depth through outer bar and for jetties.	Rivers and Harbors Committee Doc. 19, 73rd Cong., 2nd sess.[1]
Aug. 26, 1937	A channel of suitable hydraulic characteristics from gorge to Oyster Creek Channel, and thence to deep water in bay.	Rivers and Harbors Committee Doc.85, 74th Cong., 2nd sess.[1]
Jul. 24, 1946	Maintenance dredging of channel to connect main inlet channel with Barnegat City Harbor.	H. Doc. 358, 79th Cong., 2nd sess.
Jul. 2, 1985	Construction of a parallel, 4270 foot rubble mound south jetty and dredging a channel 10 feet deep, 300 feet wide, and 11,300 feet long.	H. Doc. 236, 99th Cong., 2nd sess.
	COLD SPRING INLET, NJ (See Section 2 of Text)	
Mar. 2, 1907	An inlet channel 25 feet deep and jetties.	H. Doc. 388, 59th Cong., 2nd sess.
Mar. 2, 1945	A 20-foot channel to deep water in harbor	H. Doc. 262, 77th Cong., 1st sess.
	DELAWARE RIVER BETWEEN PHILADELPHIA, PA AND TRENTON, NJ (See Section 3 of Text)	
Jul. 3, 1930	A channel 28 feet deep, 300 feet wide between Allegheny Ave., Philadelphia, PA and Delair Bridge	Rivers and Harbors Committee Doc. 3, 71st Cong., 1st sess.
Aug. 30, 1935	Channel 25 feet deep from Delair Bridge to Trenton, NJ, and maintenance of 12-foot channel from upper end of 25-foot project to Penn Central R.R. Bridge at Ferry St., Trenton.	Rivers and Harbors Committee Doc. 11, 73rd Cong., 1st sess.
Aug. 30, 1935[2]	Auxiliary channel, 20 feet deep east of Burlington Island.	Rivers and Harbors Committee Doc. 66, 74th Cong., 1st sess[1]
Aug. 26, 1937	A cross channel 8 feet deep, opposite Delanco, NJ	Rivers and Harbors Committee Doc. 90, 74th Cong., 2nd sess.
Jul. 24, 1946	Anchorage at mouth of Biles Creek	H. Doc. 679, 79th Cong., 2nd sess.
Sept. 3, 1954	A channel 40 feet deep and 400 feet wide between Allegheny Ave., Philadelphia, PA, and upstream end of Newbold Island, thence 35 feet deep to Trenton Marine Terminal and turning basin to 800 feet wide. Relocate channel at railroad bridge at Delair and suitably reconstruct bridge. Construct necessary bank protection works; and eliminate authorized anchorage near mouth of Biles Creek, PA.	H. Doc. 358, 83d Cong., 2nd sess.[1]
	DELAWARE RIVER MAIN CHANNEL &	

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	DEEPENING, NJ, PA, & DE (See Section 4 of Text)	
October 1992	The 45-foot deep project was authorized for construction.	WRDA 1992 P.L. 102-580 Section 101 (6)
	Allows for certain credits to the non-Federal sponsor and the payment of disposal fees, and the development of a disposal area management plan.	WRDA 1999 P.L. 106-53, Section 308
	DELAWARE RIVER, PA, NJ, AND DE, PHILADELPHIA TO THE SEA (See Section 5 of Text)	
Jun. 25, 1910	Channel 35 feet deep from Allegheny Ave., Philadelphia, PA to Delaware Bay.	Doc. 733, 61st Cong., 2nd sess.
Jul. 3, 1930	Anchorages 35 feet deep at Port Richmond and Mantua Creek, a 30 foot anchorage at Gloucester, NJ and extend 1,000 foot channel in Philadelphia Harbor to Horseshoe Bend.	H. Doc. 304, 71st Cong., 2nd sess.[1]
Aug. 30, 1935[2]	An anchorage 35 feet deep at Marcus Hook, PA	Rivers and Harbors Committee Doc. 5, 73rd Cong., 1st sess.
Jun. 20, 1938[3]	A channel 37 feet deep from Philadelphia – Camden Bridge to Navy Yard, thence 40 feet deep to deep water in Delaware Bay.	S. Doc. 159, 75th Cong., 3rd sess.[1]
Mar. 2, 1945[4]	A 37-foot depth channel from Allegheny Ave., Philadelphia, PA to Philadelphia-Camden Bridge	H. Doc. 580, 76th Cong., 1st sess.[1]
Mar. 2, 1945[4]	A 37-foot depth in an enlargement of anchorage near Mantua Creek and Marcus Hook.	H. Doc. 340, 77th Cong., 1st sess.[1]
Mar. 2, 1945[4]	Maintain enlarged channel opposite Philadelphia Navy Yard.	Specified in Act. H. Doc. 358, 83rd Cong., 2nd sess.[1]
Sept. 3, 1954	A channel from Allegheny Ave., to Naval Base 40 feet deep, 400 feet wide along west side of channel through Philadelphia Harbor and 500 feet wide through Horseshoe Bend.	
Jul. 3, 1958	Anchorages at Reedy Point, Deepwater Point, Marcus Hook and Mantua Creek 40 feet deep and 2,300 feet wide with mean lengths of 8,000, 5,200,13,650 and 11,500 feet respectively.	H. Doc. 185, 85th Cong., 1st sess. 74th Cong., 1st sess.[1]
	INLAND WATERWAY FROM DELAWARE RIVER TO CHESAPEAKE BAY, DE & MD (See Section 6 of Text)	

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Aug. 30, 1935	A sea level channel 27 feet deep, 250 feet wide from Delaware River to Elk River and 400 feet wide down Elk River and Chesapeake Bay to deep water at or near Pooles Island; alter existing bridges over canal; enlarge	H. Doc. 201, 72nd Cong., 1st sess. and Rivers and Harbors
	Delaware City Branch Channel to 8 feet deep and 50 feet wide, with a basin same depth and revetment of both banks east of Fifth Street; enlarge anchorage and mooring basin in Back Creek to 400 feet wide, 1,000 feet long and 12 feet deep; extend jetties at Reedy Point; and construct bulkheads.	Committee Docs. 18 and 24, 736 Cong., 2nd sess.[1]
Aug. 7, 1939	Construct a 4-lane high-level fixed highway bridge at or near St. Georges.	Public Law 310, 76th Cong., 1st sess.
Sept. 3, 1954	A channel 35 feet deep and 450 feet wide from Delaware River through Elk River and Chesapeake Bay.	S. Doc. 123, 83rd Cong., 2nd sess.[1]
Aug. 30, 1935	For an 8-foot depth and width increased to 150 feet in Delaware Bay.	H. Doc. 275, 73rd Cong., 2nd sess.[1].
	INLAND WATERWAY, REHOBOTH BAY TO DELAWARE BAY, DE (See Section 7 of text)	
Jul. 25, 1912	For a 6-foot depth canal to connect Rehoboth Bay and Delaware Bay.	H. Doc. 823, 60th Cong., 1st sess. and Rivers and Harbors Committee Doc. 51, 61st Cong., 3rd sess.
Aug. 30, 1935	For a 6-foot depth entrance near Lewes, for jetties, for widening the canal from Broadkill River to Lewes and basin.	Rivers and Harbors Committee Doc. 56, 75th Cong., 2nd sess.[1]
Mar. 2, 1945	For a 10-foot depth from Delaware Bay to Lewes and in basin, and for extending jetties. [5]	H. Doc. 344, 77th Cong., 1st sess.[1]
	MANAQUAN RIVER, NJ (See Section 8 of Text)	
Jul. 3, 1930	Channel 8 feet deep and provision of works designed to secure channel.	H. Doc. 482, 70th Cong., 2nd sess.
Aug. 30, 1935	Widening channel on northerly side.	Senate Committee Doc., 74th Cong., 1st sess.
Mar. 2, 1945	Deepening channel to 12 and 14 feet, 10 and 12 foot anchorages. [6]	H. Doc. 356, 77th Cong., 1st sess.
	MISPILLION RIVER, DE (See Section 9 of Text)	
Mar. 2, 1912	A 6-foot depth and extention of south.	H. Doc. 678, 62nd Cong., 2nd sess. [1]

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Aug. 26, 1937	Extention of north jetty.	Rivers and Harbor Comm., Doc. 83
Sep. 3, 1954	A channel 9 feet deep, 80 feet wide from like depth in Delaware Bay to the landward end of the jetties and thence 60 feet wide to Milford, including 3 cutoffs, with a turning basin at Milford.	S. Doc. 229, 81st Cong., 2nd sess. [1]
	MURDERKILL RIVER, DE (See Section 10 of Text)	
Jul. 13, 1982	A channel 7 feet deep at low water from Frederica to the 7 foot curve in Delaware Bay, 80 feet wide down to the mouth, and 150 feet wide at bottom and 250 feet wide at top from the mouth to the 7 foot curve in the bay. Embankment of dredged material on each side to a height of at least 2 feet above high spring tides.	H. Ex. Doc. 21, 52nd Cong., 1st sess. (See page 981 in Annual Report of 1892.)
	NEW JERSEY INTRACOASTAL WATERWAY (See Section 12 of Text)	
Jul. 1, 1945	A channel 12 feet deep at mean low water and generally 100 feet wide, extending from the Atlantic Ocean at Manasquan Inlet, NJ to Delaware Bay above Cape May, NJ. Construction of a canal of similar dimensions from Cape May Harbor to Delaware Bay via the New England Creek basin with adequate jetties at the Delaware Bay entrance.	H. Doc. 133, 76th Cong., 1st Sess. Rivers and Harbors Committee Doc. 525 79th Cong., 2nd sess.
Nov. 17, 1986	To increase the depth of the 2,000 foot reach of the waterway in Cape May County to 15 feet.	WRDA of 1986
	REGIONAL SEDIMENT MANAGEMENT PILOT PROGRAM (See Section 14 of Text)	
	To remedy of the sediment excess/deficit problems on the updrift/downdrift shorelines adjacent to Cape May Inlet.	Energy and Water Development Approp. Act of 2002, P.L. 107-66
	SCHUYLKILL RIVER, PA (See Section 15 of Text)	
Aug. 8, 1917	Depths of 35 feet from mouth to Girard Point thence 30 feet, 26, and 22 feet to University Avenue Bridge, Philadelphia.	H. Doc. 1270, 64th Cong., 1st sess.
Jul. 3, 1930	A depth of 30 feet instead of 35 feet between the mouth and the conditional restoration and maintenance of the channel below Passyunk Ave., channel dimensions between Passyunk Ave., and[1] by the United States.	Rivers and Harbors Committee Doc. 40, 71st Cong., 2nd sess[1]
Jul. 24, 1946	A depth of 33 feet from the channel in Delaware River to Passyunk Ave., restoration of the project channel dimensions between Passyunk Ave. and University Ave., and full maintenance of the entire project.	H. Doc. 699, 79th Cong., 2nd sess[1]

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	WILMINGTON HARBOR, DE (See Section 16 of Text)	
Jun. 3,1896	Depths of 21, 10 and 7 feet and jetties.	H. Doc. 66, 54th Cong., 1st sess. Annual Report, 1897 p. 12501
Jul. 25,1912	Purchase or construct a dredge and auxiliaries including a wharf and depot, and maintenance of project.	H. Doc. 359, 62nd Cong., 2nd sess.
Sept. 22, 1922	Entrance channel and basin with 25-foot depth and construction by local interests of new south jetty.	H. Doc. 114, 67th Cong., 1st sess. and S. Committee Print, 68th Cong., 1st sess.
Jul. 3, 1930	A 30-foot depth between Delaware River and Lobdell Canal and modification or removal of a portion of north jetty.	Rivers and Harbors Committee Doc. 20, 71st Cong., 2nd sess.
Aug. 30, 1935[7]	Completion of new south jetty by the United States subject to provision that city of Wilmington reimburse the United States for cost, without interest, of any part of structure that may subsequently be occupied and utilized for city activities.	Rivers and Harbors Committee Doc. 32, 73rd Cong., 2nd sess.
Oct. 17, 1940	Permit temporary occupancy by city of Wilmington of any part of south jetty for city activities under revocable license, provided occupied portion of jetty is properly maintained without expense to the United States.	H. Doc. 658, 76th Cong., 3rd sess.
Jul. 14, 1960	A 35-foot depth between Delaware River ship channel and Lobdell Canal including turning basin of same depth, opposite Wilmington Marine Terminal, 200 feet wide, 2,900 feet long on north side of channel, and 2,000 feet long on north side of basin.	H. Doc. 88, 86th Cong., 2nd sess.
	BRIGANTINE INLET TO GREAT EGG HARBOR INLET, NJ (ABSECON ISLAND, NJ) (See Section 17 of Text)	
Oct. 12, 1996	Consists of providing storm damage reduction and shoreline protection.	Section 101 (b) (13) of WRDA 1996
	BRIGANTINE INLET TO GREAT EGG HARBOR INLET, NJ (BRIGANTINE ISLAND, NJ) (See Section 18 of Text)	
Aug. 17, 1999	Provides for hurricane, storm damage reduction and shore protection.	Section 101 (b) (12) of WRDA 1999
	CAPE MAY INLET TO LOWER TOWNSHIP, NJ (See Section 19 of Text)	

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	Consists of beach fill; dune fill; new groins; maintenance of existing groins; rehabilitation of an existing seawall; and a breakwater with weir and deposition basin at Cape May Inlet.	Rivers & Harbors Act of 1968
Nov. 17, 1986	Project may be constructed separately or in combination with any other feature of the project.	WRDA of 1986
	DELAWARE BAY COASTLINE, PORT MAHON, NJ (See Section 20 of Text)	
Aug. 17, 1999	Provides for ecosystem restoration.	Section 101 (a) (12) of WRDA 1999
	DELAWARE BAY COASTLINE, REEDS BEACH TO PIERCES POINT, DE & NJ (See Section 21 of Text)	
Aug. 17, 1999	Provides for shore protection and ecosystem restoration.	Section 101 (b) (6) of WRDA 1999
	DELAWARE BAY COASTLINE, ROOSEVELT INLET/LEWES BEACH, DE (See Section 22 of Text)	
Aug. 17, 1999	Provides for navigation mitigation, hurricane, and storm damage reduction.	Section 101 (a) (13) of WRDA 1999
	DELAWARE COAST CAPE HENLOPEN TO FENWICK ISLAND, DE (REHOBOTH BEACH TO DEWEY BEACH, DE) (See Section 23 of Text)	
Oct. 12, 1996	Provides for storm damage reduction, shoreline protection, and periodic nourishment over the 50-year life of the project.	Section 101 (b) (6) of WRDA 1996
Dec. 11, 2000	Project is modified to authorize increased project costs.	Section 307 of WRDA 2000
	DELAWARE COAST CAPE HENLOPEN TO FENWICK ISLAND, DE (FENWICK ISLAND, DE) (See Section 24 of Text)	
	Provides for hurricane and storm damage reduction.	Section 101 (b) (11) of WRDA 2000
	DELAWARE COAST PROTECTION, DE (See Section 25 of Text)	
	Provides for Federal participation in the cost of restoration and subsequent	H. Doc. 90, 90th

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	periodic nourishment, not to exceed 10 years, of the shore from Rehoboth Beach to Indian River Inlet.	Cong., 2nd sess.
Nov. 17, 1986	Project is modified to authorize the construction of sand bypass facilities and stone revetment erosion control measures at Indian River Inlet, DE.[8]	WRDA of 1986 Sec. 869
	GREAT EGG HARBOR INLET & PECK BEACH, NJ (See Section 26 of Text)	
Nov. 17, 1986	Project may be constructed separately or in combination with any other feature of the project. Consists of providing initial beachfill, with subsequent periodic nourishment, with a minimum berm width of 100 feet at an elevation of 8 feet above mean low water.	River and Harbor Act of 1965. WRDA of 1986.
	LOWER CAPE MAY MEADOWS, NJ (See Section 27 of Text)	
Aug. 17, 1999	Provides for navigation mitigation, ecosystem restoration, shore protection, and hurricane and storm damage reduction.	Section 101 (a) (25) WRDA of 1999
	TOWNSEND INLET TO CAPE MAY INLET, NJ (See Section 29 of Text)	
Aug. 17, 1999	Provides for hurricane and storm damage reduction, shore protection, and ecosystem restoration.	Section 101 (a) (26) WRDA of 1999
	BELTZVILLE LAKE, PA (See Section 30 of Text)	
	Provides for multiple-purpose development for water supply flood control and recreation.	H. Doc. 522, 87th Cong., 2nd sess.
	BLUE MARSH LAKE, PA (See Section 31 of Text)	
	Provides for multiple purpose development for water supply, flood control, and recreation. Site is located on Tulpehocken Creek about 1 ½ miles up-stream from its confluence with Plum Creek and about six miles northwest of Reading, PA.	H. Doc. 522, 87th Cong., 2nd sess.
	FRANCIS E. WALTER DAM, PA (See Section 34 of Text)	
	Provided for a single-purpose flood control reservoir.	H. Doc. 587, 79th Cong., 2nd sess.
	Provides for a multiple-purpose development for water supply and recreation.	H. Doc 522, 87th Cong., 2nd sess.
	GENERAL EDGAR JADWIN DAM AND RESERVOIR, PA (See Section 35 of Text)	
	A single-purpose flood control reservoir with a capacity of 24,500 acre-feet formed by an earth embankment.	H. Doc 113, 80th Cong., 1st sess.
	MOLLY ANN'S BROOK, NJ (See Section 38 of Text)	
Nov. 17, 1986	Modify Channel with a total length of 2.5 miles miles. Channel will include both trapezoidal channel sections and walled sections. Five bridges will be replaced and one building will removed.	WRDA of 1986

TABLE 3-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PROMPTON LAKE, PA (See Section 40 of Text)	
	Provides for a single-purpose flood control reservoir.	H. Doc. 113, 80th Cong., 1st sess.
	Provides for multiple-purpose development for water supply, and recreation in addition to present single-purpose flood control project.	H. Doc. 522, 87th Cong., 2nd sess.
	SOUTH CENTRAL PENNSYLVANIA ENVIRONMENTAL IMPROVEMENT, PA (See Section 42 of Text)	
	Pilot program providing environmental assistance to non-Federal Interests in South Central Pennsylvania.	Section 313, WRDA of 1992
	Provides $10 million in design and construction assistance under the Section 313 progam.	H. Report 105-190
	Specifies the funds among eight specific projects.	Conference Report 105-271
	SOUTHEASTERN PENNSYLVANIA, PA (See Section 43 of Text)	
	Pilot program providing for environmental assistance (design and construction) to non-Federal interests for publicly owned facilities in the five (5) county area surrounding the City of Philadelphia.	Section 566, WRDA of 1996
	"Brownfields" initiative to investigate to spur the revitalization of these properties and return them to productive use.	Section 104 (d)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980

1. Contains latest published maps.
2. Also Public Works Administration September 6, 1933, and Emergency Relief Administration, May 28, 1935.
3. Channel 37 feet deep and 600 feet wide from Naval Base to Philadelphia-Camden Bridge, deferred for restudy.
4. Channel 37 feet deep and 600 feet wide from Philadelphia-Camden Bridge to Allegheny Ave. deferred for restudy.
5. Extension of jetties considered to be active.
6. The 10 and 12 foot anchorages are considered inactive.
7. Also May 28, 1935, under Emergency Relief Administration.
8. Deauthorized the remaining portion of the project.

TABLE 3-C OTHER AUTHORIZED NAVIGATION PROJECTS

Active Projects	Status	For Last Full Report See Annual Report For	Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Absecon Creek, NJ	COMPLETED	1989	11,935	84,186*
Absecon Inlet, NJ	COMPLETED	1990	534,209[16]	5,985173[17]
Alloway Creek, NJ[1]	COMPLETED	1989	21,398	55,117
Aquatic Plant Control	INACTIVE	1975	87,594	—
Big Timber Creek, NJ	COMPLETED	1989	58,665[2]	71,925*
Broadkill River, DE	COMPLETED	1976	68,228	243,641
Cedar Creek, NJ	ACTIVE	1999	256,100	560,813
Chesapeake and Delaware Canal, St. Georges Bridge Replacement, DE	COMPLETED	2000	—	122,299,786
Cohansey River, NJ	COMPLETED	1995	146,756[20]	3,749,983
Cooper River, NJ[1]	COMPLETED	1989	33,102	396,528*
Delaware Bay to Millville	COMPLETED	—	143,984[21]	161,913
Millville fixed bridge to upper end of project	SEE TABLE 3-F	—	—	—
Delaware River Vicinity of Camden, NJ	ACTIVE	2002	4,589,130[29]	3,918,628
Delaware River, Pennsville, NJ	COMPLETED	—	256,624	—
Dennis Creek, NJ[1]	INACTIVE	1897	4,701	—
Double Creek, NJ[1]	COMPLETED	1912	7,800	—[4]
Harbor of Refuge	COMPLETED	1964	5,162,230[18]	1,169,014[19]
Goshen Creek, NJ[1]	INACTIVE	1905	15,359	870
Ice Harbor at Marcus Hook, PA[1,5]	INACTIVE	1928	208,964	14,336
Ice Harbor at New Castle, DE[1,5]	INACTIVE	1898	224,704	—
Indian River Inlet and Bay, DE	ACTIVE	2001	511,210	5,021,385[28]
Inland Waterway from Chincoteague Bay to Delaware Bay	COMPLETED	1981	168,412[11]	98,360[12]
Leipsic River, DE[1]	INACTIVE	1931	36,956	32,345
Little Egg Harbor, NJ[1,3]	INACTIVE	—[6]	15,048	—
Little River, DE	COMPLETED	1980	12,016	288,310
Mantua Creek, NJ	COMPLETED	1966	169,687[7]	339,340*
Maurice River, NJ	ACTIVE	1997	110,000	1,577,194
Neshaminy State Park** Harbor, PA	COMPLETED	1968	128,203[14]	54,601
Oldmans Creek, NJ	COMPLETED	1941	31,188	32,125
Pepper Creek, DE**	COMPLETED	1989	138,094[15]	38,988*
Raccoon Creek, NJ	COMPLETED	1994	83,665[13]	368,001
Salem River, NJ	ACTIVE	2000	6,701,764[26]	3,981,369[27]

TABLE 3-C OTHER AUTHORIZED NAVIGATION PROJECTS

Active Projects	Status	For Last Full Report See Annual Report For	Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Schuylkill River above Fairmount Dam, PA[1]	COMPLETED	1955	4,291,810	—[4]
Smyrna River, DE		1949	—	—
Delaware River to Wharf at Smyrna Landing[9]	COMPLETED	—	198,844	197,327
Wharf at Smyrna Landing to fixed bridge.	SEE TABLE 3-F	—	—	—
Toms River, NJ	ACTIVE	1996	10,050	262,485
Tuckerton Creek, NJ	ACTIVE	1999	60,242	1,307,669
Waterway from Indian River Inlet to Rehoboth Bay, DE	ACTIVE	1997	—	340,104
Woodbury Creek, NJ[1]	COMPLETED	1940	27,093[10]	56,474

Deferred Projects	Status	For Last Full Report See Annual Report For	Construction	Cost to Sept. 30, 2003 Operation and Maintenance
St. Jones River, DE		1961	—	—
Delaware Bay to Lebanon[1,8]		—	207,102	66,093
Jetties and new entrance at mouth	DEFERRED	—	—	—

1. Completed.
2. Excludes $50,000 contributed funds expended for new work.
3. Abandonment recommended in House Doc. 467, 69th Congress,1st Sess.
4. Maintenance assumed by local interests.
5. Harbor not now required by commerce.
6. Last appropriation for project was in 1852. No information is at hand relative to work done.
7. Includes $3,000 for new work for previous projects.
8. Includes $54,590 new work and $28,935 maintenance funds expended on previous projects.
9. Includes $55,085 new work and $22,723 maintenance funds expended on previous projects.
10. Includes $2,950 new work funds expended on previous projects.
11. Entire amount expended on previous projects repealed in 1905.
12. Excludes $2,000 contributed funds and includes $25,330 for maintenance for previous project.
13. Encludes $757 new work funds expended on previous projects.
14. Excludes $327,957 contributed funds allotted expended for new work.
15. Excludes $38,988 non-Federal funds.
16. Includes $116,497 for new work on previous projects.
17. Includes $2,489,173 for maintenance for previous projects.
18. Includes $2,749,452 for new work for previous projects.
19. Excludes $1,089 for reconnaissance and condition surveys fiscal year 1963.
20. Includes $36,000 for new work for previous projects.
21. Includes $43,000 new work funds expended on previous projects.
22. Includes $1,950,906 for 30 and 37 foot projects.
23. Includes $39,000 for new work for previous projects.
24. Includes $555,809 for previous projects.
25. Inlcudes $2,054 for maintenance for previous projects.
26. Includes $55,809 for new work funds expended on previous project.
27. Includes $1,285 for reconnaissance and condition surveys in FY 1957, $1,792 Operations and Maintenance cost incurred for preparation of environmental impact statement, and $48,000 expended for maintenance on previous projects.
28. Includes $10,000 for previous projects.
29. Includes $1,950,906 for 30 and 37 foot projects.

* Operation and maintenance figure includes cost incurred for preparation of environmental impact statements.

** Projects authorized by the Chief of Engineers.

TABLE 3-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Brigantine Island	INACTIVE*	—	—	—
Townsends Inlet and Seven Mile Beach, NJ	INACTIVE*	—	—	—

* NO CURRENT YEAR FUNDS.

TABLE 3-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Allentown, Lehigh River, PA	COMPLETED	1961	1,615,581	—[1]
Bethlehem, Lehigh River, PA	COMPLETED	1966	4,520,995	—[1]
Glen Foerd, PA	COMPLETED	1999	998,860	—
Hay Creek, Birdsboro, PA	INACTIVE	1984	335,299	—
Mt. Holly, NJ	COMPLETED	1946	283,655	—[1]
Pottstown, PA	ACTIVE	1984	487,366	—
Schuylkill River Park, Phila., PA	ACTIVE	2002	374,517	—
Tamaqua, PA	ACTIVE	1990	628,467[2]	—

1. Maintenance assumed by local interest as required by authorizing project.

2. Transferred from Baltimore District in FY 1989.

TABLE 3-F DEAUTHORIZED PROJECTS

Navigation Projects	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Expended	Contributed Funds Expended
Appoquinimink River, DE[1]	1934	3 Oct 78 HD 95-351	$78,243	—
Delaware County, PA	1931	PL 99-662 52 Stat. 323	$ 7,139	—
Maurice River, NJ Millville fixed bridge to upper end of project[2]	1948	Section 12 PL 93-251	—	—
Oldmans Creek, NJ[3]	1941	2 Nov 79 Section 12 PL 93-251	$63,313	—
Rancocas River, NJ[4]	1942	2 Nov 79 Section 12 PL 93-251	$57,590	—
Smyrna River, DE[5] Wharf at Smyrna Landing to fixed bridge.	1949	2 Nov 79 HD 95-157	$396,169	—

Shore Protection Projects	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Expended	Contributed Funds Expended
Atlantic City, NJ	1972	HD 538 918	$2,083,289	—
Barnegat Light, NJ	1964	HD 208 918	$ 70,908	—
Cape May City, NJ	1961	3 Sep 54 HD 206 918	$ 22,957[7]	—
Corson Inlet and Ludlam Beach, NJ	1978	—	$ 314,400	—
Hereford Inlet	—	—	—	—
Long Beach Island, NJ	1964	14 Jul 60 HD 208 918	$ 40,665	—
Ocean City, NJ	1969	HD 184 918	$ 395,831[9]	—

TABLE 3-F DEAUTHORIZED PROJECTS

Shore Protection Projects (Continued)	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Expended	Contributed Funds Expended
Rehoboth Beach to Indian River Inlet, DE	1965	HD 216 918	$326,116	—

Flood Control Projects	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Expended	Contributed Funds Expended
Aquashicola Reservoir, PA	1963	17 Nov 86 PL 99-662 46 Stat., 918	—	—
Chester River, Delaware County, PA	1931	17 Nov 86 PL 99-662 52 Stat., 323		
Delaware River, Mouth of Neversink	1917	5 Aug 77 HD 94-192	—	—
Lehigh River at Bethlehem, PA[6]	1966	2 Nov 79 Section 12 PL 93-251	$ 4,520,995	—
Maiden Creek Reservoir, PA	1963	17 Nov 86 PL 99-662 46 Stat., 918	—	—
Tocks Island, PA, NJ, and NY[8]	1979	23 Oct 62 PL 87-87	$65,106,260[10]	—
Tocks Island (Relocation of U.S. Route 209 only) PA[8]	1979	23 Oct 62 PL 87-874	$ 195,223	—
Trexler Lake, PA	1981	17 Nov 86 PL 99-662 76 Stat., 1180	—	—

1. Includes $36,973 new work, and $41,270 for maintenance.
2. There is no need now for this portion of the project.
3. Includes $31,188 new work, and $32,125 for maintenance.
4. Includes $44,500 new work, and $13,090 for maintenance.
5. Includes $143,759 new work, $55,085 previous project, $174,602 for maintenance, and $22,723 maintenance, previous project.
6. Maintenance assumed by local interest.
7. Excludes $58,585 Accelerated Public Works funds expended for extention to two groins.
8. National Parks and Recreation Act of 1978 terminated Corps authority to proceed with the project. Legislation would be required to proceed with the project.
9. Excludes cost of $1,146,325 to local interests and $272,766 Federal participation expended under Public Works Acceleration Program for extention of five existing groins completed 11 May 1964.
10. Includes $3,489,088 for AE&D.

BALTIMORE, MD DISTRICT

This district comprises the watershed of Susquehanna River and its tributaries from headquarters in south central New York State through central Pennsylvania to its mouth in Chesapeake Bay; watershed of the Potomac River and its tributaries from headquarters in Maryland, eastern West Virginia, and Northern Virginia to its mouth in Chesapeake Bay; District of Columbia; and southwestern portion of Delaware. It includes that portion of Chesapeake Bay and its tributaries north of Smith Point, MD, on western shore of the bay, and includes that portion of Maryland between Chesapeake Bay and Atlantic Ocean.

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NAVIGATION

1. BALTIMORE HARBOR AND CHANNELS, MD AND VA

Location. Baltimore Harbor is at the head of the navigable portion of Patapsco River about 12 miles from Chesapeake Bay. The Patapsco River rises near the town of Westminster in Carroll County, MD, and flows generally southeast for about 65 miles to enter Chesapeake Bay. (See National Ocean Survey Chart 12278.)

Existing project.

a. A uniform main channel depth of 50 feet between Cape Charles, VA, and Fort McHenry at Baltimore, MD, with dimensions as follows: (1) Cape Henry Channel: 50 feet deep and 1,000 feet wide from the 50-foot depth curve in the Atlantic Ocean to that depth in Chesapeake Bay, a distance of 3.0 miles; (2) York Spit Channel: 50 feet deep and 1,000 feet wide connecting the 50-foot depth curves in Chesapeake Bay near York Spit, a distance of 18.4 miles; (3) Rappahannock Shoal Channel: 50 feet deep and 1,000 feet wide connecting the 50-foot depth curves in the Chesapeake Bay opposite the Rappahannock River, a distance of 10.3 miles; and (4) Baltimore Harbor Approach Channels: 50 feet deep and generally 800 feet wide, widened at the approach and bends, from the 50-foot depth curve in Chesapeake Bay opposite the mouth of the Magothy River to Fort McHenry on the Patapsco River, a distance of 20.2 miles.

b. Branch channels with dimensions as follows: (1) Connecting Channel to Chesapeake and Delaware Canal Approach Channel: 35 feet deep, 600 feet wide, and 15.6 miles long from the Cutoff Angle in the main channel to the 35-foot depth curves in the natural channel on the east side of Chesapeake Bay which is part of the inland waterway from Delaware River to Chesapeake Bay. The channel includes the Brewerton Extension and Swan Point and Tolchester Channels; (2) Curtis Bay: 50 feet deep, 600 feet wide, and 2.3 miles long from the main channel to and including a turning basin at the head of Curtis Bay; (3) Curtis Creek: (a) a channel, 35 feet deep and generally 200 feet wide, from the 50-foot channel in Curtis Bay to 750 feet downstream of the Pennington Avenue Bridge; (b) a channel, 22 feet deep and generally 200 feet wide, from the 35-foot channel to and along the marginal wharf of the Curtis Bay Ordnance Depot; (c) an irregular shaped 3-acre basin, with a depth of 18 feet, adjacent to the head of the 22-foot channel; (d) a basin, 15 feet deep and 450 feet wide, from the end of the 22-foot channel to the end of the marginal wharf; and (e) a channel, 22 feet deep and 200 feet wide, from the 22-foot channel south of the Baltimore and Ohio Railroad Bridge to the vicinity of Arundel Cove, a distance of 2,800 feet, thence 100 feet wide in Arundel Cove for a distance of 2,100 feet, with an anchorage basin, 700 feet square, adjacent to the channel and southwest of the wharf of the Coast Guard Depot at Curtis Bay; (4) Middle Branch; Ferry Bar East Section: a channel, 42 feet deep and 600 feet wide, from the main channel at Fort McHenry to Ferry Bar, a distance of 1.5 miles; and (5) Northwest Branch: Federal maintenance of 39-foot or 35-foot deep channels after either depth has been provided by local interests: (a) East Channel: a channel, 49 feet deep, 600 feet wide, and 1.0 mile long with a turning basin at the head of the channel from that depth existing at the time of construction; and (b) West Channel: a channel, 40 feet deep, 600 feet wide, and 1.3 miles long with a turning basin at the head of the channel from that depth existing at the time of construction.

c. The following anchorages: (1) Riverview Anchorage No. 2: 30 feet deep, 2400 feet long, and 1,200 feet wide; (2) Riverview Anchorage No. 1: 35 feet deep, 4,500 feet long, and 1,500 feet wide; and (3) Fort McHenry Anchorage: 35 feet deep, 3,500 feet long, and 400 feet wide.

The mean range of tide is 2.8 feet at the Cape Henry Channel, 2.3 feet at the York Spit Channel, 1.4 feet at the Rappahannock Shoal Channel, 0.8 foot at the Craighill Entrance, 0.9 foot in the Cutoff Section, 1.1 feet at Fort McHenry, and 1.2 feet at Pooles Island in the upper Chesapeake Bay. Depths refer to mean low water.

Estimated cost for new work is $361,581,000 which includes: $8,330,000 for completed work through the River and Harbor Act of 1945; $38,411,000 for work completed under the River and Harbor Act of 1958 of which $33,991,000 is Corps of Engineers, $60,000 is U.S. Coast Guard and $4,360,000 is non-Federal; and $314,840,000 (October 1989 prices) for work authorized by the River and Harbor Act of 1970, of which $460,000 is U.S. Coast Guard and $314,380,000 is Corps of Engineers and non-Federal.

Local cooperation. Requirements are described in full on page 4-3 of Fiscal Year 1982 Annual Report.

Terminal facilities. The Port of Baltimore has 45 miles of waterfront of which 25 miles are industrially developed. There are 94 covered and open overseas piers for the loading and discharging of 173 ships, providing 84 general cargo, 65 specialized cargo, and 24 public bulk cargo berths. The existing ground storage is equivalent to 53,700 railroad cars of cargo. There are 31 public general merchandise warehouses, with 4.9 million square feet of storage space and 4.7 million cubic feet of cold storage space. Eight ship-building, ship-repair, and ship-dismantling yards are available for handling up to 90 vessels. The two grain elevators in the port have a capacity of about 8 million bushels. Latest description of terminal facilities is in "Port Series No. 10 (revised 1991)" on Port of Baltimore, MD, (issued by Board of Engineers for Rivers and Harbors).

Operations and results during fiscal year.

New Work, Baltimore District: None.

New Work, Norfolk District: None.

Maintenance, Baltimore District. Condition surveys of the project channels were performed. Dredged material testing of the Maryland channels was initiated in September 2002 and was completed in May 2003. Dredge monitoring studies were initiated in December 2002 and were completed in March 2003. Maintenance dredging, by contract, of the Fort McHenry Channel, Ferry Bar Channel, Riverview Anchorage No. 1, and Riverview Anchorage No. 2 was performed in conjunction with new work dredging of the Baltimore Harbor Anchorages & Channels project. Dredging commenced on March 18, 2002 and was completed on August 7, 2003. A total of 346,352 cubic yards of maintenance material was dredged and placed at the Hart-Miller Island Containment Facility at a cost of $1,890,492. Maintenance dredging, by contract, of the Craighill Entrance, Craighill Channel, Cutoff Angle, and Brewerton Channel Eastern Extension commenced on November 13, 2002 and was completed on January 27, 2003. A total of 1,176,401 cubic yards of material was dredged and deposited in the Poplar Island Environmental Restoration Project in the Chesapeake Bay at a cost of $7,567,458. A contract in the amount of $10,213,750 was awarded on July 31, 2003 to dredge an estimated 1.7 million cubic yards from the Craighill Angle, Craighill Upper Range, Brewerton Angle, Brewerton Channel, Ft. McHenry Channel, and Tolchester Channel and to deposit the material at the Poplar Island Environmental Restoration Project and Hart-Miller Island Containment Facility in the Chesapeake Bay. Dredging commenced on September 21, 2003 and is scheduled to be completed in January 2004.

Maintenance, Norfolk District. Condition surveys were made of the Cape Henry, Rappahannock Shoal and Atlantic Ocean Channels. Maintenance dredging, by contract, of the Cape Henry Channel and York Spit Channel commenced on September 17, 2001 and was completed on November 4, 2002. A total of 2,653,898 cubic yards of material were dredged from the Cape Henry Channel and deposited at the approved Dam Neck Ocean Placement Area in the Atlantic Ocean and a total of 978,846 cubic yards were dredged from the York Spit Channel and deposited at the Wolf Trap Alternate open water placement site in the Chesapeake Bay at a cost of approximately $8,506,210. The contractor submitted a claim requesting an additional $735,286, which was denied by the Contracting Officer.

1A. TOLCHESTER CHANNEL S-TURN, MD

Location. The Tolchester Channel is located along the eastern side of the upper Chesapeake Bay, near Tolchester Beach, Kent County, Maryland (see National Ocean Survey Chart 12278).

Existing Project. The Tolchester Channel is a uniform channel 35 feet deep, 600 feet wide with widening at the bends, and 7 miles long that follows the naturally deeper water along the eastern side of the upper Chesapeake Bay. The mean range of tide is 1.2 feet. Depths refer to mean lower low water. The project provides for constructing a new straight channel 35 feet deep, 600 feet wide, and 2 miles long to replace the existing Tolchester Channel S-Turn, which has several turns within a 3-mile long reach of channel. Section 329 of the Water Resources Development Act of 1999 modified Section 101 of the Rivers & Harbors Act of 1958 to "direct the Secretary to straighten the Tolchester Channel S-Turn as part of the project maintenance".

Local cooperation. Section 101 of the River and Harbor Act of 1958, PL 85-500, 3 Jul 1958 requires locals interests to: (1) furnish without costs to the United States all lands, easements, right-of-way, and dredged material placement areas necessary for construction and subsequent maintenance, when and as required; (2) hold and save the United States free from damages due to construction and maintenance of the project, and (3) provide and maintain all necessary alterations in sewer, water supply, drainage, and other utilities.

Terminal facilities. Terminal facilities are described under the Baltimore Harbor & Channel, MD and VA, Federal navigation project.

Operations and results during fiscal year. Maintenance: Condition surveys of the project channel were performed. The Baltimore Harbor and Channels contract, in the amount of $10,213,750, that was awarded on July 31, 2003, included $535,700 to dredge an estimated 138,000 cubic yards from the straightened Tolchester Channel S-Turn and to deposit the material at the Poplar Island Environmental Restoration Project.

2. BALTIMORE HARBOR ANCHORAGES AND CHANNELS, MD

Location. The project area encompasses the 32-square mile area of the Port of Baltimore. The port area of Baltimore includes the navigable part of the Patapsco River below Hanover Street, the Northwest and Middle Branches, and Curtis Bay and its tributary, Curtis Creek.

Existing project. Existing anchorages and branch channels are not of sufficient depth, length and width to accommodate vessels now in operation. The recommended plan will reduce delays and increase efficiency and safety through the following improvements: (1) widen and deepen Federal

Anchorages 3 and 4; (2) widen and provide flared corners for state-owned East Dundalk, Seagirt, Connecting, and West Dundalk branch channels; (3) dredge a new branch channel at South Locust Point; and (4) dredge a turning basin at the head of the Fort McHenry Channel. An estimated 3.9 million cubic yards of material will be dredged for these improvements. The current project cost estimate is $24.8 million including $18.3 million Federal and 6.5 million non-Federal. Following completion of the project, the state of Maryland will reimburse an additional $1.4 million over 30 years to the Federal government.

Local cooperation. The PCA with the State of Maryland was executed December 19, 2001. The sponsor is required to provide lands, easements, rights-of-way, including disposal areas and pay 25 percent of costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water. All dredged material from the project is considered contaminated by law, and will be placed in a containment site, the expanded capacity at Hart-Miller Island, to be provided by the non-Federal sponsor. The State will receive credit for proportional costs to modify the site to make it usable for placement of project material.

Terminal facilities. See Section 1 of this text.

Operations and results during fiscal year. New Work: A contract in the amount of $23,700,000 was awarded on February 4, 2002, to construct the authorized project improvements. Dredging commenced on March 18, 2002 and was completed on August 7, 2003. A total of 4,237,207 cubic yards of new work material was dredged and placed at the Hart-Miller Island Containment Facility at an estimated cost of $23,044,264. Negotiations on differing site condition claims were underway at the end of the fiscal year.

3. BALTIMORE HARBOR, MD, COLLECTION AND REMOVAL OF DRIFT

Location. Project applies to Baltimore Harbor, MD, and its tributaries.

Existing project. Provides for collection and removal of drift from Baltimore Harbor and its tributary waters, and authorizes the Secretary of the Army to allot such amounts as may be necessary for work from appropriations for maintenance and improvement of existing river and harbor works or other available appropriations, and that this work shall be carried as a separate and distinct project. It is wholly a work of maintenance. Purpose of work is to afford relief from variable conditions of obstruction.

Local cooperation. None required.

Terminal facilities. See Section 1 of this text.

Operations and results during fiscal year. Maintenance: Operations, by hired labor, consisted of collection and disposal of 28,080 cubic feet of driftwood, ranging from small blocks up to timbers of large dimensions.

4. BONUM CREEK, VA

Location. A tidal estuary of the Potomac River, enters its right bank 18 miles upstream from Chesapeake Bay. It is in Westmoreland County, VA, about 90 miles southeasterly of Washington, DC. (See Coast and Geodetic Survey Chart 12286.)

Existing project. Provides for a channel 60 feet wide and 6 feet deep from that depth in the Potomac River to and including an anchorage basin at the same depth 160 feet wide and 200 feet long in front of the proposed public landing to be provided by local interests. Project also provides for the entrance channel to be protected on both sides by jetties, the north jetty being about 700 feet long and the south jetty being about 300 feet long. Cost of new work for completed project was $205,998 for construction, of which $202,000 was for the Federal cost, exclusive of aids to navigation and pre-authorization and $3,998 was the non-Federal contribution.

Local cooperation. Local interest must furnish lands, and right-of-way for new work and future maintenance; hold the United States free from damages; build and maintain a suitable public landing with adequate approaches thereto; make alterations, relocations, and removals as required of utility facilities, and wrecks and stakes; establish a competent public body to regulate the harbor facilities; and make a lump sum cash contribution of 2 percent of the first cost of general navigation facilities. Assurances of local cooperation were accepted on January 11, 1967.

Terminal facilities. Several small privately owned piers or wharves are available on Bonum Creek. Local interests constructed an oyster packing house and a public landing.

Operations and results during fiscal year. Engineering and design activities were performed for future maintenance dredging of the project.

5. COAN RIVER

Location. On the Virginia side of the Potomac River, in Northumberland County about 100 feet of Walnut Point.

Previous project. N/A

Existing project. A Federal navigation channel 10 feet deep at mean lower low water (plus one foot allowable overdepth) and approximately 60 feet wide from the existing depths on either side of the shoaled

area in the Coan River, protected by a 500-foot long stone jetty (400 feet existing into waterway and 85 feet tie-in to the shoreline).

Local cooperation. Northumberland County is the non-Federal sponsor and have completed their cost-sharing requirements, pending project financial closeout, which is anticipated in fall 2004. Northumberland County has provided 50 percent of the cost of the feasibility study, that was completed in February 2002, and sufficient cash and credits to satisfy the requirements of Section 107 for plans and specifications and construction.

Operations and results during fiscal year. Project construction consists of channel dredging and jetty construction. The channel dredging was initiated in January 2003 and was completed in May 2003. Jetty construction was initiated in August 2003 and is expected to be completed in March 2004. Construction cost is estimated to be $800,000.

6. DUCK POINT COVE, MD

Location. A tidal cove about 4,000 feet long on east shore of Fox Creek, about 2.5 miles above mouth. Fox Creek is a shallow tidal estuary about 4 miles long entering Honga River about 4 miles above its junction with Hooper Strait, which, in turn, connects with Chesapeake Bay on east side, at a point about 15 miles north of mouth of Potomac River. (See Coast and Geodetic Survey Chart 1224.)

Existing project. A channel 60 feet wide and 6 feet deep, from that depth in Fox Creek to a mooring basin of same depth, 100 feet wide and 300 feet long, roughly parallel to county road at head of waterway. Cost of new work for completed project was $25,289.

Local cooperation. Complied with except local interests must, for future maintenance, hold the United States free from damages to oyster beds and furnish spoil-disposal areas. Assurances were accepted by the Chief of Engineers October 26, 1949.

Terminal facilities. There are three privately owned packing-house wharves on north bank of Duck Point Cove which are open to the public for transaction of business with the owners. Facilities area adequate for present needs. The commissioners of Dorchester County constructed a public terminal. Sufficient areas are available for construction of additional terminals if, and when, necessary.

Operations and results during fiscal year. Maintenance: Engineering and design work was accomplished for future maintenance dredging.

7. FISHING CREEK, MD

Location. A narrow winding tidal stream which enters Chesapeake Bay from the west 56 miles south of Baltimore and about 26 miles south of Annapolis, MD. (See U.S. Coast and Geodetic Survey Chart 12266.)

Existing project: A channel 7 feet deep with widths of 100 and 60 feet from deep water in the Chesapeake Bay to an anchorage of same depth, 120 feet wide and 400 feet long, located in marsh 500 feet above mouth of creek, and twin stone jetties at entrance; north jetty is about 1,050 feet long, and south jetty about 1,100 feet long. The mean range of tide is about 1 foot. Cost of new work for the completed project was $111,242.

Local cooperation. Fully complied with except that local interests are to furnish disposal areas as needed for future maintenance.

Terminal facilities. Seven hundred feet of bulkhead wharf are available on the south side of the entrance channel running west from bay shore, and the U.S. Navy Department constructed a pile-and-timber wharf on west side of basin.

Operations and result during fiscal year. Maintenance: A contract in the amount of $375,599 was awarded on July 18, 2003 to dredge 58,454 cubic yards from the project. The dredged material from the outer portion of the channel consisted mainly of sandy material, and was placed along an existing stone revetment. The remainder of the dredged material was placed at an upland placement site.

8. HONGA RIVER AND TAR BAY, MD

Location. Honga River is a tidal estuary of Chesapeake Bay and penetrates Dorchester County on Eastern Shore of Maryland between Hooper Island and the mainland; Tar Bay lies between Barren Island and the mainland and Hooper Island. Fishing Creek connects Tar Bay and Honga River. Back Creek is a branch of Honga River extending into Hooper Island; the mouth is about 2 miles south of Fishing Creek. (See Coast and Geodetic Survey Chart 1224.)

Existing project. Provides for a channel 60 feet wide and 7 feet deep at mean low water from the 7-foot contour in Chesapeake Bay, through Tar Bay and Fishing Creek to the 7-foot contour in Honga River, 25,300 feet long, and a channel in Back Creek 7 feet deep and 60 feet wide from the 7-foot depth curve in Honga River to a point near the head of Back Creek with a turning basin of the same depth 150 feet long and 200 feet wide at the head of channel, about 5,500 feet long. Mean range of tide is about 1.4 feet. Federal cost of new work for the completed project was $66,119.

Local cooperation. Local interests furnished placement areas for future maintenance dredging.

Terminal facilities. Numerous small private wharves are scattered along Fishing Creek and Back Creek. A public wharf is on Fishing Creek. A public wharf, four oyster houses, and a marine railway are on

Back Creek. Facilities are adequate for existing and reasonable prospective commerce.

Operations and results during fiscal year. Maintenance: Engineering and design activities were completed for extending the placement site at Barren Island. Containment will be stone breakwaters constructed offshore. Material will be placed behind the structures and a wetland will be planted. A contract was awarded and work has begun on the breakwaters.

9. KNAPPS NARROW, MD

Location. A small channel separating Tilghman Island from mainland of eastern shore of Chesapeake Bay about 40 miles south of Baltimore, MD. (See Coast and Geodetic Survey Chart 1225.)

Existing project. A channel 9 feet deep at mean low water, 75 feet wide, widened at the bends from deep water in Chesapeake Bay to deep water in Harris Creek, MD. Mean range of tide is 1.4 feet. Cost of new work for completed project was $46,121. Existing project channel was authorized by the Public Works Administration, September 16, 1933, and later adopted by 1935 River and Harbor Act.

Local cooperation. Complied with except local interests must furnish disposal areas as needed for future maintenance.

Terminal facilities. A bulkhead wharf exists on each side of the southerly abutment of the bridge across the Narrows. There are several small-boat landings within the Narrows and several marine railways for repairing boats of a few feet in draft. A bulkhead landing is available for public use at the turning basin.

Operations and results during fiscal year. Maintenance: Engineering and design activities were performed for future maintenance dredging of the project.

10. MONROE BAY AND CREEK, VA

Location. Monroe Bay is an indentation on the right bank of Potomac River in Westmoreland County, VA, 34 miles upstream of Chesapeake Bay and 75 miles downstream from Washington, DC. Monroe Creek is a tidal stream 5 miles long which flows southerly and discharges into Monroe Bay. (See Coast and Geodetic Survey Chart 558.)

Existing project. A channel 8 feet deep, 100 feet wide, and 950 feet long, through the bar at the entrance, and within the creek a channel 7 feet deep, 100 feet wide, and 2,500 feet long, with turning and anchorage basin 500 feet wide at upper end in vicinity of Colonial Beach waterworks. The mean range of tide is 1.56 feet. Cost of new work for completed project was $12,460.

Local cooperation. Fully met.

Terminal facilities. There are numerous wharves and landings in the creek, of which three are open to the public. There are two marine railways.

Operations and results during fiscal year. Maintenance: Engineering and design work was accomplished in connection with the proposed maintenance dredging. Surveys revealed shoaling was not sufficient to warrant dredging.

11. MUDDY HOOK/TYLER COVE, MD

Location. Muddy Hook Cove is a small indentation about 0.7 mile south of Hoopersville on the east side of Middle Hooper Island. Middle Hooper Island is one of a chain of islands separating Honga River from Tar Bay and Chesapeake Bay on the Eastern Shore of Maryland. Tyler Cove is a small tidal indentation on the north side of Fishing Creek which separates Hooper Islands from the mainland. (See Coast and Geodetic Survey Chart 12230.)

Existing project. An entrance channel 60 feet wide and 6 feet deep from that depth in Honga River to an anchorage basin of the same depth, 160 feet wide and 400 feet long, in Muddy Hook Cove. Project also provides an entrance channel, 60 feet wide and 6 feet deep, from the existing channel in Fishing Creek (See Honga River and Tar Bay project) into Tyler Cove and includes an anchorage basin 200 feet wide, 250 feet long, and 6 feet deep. Federal cost of new work for the completed project was $61,917. Existing project was approved for accomplishments under general authority provided by section 107, River and Harbor Act of 1960.

Local cooperation. Local interests have furnished the pipeline route to Barren Island. This job is being performed in conjunction with the Honga River project.

Terminal facilities. Local interests have, under terms of local cooperation, provided a public landing at Tyler Cove. A few privately owned piers are on Muddy Hook Cove. Local interests provided a public landing at Muddy Hook Cove, in accordance with the terms of local cooperation.

Operations and results during fiscal year. Maintenance: Engineering and design was accomplished and a contract awarded for the maintenance dredging.

12. NANTICOKE RIVER, MD

Location. The Nanticoke River flows in a south-westerly direction to Tangier Sound, Chesapeake Bay, and is about 50 miles long. The town of Nanticoke, MD, is on the east side of the river, about 3 miles from the mouth, just north of Roaring Point. (See Coast and Geodetic Survey Chart 567.)

Existing project. Provides for a small-boat harbor 7 feet deep, 120 feet wide, and 400 feet long in the marsh at Nanticoke, with an entrance channel of the same

depth and 60 feet wide; protected by twin stone jetties in the river, the north jetty being about 870 feet long and the south jetty being about 770 feet long. The mean range of tide is about 2.6 feet. The cost of new work for the completed project was $73,243.

Local cooperation. Fully met except that local interests are to furnish placement sites as required for subsequent maintenance and guarantee the United States and its contractors against claims for damages to oyster beds attributable to subsequent maintenance.

Terminal facilities. There are three privately owned wharves open to the general public.

Operations and results during fiscal year. Maintenance: A contract in the amount of $490,467 was awarded on August 14, 2002, to dredge 23,918 cubic yards from the harbor. The project was completed in January 2003.

13. OCCOQUAN RIVER, VA

Location. Occoquan Creek is formed by the junction of Bull and Broad Runs, about 5 miles southeast of Manassas, VA, and flows about 13 miles in a southeasterly direction, emptying into the Potomac River about 26 miles below Washington, D.C. (See Coast and Geodetic Survey Chart 560.)

Previous project. The original project was adopted by the River and Harbor Act of March 3, 1873. For further details see page 1792, Annual Report for 1915, and page 363, Annual Report for 1936.

Existing project. Provides for a channel 6 feet deep and 150 feet wide from deep water in the Potomac River to Taylors Point, and thence 100 feet wide to the town of Occoquan 6 miles from the mouth, and the protection of the channel above Taylors Point by riprap stone dikes 2,200 feet long. Mean range of tide is 2.0 feet.

Local cooperation. A non-federal sponsor needs to sign a Project Cooperation Agreement (PCA) with the Corps and be willing to cost-share construction of the project modifications on a 90% Federal/10% non-Federal basis. In addition, the non-Federal sponsor must pay an additional 10% of the project cost in cash over a period not to exceed 30 years.

Operations and results during fiscal year. New Work: Feasibility phase investigation underway to determine if the project modifications are economically justified. Prince William and Fairfax County, Virginia submitted Letters of Intent to provide the necessary requirements for local cooperation, including signing the PCA.

14. OCEAN CITY HARBOR AND INLET AND SINEPUXENT BAY, MD

Location. Ocean City is on a barrier island between Sinepuxent Bay and Atlantic Ocean about 35 miles south of entrance to Delaware Bay. (See U.S. Coast and Geodetic Survey Chart 12211.)

Existing project. This provides for an inlet channel 200 feet wide and 10 feet deep through the inlet to the channel in the Isle of Wight Bay, protected on the south side by a stone jetty with a top elevation of 8.8 feet above mean low water and a top width of 18 feet, and on the north side by a stone jetty with a top elevation of 9 feet above mean low water and a top width of generally 20 feet, thence generally 100 feet wide and 6 feet deep to the project harbor; a channel 6 feet deep and 150 feet wide in Sinepuxent Bay from the inlet to Green Point, and thence 100 feet wide in Chincoteague Bay; and for a channel 6 feet deep and 125 feet wide from the inlet channel to a point opposite North Eighth Street in Ocean City, thence 75 feet wide into the Isle of Wight Bay. The modification authorized by the 1954 River and Harbor Act was de-authorized in December 1989. This work included 16- and 14-foot depth channels with widths from 300 to 100 feet from the Atlantic Ocean to the head of the harbor. Depths in the inlet channel and harbor refer to project datum. Depths in the bay channels refer to mean low water.

The elevation of mean low water in the bays above mean low water in the ocean at Ocean City varies from about 0.8 foot in the vicinity of the inlet to 1.7 feet at their heads. The mean range of ocean tide is 3.4 feet. The extreme range is from 3 feet below mean low water to about 3.5 feet above mean high water, a total of 9.9 feet. In the bays the mean range of tide varies from approximately 2.5 feet at the inlet to 0.3 foot at their heads. Greater fluctuations are caused by prolonged high winds. Federal cost of new work for the completed project was $1,190,530, exclusive of $500,000 contributed by local interests and exclusive of $3,700,000 for rehabilitating the south jetty.

Local cooperation. Fully met except local interests must furnish disposal areas for future maintenance as needed.

Terminal facilities. On bay side of Ocean City: two storage basins, for pleasure and small commercial craft, and numerous privately owned pile-and timber piers and bulkhead wharves. At project harbor: a public landing about 1,000 feet long, several privately constructed bulkhead wharves open to the public for transaction of business with the owners, and a boat repair yard with a marine railway capable of handling boats up to about 150 tons. All piers and wharves are accessible by highway. Port facilities have been expanded to include all available space in the Fish Harbor.

Operations and results during fiscal year. Maintenance: Construction began on the south jetty rehabilitation contract in April 2002 and completed in January 2003 at a total cost of $3,980,350. The Isle of Wight channel was dredged in August 2003 with the removal of about 23,000 cubic yard of material. The

material was used in conjunction with a CAP project at Isle of Wight.

15. POCOMOKE RIVER, MD

Location. Pocomoke River is a tributary of Pocomoke Sound, a tidal estuary on the east side of Chesapeake Bay about 40 miles north of Cape Charles, VA.

Existing project. Provides for a channel 11 feet deep at mean low water and 150 feet wide from the 11-foot depth in Pocomoke Sound to Tulls Point, thence 100 feet wide to deep water in Pocomoke River above Williams Point, and for construction of a dike along the offshore side of channel between Tulls Point and the end of the existing dike; and a channel 9 feet deep at mean low water and 100 to 130 feet wide from Shad Landing to the bridge at Snow Hill. Length of project is about 8.7 miles from Pocomoke Sound to Williams Point, and about 4.5 miles from Shad Landing to Snow Hill, MD. Shad Landing is about 25.7 miles above the mouth of the river.

Mean range of tide is 2.4 feet in Pocomoke Sound and 2.5 feet in the river at Snow Hill. Prolonged high winds on Chesapeake Bay frequently cause greater fluctuations. Estimated cost (1969) for new work is $1,071,458 exclusive of amounts expended under previous projects. Extensions of channel above the bridge at Snow Hill, 100 feet wide, 9 feet deep and widened to 150 feet to form a turning basin at upper end was de-authorized and is excluded from the foregoing estimate.

Local cooperation. Compiled with for section of project from Pocomoke Sound to Pocomoke River and from Shad Landing to the highway bridge at Snow Hill, authorized by acts of June 3, 1986, and August 30, 1935, except local interests must furnish releases from damage to oyster beds and spoil disposal areas as required for future maintenance. Terms for the section of the project above the highway bridge at Snow Hill, authorized by act of March 2, 1945, required local interests to furnish all lands, easements, rights-of-way, and spoil disposal areas for initial work and future maintenance, hold the United States free from damages resulting from the improvement; and contribute one-half the initial cost of that portion of project, but not to exceed $4,250. This portion was de-authorized. Terms for the 11-foot depth channel from Pocomoke Sound to deep water in Pocomoke River above Williams Point, authorized by act of September 3, 1954, and de-authorized in December 1989 required local interests to provide all lands, easements, rights-of-way, and spoil disposal areas for construction and future maintenance of the project; and hold the United States free from damages due to construction and maintenance, including such damages as may occur to the public or leased oyster beds.

Terminal facilities. Waterfronts at Pocomoke City and Snow Hill are built up principally with earthfilled timber bulkheads, the majority of which are privately owned. A few of the warehouses and factories on the river at these communities have railroad sidings and mechanical freight-handling facilities. Any appreciable increase in commerce at Pocomoke City or Snow Hill would necessitate construction of new facilities and repair of existing structures. Adequate space is available for development of additional terminals.

Operations and results during fiscal year. Maintenance: Engineering and design activities were performed for future maintenance dredging of the project.

16. POTOMAC AND ANACOSTIA RIVERS, DC, COLLECTION AND REMOVAL OF DRIFT

Location. Project applies to the Potomac and Anacostia Rivers, Washington, DC, and their tributaries.

Existing project. Collection and removal of drift from the waters of the Potomac and Anacostia Rivers and their tributaries in the Washington area from the head of tidewater to Mount Vernon, VA. Total length of project, considering both sides of the waterway, is about 50 miles.

Local cooperation. None required.

Terminal facilities. See Section 22 of this text.

Operations and results during fiscal year. Maintenance: Operations by hired labor consisted of collection and disposal of 205,200 cubic feet of driftwood, ranging from small blocks up to timbers of large dimensions.

17. POTOMAC RIVER BELOW WASHINGTON, DC

Location. Potomac River is formed 21 miles below Cumberland, MD, and flows southeasterly about 285 miles and enters Chesapeake Bay, about 80 miles from Atlantic Ocean. Washington, DC is 108 miles upstream of mouth, and head of tidewater is at mile 117. (See Coast and Geodetic Survey Charts No., 12233, 12286, 12287, 12288, and 12289.)

Existing project. Provides for a channel 24 feet deep and 200 feet wide between the mouth of the river and Giesboro Point at Washington, DC--a distance of 108 miles. Plane of reference is mean low water. Tidal ranges are: mean, 1.3 feet at mouth, 2.9 feet at Washington; irregular, 2 feet at mouth, 4.5 feet at Washington; extreme, about 6 feet at mouth, 10.7 feet at Washington. Federal cost of new work for the completed project was $153,836.

Local cooperation. None required.

Terminal facilities. In general, the improvement is a main river channel, and terminal facilities are only served where the channel runs close to either bank of river.

Operations and results during fiscal year. Maintenance: Engineering and design activities were performed for future maintenance dredging of the project.

18. PREVENTION OF OBSTRUCTIONS AND INJURIOUS DEPOSITS, MD

Location. Project applies to tidal waters of the harbor of Baltimore and its adjacent and tributary waters and to all tidal waters of Chesapeake Bay and in Maryland.

Existing project. Patrol and inspection throughout the project location to detect violations of sections 13 and 15 of the River and Harbor Act of March 3, 1899 and to investigate obstructions to navigation pursuant to Federal regulations (33 CFR 209.109).

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Operations, by Supervisor of Harbor of Baltimore included inspections of approximately 81 Federal navigation channels within the project location to insure channels are not obstructed to general navigation by debris, sunken vessels/wrecks, and fishing appurtenances. There were 117 investigations of obstructions or sunken vessels/wrecks.

19. RHODES POINT TO TYLERTON, MD

Location. Rhodes Point and Tylerton are two settlements about 1.5 miles apart on Smith Island, between Chesapeake Bay and Tangier Sound, about 60 miles north of Virginia Capes, and about 110 miles south of Baltimore. (See U.S. Coast and Geodetic Survey Chart 1224.)

Existing project. Channel 6 feet deep, 50 feet wide from that depth in Tyler Creek to and including an anchorage basin of the same depth 150 feet wide and 400 feet long at Tylerton; channel 6 feet deep and 50 feet wide from that depth in Big Thorofare River to Tylerton; and Channel 6 feet deep and 50 feet wide from Rhodes Point to Tylerton. Mean range of tide is 1.7 feet. On January 22, 1982, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbor Act, as amended, authorized a channel 6 feet deep and 50 feet wide a distance of about one mile from the anchorage basin at Rhodes Point through Sheep Pen Gut to deep water in the Chesapeake Bay.

Local cooperation. Fully met except local interests must furnish placement sites for future maintenance dredging.

Terminal facilities. There are numerous pile-and-timber wharves along waterfronts at Rhodes Point and Tylerton. Facilities are privately owned, open to the public without charge when not in use by the owners, and are adequate for existing commerce. Sufficient space for construction of additional facilities is available, if required.

Operations and results during fiscal year. Maintenance: A contract in the amount of $3,120,793 was awarded on December 19, 2001 to dredge 258,000 cubic yards from Rhodes Point to Tylerton and Twitch Cove & Big Thorofare. The Rhodes Point to Tylerton portion of 122,000 cubic yards was completed in April 2002. A portion of the material was used to seal a breach at the Martin Wildlife Refuge. The Twitch Cove & Big Thorofare portion of 136,000 cubic yards was completed in February 2003.

20. TILGHMAN ISLAND HARBOR, MD

Location. This harbor (also called Dogwood Harbor) is about 60 miles southeast of Baltimore Harbor on the eastern side of Tilghman Island, which lies between Chesapeake Bay and Choptank River. (See Coast and Geodetic Survey Chart 78.)

Existing project. Provides for a channel 60 feet wide and 6 feet from that depth in Harris Creek to and including an anchorage basin of irregular shape 500 feet long by 200 feet wide, with a 6-foot depth. On October 20, 1980, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbor Act, as amended, authorized construction of a breakwater at the harbor entrance. The estimated first cost of this work is $249,000, of which $245,000 is Federal cost and $4,000 is required local cash contributions.

Local cooperation. Fully complied with for work authorized May 13, 1966, except that local interests must furnish all lands, and rights-of-way for future maintenance as needed and maintain a suitable public landing as needed with adequate approaches thereto. For work authorized by the Chief of Engineers October 20, 1980, local interests have fully complied (excluding furnishment of lands and right-of-ways for future maintenance). For details of requirements see section 23 of the 1982 Annual Report.

Terminal facilities. Consists of one pier operated by a local seafood packer for transfer of seafood to processing plant. Local interests will construct a public landing and approach road thereto in accordance with terms of local cooperation as part of the project development.

Operations and results during fiscal year. Maintenance: Engineering and design activities were performed for future maintenance dredging.

21. TALL TIMBERS, MD

Location. Herring Creek in St. Mary's County, MD, is a small tidal stream 1 ¾ miles in length which flows in a westerly direction and enters the north bank of the Potomac River 16 miles upstream of its mouth at Chesapeake Bay and 92 miles downstream from Washington, DC (See U.S. Coast and Geodetic Survey Chart No. 557.)

Existing project. This provides for an entrance channel 6 feet deep, 60 feet wide, and approximately 1,630 feet long extending from deep water in the Potomac River to deep water within the creek, a turning basin of irregular shape 6 feet deep adjacent to the proposed public wharf, and riprap-stone jetties on the upstream and downstream sides of the entrance channel 770 and 650 feet long, respectively. The plane of reference is mean low water. The tidal ranges are: Mean, 1.6 feet; irregular, 1.9 feet; and extreme, approximately 7 feet. The project was modified in 1986 under Section 111 of the River and Harbor Act of 1968. The modification consists of constructing 250 feet of beachfill, 2,187 linear feet of stone revetment and upgrading 350 linear feet of existing revetment along the Tall Timbers waterfront south of the project inlet to preclude shoreline erosion induced by the project jetties.

Local cooperation. The Local Cooperation Agreement (LCA) includes the following provisions.

1. Compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.
2. Provide without cost to the United States, when and as required all lands, easements, rights-of-way and soil-disposal areas necessary for the construction and subsequent maintenance of the project.
3. Hold and save the United States free from damages to other property resulting from the improvement.

Terminal facilities. There are a number of small wharves and landings within the creek, all privately owned. The facilities are considered adequate for present commerce.

Operations and results during fiscal year. Maintenance: A contract was awarded to repair the bulkhead behind the revetment. Work was completed in September 2003.

22. TWITCH COVE AND BIG THOROFARE, MD

Location. A tidal waterway about 4 miles long traversing Smith Island, MD, southeasterly from Chesapeake Bay on the west to Tangier Sound on the east. (See U.S. Coast and Geodetic Survey Chart 1224.)

Existing project. A channel 7 feet deep at mean low water and 60-feet wide from Twitch Cove on Tangier Sound through Big Thorofare, thence through canal at Ewell, MD, thence through Levering Creek and Big Thorofare to vicinity of Swan Point, thence of same depth and 100 feet wide through offshore bar to deep water in Chesapeake Bay, with twin stone jetties at entrance, north jetty is about 2,080 feet long, and south jetty about 1,800 feet long; and anchorage basin 7 feet deep, 100 feet wide, and 700 feet long connecting with west side of existing project channel at Ewell; extension of existing project channel in Levering Creek, 6 feet deep, 60 feet wide, and 1,000 feet long; and a channel 4 feet deep and 25 feet around point between Big Thorofare and Tylers River. Mean range of tide is 1.7 feet, and extreme tidal range is 3 feet. Federal cost of new work for completed project was $193,175.

Local cooperation. Fully complied with, except that local interests are to furnish placement sites for future maintenance as needed.

Terminal facilities. Numerous privately owned pile-and-timber wharves and bulkheads at Ewell are open to the public for business transactions with the owners. A county wharf is also at west end of town. Five crab houses are on Levering Creek, and one oyster house on project waterway west of Town of Ewell.

Operations and results during fiscal year. Maintenance: A contract in the amount of $2,849,187 was awarded on December 19, 2001 to dredge 220,000 cubic yards from Rhodes Point to Tylerton and Twitch Cove & Big Thorofare was completed in January 2003.

23. UPPER THOROFARE, MD

Location. Natural waterway lying between Deal Island and mainland of Somerset County, MD, on eastern shore of Chesapeake Bay. (See U.S. Coast and Geodetic Survey Chart 1224.)

Previous project. For details see page 277 of Annual Report for 1962.

Existing project. Entrance channel from Tangier Sound 9 feet deep and 100 feet wide, thence of irregular width to and along south shore of Thorofare, protected by two stone breakwaters at entrance, north breakwater is about 410 feet long and south breakwater about 310 feet long, with a turning basin at inner end 9 feet deep on south side of channel to within 50 feet of bulkhead along south shore, an anchorage area 6 feet deep and 150 feet wide extending across waterway parallel to highway bridge to within 50 feet of bulkhead on south shore, and an anchorage area 650 feet long, 300 feet wide, and 9 feet deep on north side of channel between breakwater and 6-foot anchorage. Mean range of tide is about 2 feet.

Local cooperation. Fully complied with.

Terminal facilities. A small packing-house wharf on shore of Tangier Sound south of project channel: two small packing houses along approach channel at which seafood is landed; and a public wharf at turning basin with a suitable road connecting it with the road system.

Operations and results during fiscal year. Maintenance: Engineering and design activities were performed for future maintenance dredging of the project.

24. WASHINGTON HARBOR, DC

Location. Within the District of Columbia at junction of the Anacostia River with the Potomac River which flows southeasterly 108 miles to the Chesapeake Bay. It is southerly 202 miles by water from Baltimore, MD, and northerly 195 miles from Norfolk, VA. (See U.S. Coast and Geodetic Survey Chart 12289.)

Existing projects. The Washington Harbor project provides for a channel in the Potomac River from Giesboro Point to Key Bridge, a second channel from Giesboro Point to the end of Washington Channel, and a third channel from the mouth of the Anacostia River to the foot of 15th Street, SE, with turning basins opposite the Naval Weapons Plant (800 feet wide 2,400 feet long) and at the head of the Anacostia Channel (400 feet square). Channel dimensions are 24 feet deep and 400 feet wide except upstream from Anacostia Channel Bridge where the width is reduced to 200 feet and from Giesboro Point to a point 3,000 feet downstream of Arlington Memorial Bridge and above Easby Point where channel dimensions are 20 feet deep and 200 feet wide. Channel lengths including turning basins are: Virginia Channel, 5,000 feet; Washington Channel, 10,000 feet; and Anacostia River, 15,000 feet; and operations and maintenance of the inlet gates and lock and the outlet gates of the Tidal Basin constructed under a previous project to flush Washington Channel. Plane of reference is low-water datum which is .35 foot below mean low tide as observed from 1932 to 1942. Tidal ranges are: mean, 2.9 feet; irregular, 4.5 feet; and extreme, 10.7 feet. Federal cost of new work for the completed project was $162,006.

Local cooperation. None required.

Terminal facilities. There are four wharves generally of bulkhead type on Virginia Channel that are privately owned and not open to the public except by special arrangement. On Washington Channel there are four piers under jurisdiction of District of Columbia, two of which are open to the public and one open to the public by special arrangement. In Anacostia River there are four privately owned piers and eight government piers and slips. None of the piers is open to the public except by special arrangement. Terminal facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: The tidal basin gates were inspected and maintained by hired labor.

25. WICOMICO RIVER, MD

Location. Wicomico River has its source in northern part of Wicomico County, MD, and flows generally southwardly emptying into Monie Bay, a tributary of Tangier Sound on the east side of Chesapeake Bay about 85 miles southeast of Baltimore. Webster Cove is the site of an improved small-boat harbor on southeast bank of Wicomico River about 3 miles above the mouth. (See U.S. Coast and Geodetic Survey Charts 567 and 1224.)

Existing project. Channel 14 feet deep and 150 feet wide from Chesapeake Bay to Salisbury, about 37 miles long, including about 12 miles from the mouth of river to Chesapeake Bay; 14 feet deep in channels and turning basins in north and south prongs with channel widths of 100 feet, and a channel 6 feet deep and 60 feet wide extending from 6-foot contour in Wicomico River to and including a basin in Webster Cove of the same depth, 100 feet wide and 400 feet long; and extension of basin 200 feet long and 100 feet wide on each side. Plane of reference is mean low water. Mean range of tide is about 3 feet, and extreme tidal range is 4.4 feet. Cost of new work for the completed project was $421,609, exclusive of amounts expended on the previous project.

Local cooperation. Fully met, except that local interests are to furnish disposal areas for future maintenance as needed and hold the United States free from such damages as may occur to public or leased oyster beds.

Terminal facilities. Present waterfront at Salisbury consists of pile-and-timber bulkheads with earthfills. Some wharves have warehouses and factories with mechanical freight-handling facilities and rail sidings. All terminals are privately owned. A shipyard, with two marine railways with capacities of 1,200 and 500 tons, respectively, is on right bank of river below prongs. Areas for development of new terminals on north prong are limited. Areas for considerable expansion of terminal facilities are available on main river. There is a pile-and -timber wharf about 4 miles above the mouth of river at Mount Vernon. A wharf of similar construction is at White Haven. There is a county wharf at head of basin in Webster Cove, a pile-and-timber pier at oyster house on southwest side of basin, a T-shaped pile-and-timber pier at cafe on southwest side of basin and several small timber piers on walkways that local interests constructed around the basin. Fueling facilities are available for construction of additional facilities when required.

Operations and results during fiscal year. Maintenance: Dredging contract completed in September 2003 to remove 200,000 cubic yards at a cost of $1,755,000.

26. RECONNAISSANCE AND CONDITION SURVEYS

(See Table 4-H at end of chapter.)

27. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Fiscal year costs were $9,626 for Section 107 Coordination; $36,007 for Rockhold Creek, MD; $52,747 for Ocean City Harbor and Inlet, MD; $104,756 for Rhodes Point, MD; $12,693 for Nanticoke Harbor, MD; $3,636 for North West Harbor, MD and $45,008 for Tall Timbers, MD.

Non-Federal contributed costs for the fiscal year were; $21,193 for Tedious Creek Dorchester, MD and $15,363 for Rockhold Creek.

SHORE PROTECTION

28. ASSATEAGUE ISLAND, MD

Location. The Town of Ocean City and adjacent areas of Worcester County comprise an area of 625 square miles including Assateague Island, Ocean City Inlet, and Chincoteague, Sinepuxent, Assawoman, and Isle of Wight Bays on the Eastern Shore of Maryland. Adjacent to Ocean City is the Assateague Island National Seashore and State Park.

Existing project. The project involves the short-term and long-term restoration of Assateague Island. The short-term restoration plan includes dredging of approximately 1.4 million cubic yards from Great Gull Bank and placing it on Assateague Island in the area between 1.6 miles and 7.2 miles south of the south jetty. The beach will be widened varying distances and a low storm berm will be constructed to elevation 3.3 meters. The long-term portion of the project consists of the mobile bypassing of 190,000 cubic yards of sand around the inlet. Both the short-term and long-term projects include monitoring components. The project area is composed of 4.7 miles of National Park Service and 0.9 miles of State of Maryland land.

Local cooperation. The sponsor for the project is the National Park Service who administers the Assateague Island National Seashore. The National Park Service will provide lands, easements and rights-of-way for the initial construction work.

Operations and results during fiscal year. New Work: Memorandum of Agreement executed between Corps and the National Park Service. Short-term costs will be 100% Corps funded and Long-term costs will be 50% Corps and 50% National Park Service. The construction contract for the short-term portion was awarded September 2001 to Weeks Marine, Inc. in the amount of $9,675,000. Construction started in July 2002 and was completed in January 2003. Monitoring activities for both the short-term and long-term portions of the project continued throughout the fiscal year.

29. ATLANTIC COAST OF MARYLAND

Location. The project is located on Fenwick Island at Ocean City, MD, which is about 35 miles south of the entrance to Delaware Bay. (See U.S. Coast and Geodetic Survey Charts 1220.)

Existing project. The authorized project provides for a steel sheetpile bulkhead along the oceanward edge of the boardwalk from about 4th Street to 27th Street and a sand dune from 27th Street to about 0.3 mile across the Delaware line. The bulkhead is fronted by a 165-foot wide beach, and the dune is fronted by a 100-foot wide beach. The project also provides for periodic nourishment over the 50-year project life. The current estimated total project cost is $500,000,000 (including a future inflation allowance through the project completion) which includes $44,881,000 for initial construction and $455,119,000 for periodic nourishment.

Local cooperation. The State of Maryland is the project sponsor and the Local Cooperation Agreement was executed March 30, 1990. The sponsor is required to: provide lands, easements, and rights-of-way; modify or relocate buildings, utilities, roads, bridges and other facilities; pay 35% of the first costs and 47% of periodic nourishment costs; and bear all costs of operation maintenance, replacement and major rehabilitation of storm damage reduction facilities. To date the sponsor has fully met these requirements.

Operations and results during fiscal year. New Work: Beach monitoring continued throughout the fiscal year. A General Re-evaluation study was initiated to address future sand borrow sources and areas of the project experiencing persistent erosion.

30. SHORE PROTECTION WORK UNDER SPECIAL AUTHORIZATION

Shore Protection pursuant to Sec. 103 of Public Law 727, as amended (pre-authorization). None.

FLOOD CONTROL

31. CUMBERLAND, MD, AND RIDGELEY, WV

Location. On the North Branch of the Potomac River, 21 miles upstream from its junction with the

South Branch of the Potomac River and 197 miles upstream from Washington, DC. The Chesapeake and Ohio (C&O) Canal stretches 184.5 miles along the Potomac River from the District of Columbia to its terminus in Cumberland, MD, Allegany County. (See Geological Survey Quadrangles, Frostburg and Flintstone, MD, WV, and PA.)

Existing project. Channel improvements on the North Branch of Potomac River from the Western Maryland Railway bridge in South Cumberland upstream to the mouth of Wills Creek, with levees and fill along the left bank and levees along the right bank from downstream corporate limits of Ridgeley, WV, to a point about 150 feet above Johnson Street Bridge; channel improvements along Wills Creek from its mouth upstream to a point in the Narrows about 500 feet upstream from the highway bridge on U.S. Highway 40; levee and flood wall in West Cumberland, MD, on the left bank of the North Branch of the Potomac River from the mouth of Wills Creek upstream to Kelly Boulevard; levee and flood wall in Ridgeley, WV, on the right bank of the North Branch of the Potomac River from Carpenter Avenue upstream to Patapsco Street near the upstream corporate limits of Ridgeley, WV; interior drainage facilities in Cumberland and West Cumberland, MD, and Ridgeley, WV; removal of the Chesapeake and Ohio Canal dam and construction of a new industrial dam on the North Branch of the Potomac River immediately above mouth of Wills Creek; and alteration and reconstruction of highway and railroad bridges.

Section 580 of WRDA 99 authorizes the Secretary of the Army to undertake "restoration of the historic Chesapeake and Ohio Canal substantially in accordance with the Chesapeake and Ohio Canal National Historic Park"...The plan envisioned is to re-build and rewater up to 1.1 miles of the historic C&O Canal terminus at Cumberland. The turning basin was filled in by the Corps in the 1950's as part of the Cumberland, Md-Ridgeley, WV Flood Protection Project. The project is currently authorized at $15M.

Local cooperation. Fully met for the project. The City of Cumberland is the non-Federal sponsor for the new work. The local sponsor is required to provide 35% of the cost of the project, including lands, easements, rights-of-way, and relocations. In-kind services are permitted to count towards the sponsor's share to include those incurred prior to a signed project cooperation agreement. The National Park Service (NPS) is responsible for operation and maintenance.

Operations and results during fiscal year. New Work: Rewatering design is 95 percent complete. Maintenance: Normal operation and maintenance of the flood protection project continued.

32. JENNINGS RANDOLPH LAKE, MD AND WV

Location. Project is located on the North Branch Potomac River on the state line between Garrett County, MD, and Mineral County, WV. The damsite is located approximately 7.9 miles upstream from the confluence with Savage River at Bloomington, MD. It is also about 5 air miles southwest of the tritowns of Luke and Westernport, MD and Piedmont, WV. (See Geologial Survey quadrangle sheets, Kitzmiller and Westernport, MD.)

Existing project. The improvement consists of a rolled earth and rock fill dam with an impervious core and an 800-foot long dike on the left bank. Top of dam is 296 feet above streamed with a total length of 2,130 feet. When filled to spillway crest, the reservoir will extend about 6.6 miles upstream and inundate 965 acres. Flood control storage of 36,200 acre-feet is provided. Storage available for low flow augmentation for water supply and water quality improvement is 92,000 acre-feet. The reservoir controls a drainage area of 263 square miles. Recreation facilities are provided for picnicking, camping and boating. Final project cost is $176,325,300.

Local cooperation. See page 4-15 of the 1977 Annual Report for requirements. A water supply contract between the Federal Government and the Washington Suburban Sanitary Commission in concert with the Fairfax County Water Authority, VA and the District of Columbia was executed for repayment of all water supply costs. The first of 50 annual payments began in July 1981. Federally approved water quality standards put into effect by Maryland, Virginia, West Virginia, and the District of Columbia are considered satisfactory assurances of intent to control pollution. Satisfactory assurances have been received from Maryland, West Virginia, and Virginia that they will protect downstream channels from encroachment that would adversely affect operation of the project. Local interests operate a white water access area below the dam. The State of Maryland has constructed a recreation area on the Maryland side of the lake.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continues. Construction of beach and support facilities on the WV side of the lake completed August 2003. Construction was started on upgrades to project security features.

33. LACKAWANNA RIVER BASIN, PA

Flood Control Act of 1962 authorized construction of Aylesworth Creek Lake, Fall Brook Lake, and local protection works on Lackawanna River at Scranton, PA, substantially as recommended by the Chief of Engineers (S. Doc. 141, 87th Cong., 2d Sess.). The

Basin includes an area of 346 square miles in northeastern Pennsylvania.

33A. AYLESWORTH CREEK LAKE, PA

Location. Project is located in Lackawanna County on Aylesworth Creek about one mile above its confluence with the Lackawanna River, near the community of East Jermyn, PA.

Existing project. Provides for an earthfill dam with a maximum height of 90 feet above streambed and a top length of 1,200 feet. The spillway located adjacent to the left abutment is an open cut channel 80 feet wide with a concrete sill. The outlet works consist of a 3-foot diameter uncontrolled conduit. Project controls a drainage area of 6.2 square miles and provides flood control storage of 1,700 acre-feet equivalent to 5.1 inches of runoff from the drainage areas. The lake will extend about 4,600 feet and inundate 87acres when filled to spillway crest. Recreation facilities constructed by local interests include a bathing beach, bathhouse, and picnic area. Federal cost of new work was $2,268,200 of which $2,153,559 was for construction and $114,641 for lands and damages. In addition $52,200 Federal and $52,200 non-Federal funds were expended for construction of bathhouse facilities under the recreation facilities for completed projects program.

Local cooperation. None required. The Aylesworth Creek Reservoir Park Authority, representing the Boroughs of Archbald and Jermyn, operate and maintain limited day use facilities including a small beach.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

34. LOYALSOCK CREEK, WARRENSVILLE, ROAD, PA

Location. The project encompasses a portion of Warrensville Road in Loyalsock Township, situated adjacent to Loyalsock Creek in Lycoming County, Pennsylvania. The study area comprises the east bank of Loyalsock Creek, approximately 1,500 feet upstream of the Interstate 180 bridge over the creek to approximately 2500 feet upstream of the same bridge.

Existing project. The stream bank stabilization project consists of constructing approximately 1,500 linear feet of stone berm with wing deflectors tied back into the bank to minimize further erosion.

Local Cooperation. Loyalsock Township is the non-Federal sponsor and will be providing 35% of the implementation costs.

Operations and results during fiscal year. A construction contract was awarded in late summer 2003. The contractor has been acquiring the necessary construction permits from the state. Construction will be completed in September 2004. The construction cost is estimated to be $447,000.

35. LYCOMING COUNTY FLOOD WARNING SYSTEM, PA

Location. Lycoming County is located in north central Pennsylvania. The study area covers approximately 1,234 square miles and contains 2,200 miles of streams. Six major tributary creeks and the Susquehanna River flow through the study area.

Existing Project. The project consists of the construction of 20 in-stream water level measuring and reporting gauges; a signal transmission system that includes 29 transmitters, two tower-mounted digital antenna transmitters, relays, and receivers; and a digital reception and interpretation system at the County's Emergency Operations Center.

Local cooperation. Lycoming County is the non-Federal sponsor and have completed their cost-sharing requirements, pending project financial closeout, which is anticipated in fall 2004. Lycoming County has provided 50 percent of the feasibility study that was completed in December 2001, and sufficient cash and credits to satisfy the requirements of Section 205 for plans and specifications and construction.

Operations and results during fiscal year. Project construction was initiated in the spring of 2003 and was completed in November 2003. A joint Dedication/ Activation Ceremony was held in January 2004 at the County's Emergency Operations Center. The final project implementation cost was approximately $505,700 including study, design, construction and real estate acquisition.

36. MOOREFIELD, WV

Location. Moorefield, WV, is located at the junction of the South Fork (Moorefield River) of the South Branch of the Potomac River, 57 miles upstream from the mouth of the South Branch of the Potomac River, and 233 miles upstream from Washington, DC. (See Geological Survey Quadrangle sheets, Moorefield, WV).

Existing project. Provides for a flood warning system, 21,600 feet of earth levee, 1,360 linear feet of floodwall, highway bridge replacement of one span of a railroad bridge, environmental mitigation, and appurtenant project features such as ramps, closures, riprap, relocations, and ponding areas for local drainage. The current estimated total project cost is $26,925,000 which includes a future inflation allowance through project completion.

Project cooperation. The Town of Moorefield is the sponsor for the project. The Project Cooperation Agreement was signed May 12, 1994. The local sponsor is required to: provide lands, easements, rights-of-way; modify or relocate buildings, utilities, roads, bridges, and other facilities; pay 5% of the cost allocated to flood control; and bear all costs of operations, maintenance and replacement of flood control; and facilities after construction. (The cash contribution is deemed satisfied in consideration of the transfer of Grandview State Park to the Federal Government.) The Water Resources Development Act of 1999 waived the non-Federal requirement to pay its unpaid balance on the project.

Operations and results during fiscal year. New Work: The District has begun monitoring of a mechanically stabilized earthen wall that appears to be shifting.

37. LACKAWANNA RIVER, OLYPHANT, PA

Location. The project is located along the Lackawanna River in Lackawanna County, Pennsylvania. (See Geological Survey quadrangle sheets, Olyphant, PA)

Existing project. The authorized project will provide 100-year level of protection and will include a combination of approximately 5,200 feet of levee and floodwall, a closure structure, interior drainage structures, and an upgraded flood forecast and warning system. Since authorized by WRDA 1992, the project has undergone a number of changes in scope and cost which have increased the project cost above the limitation prescribed in Section 902 of WRDA 1986. As a result of these changes, the project cost has increased from $11,354,000 (as authorized in 1992) to an estimated $20,500,000. The levee and floodwall portion of the project was awarded in January 2002 and was completed in the fall 2003. The Energy and Water Development Appropriations Act of 2004, increased the project authorization to $23,000,000. Prior to the reauthorization, the Corps was unable to award the second phase of construction (Garfield Avenue storm water drainage system) because doing so would have exceeded the maximum funding authorization for the project ($17,600,000). The drainage system is needed to prevent internal flooding caused by construction of the levee and floodwall.

Local cooperation. The Borough of Olyphant is the sponsor for the project. The local sponsor is required to: provide lands, easements, and rights-of-way; modify or relocated buildings, utilities, roads, bridges, and other facilities; pay 5% of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities after construction.

Operations and results during fiscal year. New Work: The levee and floodwall have been completed. Additional funds are needed for the second phase of construction along Garfield Avenue.

38. RAYSTOWN LAKE, RAYSTOWN BRANCH, JUNIATA RIVER, PA

Location. Dam site is on Raystown Branch, about 5.5 miles upstream from its confluence with Juniata River. Project is about 10 miles south of Huntingdon, PA. (See Geological Survey Quadrangle sheets, Huntingdon, Mt. Union, Broad Top and Everett, PA.)

Existing project. The rock and earthfill dam rises 225 feet above streambed with a gated concrete spillway and auxiliary spillway in the right abutment. The reservoir has a storage capacity of 762,000 acre-feet, of which 248,000 acre-feet are for flood control, 476,000 acre-feet for recreation and water quality control, and the balance for sediment reserve. At full flood control pool elevation, the reservoir would inundate 10,800 acres and extend 34 miles upstream. Recreation facilities are provided for boating, fishing, camping, swimming, hunting, hiking, and picnicking. Federal cost for new work was $77,408,700 of which $46,120,931 was for construction and $31,287,769 was for lands and damages including relocations. Construction of a private hydroelectric plant at Raystown Lake was completed May 1988.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued. Construction of facilities and structures at the Juniata College field station has been completed. Dedication of new facilities was held on October 18, 2003.

39. LACKAWANNA RIVER, SCRANTON, PA

Location. The project is located along the Lackawanna River in the northeastern portion of the Commonwealth of Pennsylvania in Lackawanna County. (See Geological Survey Quadrangle sheets, Scranton, PA.)

Existing project. The Albright Ave. portion of the project provides for 6,800 feet of earth levee, 700 feet of concrete floodwall, 3 closure structures, interior drainage facilities, 2,700 feet of gabion slope protection, an improved flood warning system, removal of a railroad bridge, access ramps, and associated cultural mitigation. The Energy and Water Development Appropriations Act of 1999 provided funding to construct 100-year level flood protection for two additional communities: the Green Ridge Section and the Plot neighborhood. The current estimated total

project cost is $56,025,000 which includes $21,500,000 for the Albright Ave. portion, $14,672,000 for the Plot portion and $19,853,000 for the Green Ridge portion of the project.

Local cooperation. The City of Scranton is the sponsor for the project. The local sponsor is required to: provide lands, easements and rights-of-way; modify or relocate buildings, utilities, roads, bridges, and other facilities; pay a minimum of 5% of the cost allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities after construction.

Operations and results during fiscal year. New Work: The Corps completed construction on the Albright Ave. portion of the project in September 2003. Design continued on the Plot and Green Ridge portions of the project. The overall project is scheduled to be completed in September 2006.

40. OCEAN PINES, WORCESTER COUNTY, MD

Location. Ocean Pines is a large residential development located in eastern Worcester County along the mainland shoreline of Isle of Wight Bay. The project site is located on a peninsula formed by Herring and Turville Creeks.

Existing project. For detailed project description, see Annual Report for FY01.

Local cooperation. The PCA was executed in January of 2001. The local sponsor is Worcester County. All local requirements have been fulfilled.

Operations and results during fiscal year. Project construction was completed in October 2001, more than two months ahead of schedule. Construction was completed for a total of $851,000. Activities during the first three quarters of FY02 involved monitoring for stability, appropriate tidal inundation, and vegetative success.

A Dedication/Memorial Ceremony was held in May. In addition to the District Engineer, more than 100 citizens and numerous local, state and federal elected officials and agency representatives attended. All Congressional interests were represented. The completed marsh was dedicated to the memory of A. J. Corts, an employee of the Baltimore District who served as Construction Manager for the project. Mr. Corts died suddenly on the day the project was completed.

41. WILLIAMSPORT, PA - HAGERMAN'S FLUME

Location. Williamsport, the county seat of Lycoming County, PA, is located on the left bank of the West Branch of the Susquehanna River, 40 miles above its mouth. (See U.S. Geological Survey Quadrangle sheets, "Trout Run and Williamsport, PA.")

Existing project. The plan of improvement provides for the construction of a system of levees and concrete floodwalls and appurtenant structures, consisting of the following features: about 26,200 feet of earth levee and 3,060 feet of concrete floodwall along the left bank of the West Branch of the Susquehanna River, extending from high ground near Sheridan Street, generally parallel to and on the right bank of Millers Run to the Susquehanna River, thence extending upstream along the left bank of the river and Lycoming Creek; about 29,900 feet of earth levee and 860 feet of concrete floodwall along the left bank of the West Branch of the Susquehanna River, extending from high ground and Bottle Run generally parallel to and on the right bank of Lycoming Creek to the Susquehanna River, thence extending upstream along the left bank of the river to Carothers Lane, thence to high ground along the Pennsylvania Railroad; about 11,400 feet of earth levee and 880 feet of concrete floodwall along the right bank of the West Branch of the Susquehanna River in South Williamsport, extending from high ground at Central Avenue and Charles Street, along Charles Street to the river, thence upstream along the river to high ground at Maynard Street; a reinforced concrete pressure culvert about 1,390 feet along and a flume 470 feet along to provide for control of Hagerman's Run; 10 pumping stations for the disposal of interior drainage; and appurtenant closure and drainage structures. The improvement provides protection for the City of Williamsport and the Borough of South Williamsport and part of Old Lycoming Township against a flood discharge equal to the maximum flood of record, which occurred in March 1936. The Federal costs of new work for the completed project are $12,964,893, which includes $1,887 emergency relief funds. The estimated local cost of lands and damages and utility relocations, revised in 1955, is $2,158,500. The Energy and Water Development Appropriations Act of 1998 directed the Corps to use $225,000 to construct necessary repairs to the flume and conduit for flood control at the Hagerman's Run, Williamsport, Pennsylvania flood control project.

Local cooperation. Fully complied with on the completed work.

Operations and results during fiscal year. Construction continued on the repairs necessary to the flume and conduit for flood control at Hagerman's Run.

42. WEST VIRGINIA AND PENNSYLVANIA FLOOD CONTROL

Location. The projects within the Baltimore District are located in the City of Altoona, Logan Township and

Allegheny Township; Carbon Township; Coalmont Borough; the Borough of Everett; and Bedford County.

Existing project. Section 581 of the Water Resources Development Act of 1996, as amended, provides for design and construction of structural and non-structual flood control, streambank protection, stormwater management and channel clearing and modificaton measures in the Lower Allegheny and Lower Monongahela (Pittsburgh District) and West Branch Susquehanna River and Juniata River basins, Pennsylvania at a level of production that is sufficient to prevent any future losses to communities in the basins from flooding such as occurred in January 1996, but no less than a 100-year level of flood protection with respect to measures that incorporate levees or floodwalls. The current estimated total project cost is $16,532,000 which includes a future inflation allowance through project completion.

Local cooperation. Local sponsors identified to date include the Borough of Everett, Logan Township/Altoona, Coalmont Borough and Carbon Township. The sponsors are required to: provide lands, easements, and rights-of-way; modify or relocate utilities, roads, bridges, and other facilities; provide cash contributions such that their total share, including LERRDS, is a minimum of 25 percent; and bear all costs of operation and maintenance.

Operations and results during fiscal year. Changes in the cost sharing of these projects in January 2003 has slowed progress. Non-Federal Sponsors for the Coalbank Run, Shoups Run and Bloody Run projects are still interested in moving forward with their projects but are experiencing difficulties coming up with their matching funds.

43. SOUTHERN NEW YORK FLOOD CONTROL PROJECTS

Authorized plan provides for construction of reservoirs and related flood control works for protections are located in the upper watershed of the Susquehanna River to and including the Chemung River.

43A. ADDISON, NY

Location. At confluence of Tuscarora Creek and Canisteo River in the City of Addison, NY. (See Geological Survey map for Addison, NY.)

Existing project. Provides for construction of about 3,100 feet of earth levee and 700 feet of concrete flood wall on the right bank of the Canisteo River, extending from high ground on Steuben Street near the Baltimore & Ohio Railroad to the mouth of Tuscarora Creek; removal of existing dam, mill, and raceway from the channel; construction of about 2,200 feet of earth levee on the left bank of Tuscarora Creek, extending from Tuscarora Street to Canisteo River; construction of 4,600 feet of earth levee on the right bank of Tuscarora Creek, extending from high ground at the southwest edge of the village to high ground at the southeast edge of the village; and appurtenant drainage structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43B. ALMOND LAKE, NY

Location. Dam is located two miles upstream from Hornell, NY, on Canacadea Creek, a tributary of the Canisteo River. (See Geological Survey map for Hornell, NY.)

Existing project. The dam is an earthfill structure, 1,260 feet long rising 90 feet above the streambed, with a concrete spillway and a gated outlet conduit in the left abutment. The outlet works consist of three 5-foot by 10-foot service gates and three emergency gates of the same size. The reservoir has a storage capacity of 14,640 acre-feet at spillway crest. The project controls a drainage area of 56 square miles, 36 percent of the watershed of the Canisteo River upstream from Hornell, NY. Recreation facilities include a boat-launching ramp and dock, bathing beach, picnic area, and tent and trailer camping area.

Local cooperation. None required. Local interests have developed recreational facilities at the lake in conjunction with the Federal Government. These facilities are operated and maintained by the Steuben County Board of Supervisors.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43C. ARKPORT DAM, NY

Location. Dam is located five miles upstream from Hornell, NY, on the Canisteo River, a tributary of the Chemung River which flows into the Susquehanna River. (See Geological Survey map for Arkport, NY.)

Existing project. The dam is an earthfill structure, 1,200 feet long, exclusive of spillway, rises 113 feet above the streambed, with a concrete spillway and an ungated outlet in the right abutment. The outlet structure consists of an 8-foot diameter reinforced concrete lined conduit, 660 feet long. A cast iron nozzle placed in the lower end of the conduit, reduced the outlet size to 4 feet 4 inches. The reservoir has a storage capacity of 7,950 acre-feet at spillway crest. The project controls a drainage area of 31 square miles, 20 percent of the watershed of the Canisteo River upstream from Hornell.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43D. AVOCA, NY

Location. On the Cohocton River at the Village of Avoca, NY, about 30 miles upstream from the confluence of the Cohocton and Chemung Rivers. (See Geological Survey map for Avoca, NY.)

Existing project. Provides for improvement and realignment of about 8,300 feet of Cohocton River channel, extending from above the Erie Railroad to below the junction of Main Street and U.S. Highway 15; construction of about 8,500 feet of earth levee on left bank of the Cohocton River, extending from high ground above Alexander Avenue to about 1,300 feet below the junction of Main Street and U.S. Highway 15; and 4,500 feet of earth levee on the right bank of Salmon Creek, extending from high ground above Alexander Avenue to the Erie Railroad; a new highway bridge for U.S. Highway 15 over Cohocton River, raising of the Erie Railroad bridge 4 feet; and appurtenant drainage structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43E. BINGHAMTON, NY

Location. At the confluence of the Chenango and Susquehanna Rivers in the City of Binghamton, NY. (See Geological Survey map for Binghamton, NY.)

Existing project. Provides for construction of earth levees, concrete flood walls, and appurtenant drainage structures, consisting of about 850 feet of channel excavation and about 1,375 feet of earth levee along Phelps Creek, Town of Port Dickinson; new concrete wall on the right bank of the Chenango River, extending downstream from high ground near the city limits to an existing flood wall below DeForest Street, a distance of about 520 feet; about 150 feet of concrete wall just below Cutler Dam; about 180 feet of concrete wall at the pumphouse near McDonald Avenue; raising existing earth levees on the right bank of Chenango River, extending from Cutler Dam downstream for about 1,220 feet; about 2,915 feet of earth levee on the left bank of Chenango River north of the city limits in the Village of Port Dickinson, extending from Church Street to high ground just north of the city line; about 3,900 feet of earth levee on the left bank of Chenango River, extending from DeForest Street to Cutler Dam; new concrete flood walls and riverbank revetment for about 5,570 feet extending on the left bank of Chenango River from Cutler Dam to the junction with the Susquehanna River; about 540 feet of new concrete flood wall and raising about 1,085 feet of concrete flood wall on the right bank of the Susquehanna River, extending from the Delaware, Lackawanna & Western Railroad downstream to Tompkins Street Bridge; about 1,940 feet of earth levee; about 1,940 feet of concrete flood wall and capping about 125 feet of concrete flood wall, on the right bank of the Susquehanna River from Stuyvesent Street to mouth of Chenango River; about 8,380 feet of earth levee, about 2,180 feet of new concrete flood wall on the left bank of the Susquehanna River extending from Pierce Creek to high ground at State Highway 17, a debris dam and flume between Corbett and Hotchkiss Streets and a concrete pressure conduit, 1,060 feet long to carry flow of Park Creek from Vestal Avenue to the Susquehanna River; about 665 feet of levee extending from the Erie Railroad to high ground along the right bank of Chamberlain Creek near the mouth; closure structures at Erie Railroad and at Court Street; a weir, a drop structure, and about 1,800 feet of earth levee, about 2,235 feet of channel excavation, about 645 feet of channel paving and raising, about 470 feet of existing concrete flood wall, and about 200 feet of new concrete flood wall for improvement of Pierce Creek from its mouth to about 1,000 feet about Conklin Avenue; and appurtenant drainage structures. Improvement, supplemented by authorized flood control dams above the area, will provide protection for the City of Binghamton against a flood discharge about 20 percent greater than the maximum flood of record, which occurred in July 1935 on the Chenango River and in March 1936 on the Susquehanna River.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43F. CANISTEO, NY

Location. On Purdy and Bonnets Creeks in the Town of Canisteo, NY, situated along the south side of the Canisteo River, at the confluence of Bonnets Creek and in the Canisteo River. (See Geological Survey map for Canisteo, NY.)

Existing project. Provides for construction of about 8,000 feet of earth levees on the right bank of the Canisteo River, extending from high ground 1,570 feet west of State Highway Route 21 above the Town to a point at the intersection of Ordway Lane and East Main Street; about 7,400 feet of earth levee on the left bank of Purdy and Bennetts Creeks, extending from the Main Street Bridge to high ground above Greenwood Street 1,000 feet of earth levee on the right bank of Bennetts Creek extending upstream from the Main Street Bridge; a concrete check dam with wing levees from Greenwood Street; a new highway bridge at Greenwood

Street; channel excavation in Bennetts and Purdy Creeks; and appurtenant drainage structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43G. CORNING, NY

Location. On the Chemung River in the City of Corning, NY, about 44 miles upstream from the confluence of Chemung River and North Branch of Susquehanna River. (See Geological Survey map for Corning, NY.)

Existing project. Plan of improvement provides for construction of a pumping station, earth levees, and concrete flood walls, consisting of about 4,300 feet of earth levee, enlargement of about 8,610 feet of existing earth levee and about 3,100 feet of concrete flood wall on the right bank of the Chemung River, extending from the Erie Railroad Bridge to high ground at Park Avenue below the City; about 200 feet of concrete flood walls, about 2,500 feet of earth levees and enlargement of about 11,500 feet of existing earth levee on the left bank of the Chemung and Cohocton Rivers, extending from the Erie Railroad Bridge over Cohocton River to the mouth of Post Creek; about 2,500 feet of earth levee and enlargement of about 4,700 feet of existing earth levee on the right bank of Post Creek; about 2,500 feet of earth levee and enlargement of about 4,700 feet of existing earth levee on the right bank of Post Creek from its mouth to Watkins Street; realignment of about 3,000 feet of channel, about 8,800 feet of earth levee, about 3,000 feet of channel excavation, a pressure conduit about 400 feet long, a drop structure and a weir for improvement of Cutler Creek, extending from its mouth to high ground at Deckertown Road and Hornby Road; and appurtenant drainage structures. Flood protection on Monkey Run was authorized by the Flood Control Act of 1950. Plan of improvement provides for construction of 2,010 feet of open flume, 2320 feet of pressure conduit storm sewers, and appurtenant facilities between the existing improved channel above Sixth Street and the Chemung River at a point immediately east of Pine Street East. Modified improvement will provide protection for the City of Corning against a flood discharge in Chemung River approximately equal to the maximum flood of record, which occurred in May 1945, and on tributary streams against floods of greater magnitude than known to date.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43H. EAST SIDNEY LAKE, NY

Location. Dam is located near East Sidney, NY, on the Ouleout Creek, about five miles above the confluence of the creek with the Susquehanna River. (See Geological Survey map for Franklin, NY.)

Existing project. The dam is an earthfill and concrete structure, 2,010 feet long, including spillway, rises 130 feet above the streambed and consists of a concrete gravity-type section with a compacted earth-dike section at the right abutment. The outlet works consist of five rectangular conduits each 3.5 feet b 5.85 feet and 105 feet long. The reservoir has a storage capacity of 33,500 acre-feet at spillway crest. The project controls a drainage area of 102 square miles which is 93 percent of the Ouleout Creek drainage area, and 5 percent of the watershed of the Susquehanna River upstream from Binghamton, NY, exclusive of the separately controlled Chenango River. Recreation facilities include a bathing beach, picnic and camping areas, and boat-launching and docking facilities.

Local cooperation. None required. The Town of Sidney, NY, cooperated in the development of recreation facilities and operations and maintains all the facilities with the exception of the recreational pool, which is the responsibility of the Federal Government.

Operations and results during fiscal year. Maintenance: Normal operations and maintenance of the project continued.

43I. ELMIRA, NY

Location. On the Chemung River in the City of Elmira, NY, about 27 miles stream from the confluence of the Chemung River and North Branch of Susquehanna River (See Geological Survey map for Elmira, NY).

Existing project. Provides for about 17,700 feet of earth levees, and about 4,100 feet of concrete flood wall on the right bank of the Chemung River, extending from South Hoffman Street to a point below the city near the upper end of Big Island; about 12,100 feet of earth levee and about 6,300 feet of concrete wall on the left bank of the Chemung River extending from Durland Avenue to the Delaware, Lackawanna & Western Railroad at the mouth of Newton Creek; about 10,000 feet of earth levee on right bank of Newton Creek, extending from about the intersection of Delaware, Lackawanna & Western Railroad and East Church Street to high ground near intersection of Sullivan and Warren Streets; about 4,300 feet of earth levee on the right bank of Divan Creek; about 2,000 feet of concrete conduit enclosing Hoffman Brook from West Second Street to the Chemung River; clearing islands and riverbanks of trees and brush for about 3.5 miles in the Chemung River; about 14,300 feet of earth levee on the left bank of Seely Creek, extending from the Erie Railroad to high ground approximately 1,000 feet northwest of the intersection of South Broadway

and Pennsylvania Avenue; a pumping plant for disposal of interior drainage; an interceptor sewer about 6,000 feet long varying in size from 48 to 96 inches in diameter; and appurtenant structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43J. HORNELL, NY

Location. On the Canisteo River in the City of Hornell, NY, about 42 miles upstream from the confluence of the Canisteo and Tioga Rivers. (See Geological Survey map for Canisteo, NY.)

Existing project. Provides for channel realignment and earth levees, concrete flood walls, and check dams consisting of: realignment of about 4,600 feet of the Canisteo River channel, and about 5,800 feet of earth levee on its right bank, extending from Seneca Street upstream to the junction of the Pittsburgh, Shawmut & Northern Railroad and the Erie Railroad; about 4,500 feet of earth levee, extending on both sides of Seneca Street from the Canisteo River to Wrightman Avenue and the junction of Cleveland Avenue and Bethesda Drive; about 7,200 feet of earth levee, about 2,500 feet of concrete flood wall, and raising about 1,500 feet of existing concrete flood wall, on the right bank of the Canisteo River, and about 12,000 feet of channel improvement, extending from Seneca Street to the Erie Railroad; about 2,500 feet of earth levee, about 2,100 feet of concrete flood wall on the left bank of the Canisteo River extending from Seneca Street to the Erie Railroad; about 2,500 feet of earth levee, about 2,100 feet of concrete flood wall on the left bank of the Canisteo River extending from a point opposite Walnut Street to the Erie Railroad; a ring-earth levee about 2,800 feet long around the sewage-disposal plant on the left bank of the Canisteo River; about 4,500 feet of realignment and improvement of the Canisteo River Channel with about 4,500 feet of earth levee on its right bank extending from Cedar Street downstream to about 1,400 feet about East Avenue; about 2,400 feet of channel paving, 1,400 feet of earth levee, raising about 1,900 feet of concrete flood wall, and construction of one check dam on Canacadea Creek; about 1,600 feet of channel paving and construction of three check dams on Chauncey Run with about 300 feet of new wall and about 300 feet of capping; a weir, a check dam, 3,030 feet of channel paving, 4,800 feet of flood walls and levees, and related work on existing walls, on Crosby Creek; removal of 6 bridges, erection of 4 bridges, miscellaneous bridge structures, and 3 drop structures; and appurtenant drainage structures and small stream control works. Improvement, supplemented by Arkport and Almond Reservoirs above the area, provides protection for the City of Hornell against a flood discharge approximately double the maximum flood of record, which occurred in July 1935.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43K. LISLE, NY

Location. On the Tioughnioga River in the Village of Lisle, NY, about 12 miles upstream from the confluence of the Tioughnioga and Chenango Rivers. (See Geological Survey map for Lisle, NY.)

Existing project. Provides for channel realignment and construction of earth levees and concrete flood walls, consisting of: relocation of about 3,000 feet of Dudley Creek Channel, extending from 1,200 feet west of the intersection of Cortland and Main Streets to the confluence with Tioughnioga River; realignment of some 5,700 feet of Tioughnioga River Channel east of the Village; about 4,150 feet of earth levee and 970 feet of concrete wall on the right bank of Dudley Creek and Tioughnioga River; realignment of some 5,700 feet of Tioughnioga Street to the railroad crossing on River Street; raising about 1,860 feet of the Delaware, Lackawanna & Western single track railroad over the levee; relocation of about 1,600 feet of Cortland Street; a new bridge over relocated Dudley Creek; and appurtenant drainage structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43L. OXFORD, NY

Location. On the Chenango River in the Village of Oxford, NY, about 40 miles upstream from the confluence of the Chenango and Susquehanna Rivers. (See Geological Survey map for Oxford, NY.)

Existing project. Provides for earth levees and clearing of Chenango River Channel, consisting of about 2,100 feet of earth levees on the left bank of the Chenango River, extending from high ground near Cemetery Drive and running mostly along the railroad to high ground near Main Street; removal of dam and island below Main Street; raising the Delaware, Lackawanna & Western Railroad over the levee; and appurtenant closure and drainage structures. Improvement provides protection for the Village of Oxford on the left bank against a flood discharge substantially larger than the maximum flood of record, which occurred in July 1935.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43M. WHITNEY POINT LAKE, NY

Location. Dam is located near Whitney Point, NY, on the Otselic River about 0.7 mile upstream from its confluence with Tioughnioga River. (See Geological Survey map for Whitney Point and Willet, NY.)

Existing project. The dam is an earthfill structure, 4,900 feet long, exclusive of a spillway, rises 95 feet above the streambed, with a concrete spillway and gated outlet in the left abutment. The outlet works consist of three 5-foot by 10-foot gates and one emergency gate of the same size. The reservoir has a storage capacity of 86,440 acre-feet at spillway crest. The project controls a drainage area of 255 square miles, the entire watershed of Otselic River, or 16 percent of the Chenango River watershed upstream from Binghamton, NY. Recreation facilities, constructed in cooperation with local interests, provide for swimming, picnicking, camping, boating, fishing, and hunting.

Local cooperation. None required. Local interests operate and maintain all of the recreation facilities.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

43N. WHITNEY POINT VILLAGE, NY

Location. On the Tioughnioga River at the confluence of the Tioughnioga and Otselic Rivers, tributaries of the Susquehanna River. (See Geological Survey map for Whitney Point, NY.)

Existing project. Provides for channel realignment and earth levees, consisting of realignment of about 1,800 feet of Tioughnioga River Channel, above the confluence with Otselic River; about 7,100 feet of earth levee along the right bank of the Tioughnioga River, extending from high ground on Main Street above the Village to Collins Street just below the Village; and appurtenant drainage structures.

Local cooperation. Fully met.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

44. STILLWATER LAKE, LACKAWANNA RIVER, PA

Location. Dam is on the Lackawanna River, 39 miles from the mouth of the stream and about 4 miles upstream from Forest City, Susquehanna County, PA (See Geological Survey Quadrangle sheet, Honesdale, PA.)

Existing project. Dam is earthfill type, rising 77 feet above the streambed, with a controlled outlet conduit and side channel spillway in the left abutment. Reservoir capacity is 12,000 acre-feet, of which 11,600 acre-feet is flood control storage and the remainder is used to maintain the existing water supply reservoir for Forest City, PA, at this site. Reservoir area is 422 acres, and the pool extends about 2.1 miles upstream. Reservoir controls 52 percent of the watershed above Carbondale, 26 percent above Olyphant, and 17 percent above Scranton. Federal cost of new work, completed in 1965, was $5,725,700 of which $4,500,500 was for construction and $1,225,200 was for lands and damages.

Local cooperation. None required. Section 2, Flood Control Act of June 28, 1938, applies.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

45. SUSQUEHANNA RIVER FLOOD CONTROL PROJECTS, NY AND PA

Plan of improvement authorized by the 1958 Flood Control Act provides for construction of Cowanesque Lake, PA, Tioga-Hammond Lakes, PA, local protection works at Elkland, PA, and Nichols, NY, and channel improvements at Cortland, NY. This project plan supplemented the comprehensive flood control program for Southern New York and Northern Pennsylvania which included the Southern New York flood control project and Stillwater, Genegantslet, and South Plymouth Reservoirs.

45A. COWANESQUE LAKE, PA

Location. Dam is on the Cowanesque River about 2.2 miles above its confluence with Tioga River at Lawrenceville, PA. (See Geological Survey map for Tioga, PA.)

Existing project. The project provides for an earthfill dam 3,100 feet long and rising 151 feet above the streambed, an uncontrolled spillway in the right abutment, a gated conduit in the Valley floor, and flood control storage is 82,000 acre-feet. Relocation of the Town of Nelson to a new townsite was authorized by Section 121 of the Water Resources Development Act of 1976. The Federal cost of this new work was $106,030,700 of which $61,743,600 was for construction and $44,287,100 was for lands and damages and relocations (which includes $5,755,000 for relocation of the Town of Nelson). Within the discretionary authority of the Chief of Engineers the project was modified in March 1983 in accordance with the Water Supply Act of 1958, as amended, and the Flood Control Act of 1944, as amended. The modification provides for reallocating 25,600 acre-feet of present flood control storage for water supply storage

by raising the permanent pool from elevation 1,045 to 1,080 mean sea level. Other features include modifying the existing intake tower and two access ramps, stabilizing the reservoir slope near the relocated Town of Nelson, replacing existing day-use recreation facilities, and expanding both day-and overnight-use recreation facilities to accommodate an expected increase in annual visitation due to the larger pool. Estimated cost (October 1991) of the modification is $55,198,00 of which $1,257,00 is Federal (for expanded recreation facilities) and $53,941,000 is non-Federal (which includes $39,414,000 for reimbursement of the cost of existing flood control storage reallocation to water supply storage, $13,270,000 cash contribution for the water supply modification, and $1,257,000 cash contribution for expanded recreation facilities.)

Local cooperation. The Water Resources Development Act of 1976, which authorized relocation of the Town of Nelson, provides that before the Secretary of the Army acquires any real estate property for the new townsite, appropriate non-Federal interests shall furnish binding contractual commitments that all lots in the new townsite will be either occupied when available, replacements for open space and vacant lots in the existing town, or will be purchased by non-Federal interests at the fair market value. The required contractual agreement for local cooperation was executed with Nelson Township on August 25, 1977. The March 1983 project modification (discussed above) requires non-Federal interests repay 100 percent of the investment cost of project modifications allocated to water supply, to terrestrial wildlife habitat mitigation, and to in-kind replacement recreation, plus the allocated share of the project's original cost (escalated to current price levels). Additionally, they are required to pay annual costs of operation, maintenance, and major replacements allocated to water supply and to provide 50 percent of the cost of expanded recreation facilities, as well as, all operation, maintenance, and replacement costs for the expanded facilities. Water supply and recreation contracts were executed by the Assistant Secretary of the Army (Civil Works) and the Susquehanna River Basin Commission on June 30, 1986.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

45B. TIOGA-HAMMOND LAKES, PA

Location. The dams are located in Tioga County, PA, upstream from the confluence of the Tioga River and Crooked Creek. Tioga Dam is located on the Tioga River and Hammond Dam on Crooked Creek, approximately opposite the Tioga damsite, about 3.3 miles above its mouth and less than one mile from the Village of Brooklyn. (See Geological Survey map for Tioga, PA.)

Existing project. Tioga Dam is 2,600 feet long, rising 140 feet above the streambed, with a controlled outlet conduit. Hammond Dam is 5,900 feet long, and has a maximum height of 121.5 feet above the streambed, with a concrete spillway. Both dams are of earth and rockfill construction. The Tioga-Hammond Lakes project controls a total drainage area of 402 square miles, with Tioga Dam controlling 280 square miles of the Tioga River Basin and Hammond Dam controlling 122 square miles of the Crooked Creek Basin. Recreation facilities are provided for swimming, camping, picnicking, boating, and fishing. Federal cost of completed work was $185,620,000 of which $125,029,000 is for completed construction and $60,591,000 is for lands and damages and relocations. Estimated Federal cost (October 1988) of Mill Creek recreation facilities (inactive) is $7,500,000.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued. A Lease was signed with the Mill Cove Association for the management and operation of 188 acres (next to Tioga Lake) for education, recreation and research.

46. WEST BRANCH OF SUSQUEHANNA RIVER, PA

A system of three flood control reservoirs, in the headwaters of the West Branch Susquehanna River, PA, are known as Curwensville, Alvin R. Bush (formerly known as Kettle Creek), and Foster Joseph Sayers (formerly known as Blanchard).

In accordance with the terms of local cooperation, the Commonwealth of Pennsylvania furnished assurances that it will coordinate operation of George B. Stevenson Reservoir (formerly known as First Fork Reservoir) with operation of Curwensville, Alvin R. Bush, and Foster Joseph Sayers Reservoirs to secure optimum flood control benefits from system operation. George B. Stevenson Reservoir on the First Fork Sinnemahoning Creek in Cameron and Potter Counties, PA, was constructed by the Commonwealth of Pennsylvania at a first cost of $12,240,000 and an estimated $30,000 annually for operation and maintenance.

46A. ALVIN R. BUSH DAM, PA

Location. Alvin R. Bush (formerly Kettle Creek Dam) is located on Kettle Creek about 8.4 miles above the mouth and 15 miles upstream from Renovo, PA. (See Geological Survey map for Keating, PA.)

Existing project. Dam is an earthfill structure, about 1,350 feet long, rises 165 feet above the streambed,

with an uncontrolled spillway located in rock adjacent to the right abutment, and has a horseshoe-shaped outlet tunnel with 3 service gates. The reservoir has a storage capacity of 75,000 acre-feet at spillway crest. The project controls a drainage area of 226 square miles or about 92 percent of the Kettle Creek watershed. Recreation facilities are provided for camping, fishing, boating, picnicking, hiking, winter sports, hunting, and swimming by the State of Pennsylvania at Kettle Creek State Park.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

46B. CURWENSVILLE LAKE, PA

Location. Dam is on the West Branch of Susquehanna River approximately 2.5 miles upstream from Curwensville, Clearfield County, PA. (See Geological Survey map for Curwensville, PA.)

Existing project. Within the discretionary authority of the Chief of Engineers, the project was modified in September 1992, in accordance with the Water Supply Act of 1958, as amended. The modification provides for reallocating an estimated 5,360 acre-feet of storage from conservation to water supply. The reallocation project includes a year-round normal pool and modifications to the existing recreation area. Estimated cost of the modification is $1.7 million which is being funded entirely by the local sponsor, the Susquehanna River Basin Commission. In addition, the sponsor will reimburse the Federal Government about $4.5 million for part of the original project cost.

Local cooperation. The 1992 project modification requires non-Federal interests to pay 100 percent of costs allocated to water supply plus the allocated share of the original project cost (escalated to current price levels). Additionally, they must pay annual costs of operation, maintenance, and major replacement allocated to water supply. A water supply contract was executed on September 30, 1994.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

46C. FOSTER JOSEPH SAYERS DAM, PA

Location. Dam is located on Bald Eagle Creek in Centre County, PA, about one mile upstream from Blanchard and about 14 miles above the confluence of Bald Eagle Creek with the West Branch Susquehanna River at Lock Haven, PA. (See Geological Survey map for Howard, PA.)

Existing project. Dam is an earthfill structure, about 6,835 feet long, rises 100 feet above the streambed, and has an open-cut concrete chute and uncontrolled concrete weir 600 feet wide located in rock in a saddle adjacent to the left abutment. The outlet works, located in the left abutment, consist of a 15-foot diameter circular outlet conduit with two hydraulically-operated wheel gates 7 feet wide and 15 feet high. The reservoir has a storage capacity of 99,000 acre-feet at spillway crest. The project controls a drainage area of 339 square miles or 88 percent of the drainage area above Beech Creek and 43 percent of the Bald Eagle Creek drainage area. Recreation facilities are provided for boating, camping, fishing, picnicking, hunting, swimming, hiking, and winter sports by the State of Pennsylvania at Bald Eagle State Park.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

47. WYOMING VALLEY, PA (LEVEE RAISING)

Location. The Wyoming Valley flood control projects are located in Northeastern Pennsylvania on the Susquehanna River in Luzerne County and are the four contiguous existing Federal flood control projects at Plymouth, Kingston-Edwardsville, Swoyersville-Forty Fort, and Wilkes-Barre/Hanover Township, which together function as a flood control system within the Wyoming Valley.

Existing project. The proposed modification provides for raising existing levees and floodwalls between 3 and 5 feet, structural, mechanical and electrical modifications to pump stations, modifying closure structures, relocating utilities and providing some new floodwalls and levees to maintain the integrity of the existing flood control system. The proposed project also includes a plan to reduce project-related adverse impacts. The current estimated total project is $175,000,000 which includes a future inflation allowance through project completion.

Local cooperation. The Luzerne County Flood Protection Authority is the sponsor for the project. The local sponsor is required to: provide lands, easements and rights-of-way; modify or relocate buildings, utilities, roads, bridges, and other facilities; pay a minimum of 5% of costs allocated to flood control and pay 50% of costs allocated to recreation; and bear all costs of operations, maintenance and replacement of flood control and recreation facilities after construction.

Operations and results during fiscal year. New Work: Work continued on the Mechanical and Electrical Upgrades to the Stormwater Pump Stations, the construction contracts for the Wilkes-Barre/Hanover Township reach, and the Plymouth levee raising

contract. Engineering and design work continues as well as feasibility analysis of possible additions to the overall project.

48. YORK, INDIAN ROCK DAM, PA

Location. On Codorus Creek 10 miles above its confluence with the Susquehanna River. Codorus Creek has tributary branches in York County in the south and central parts of Pennsylvania. (See Geological Survey Quadrangle sheets for York and Hanover, PA.)

Existing project. Indian Rock Dam is an earth and rockfill dam about 1,000 feet long at the top, rising 83 feet above the streambed, with a reservoir providing for control storage of 28,000 acre-feet. The dam is on the main branch of Codorus Creek about 3 miles above York. Outlet works are in the right abutment, and the uncontrolled spillway is on the right bank. The reservoir will control the entire drainage area of the main branch of Codorus Creek and 41 percent of the drainage area above York. Improvements in Codorus Creek in the vicinity of and through the City of York provide for 22,969 feet of channel extending from 300 feet above Richland Avenue to a point downstream from the Pennsylvania Railroad crossing known as Black Bridge. Improvements, which will increase channel capacity to 24,000 cubic feet per second, include widening and deepening the channel, bank protection, removal of York Roller Mill Dam, and a low water channel about 3,900 feet long in the vicinity of York Roller Mill Dam. Cost of new work for the completed project was $5,061,167, of which $4,566,446 (regular funds) and $11,588 (emergency relief funds) were for construction and $483,133 (regular funds) was for lands and damages.

Local cooperation. Section 2, Flood Control Act of June 28,1938, applies.

Operations and results during fiscal year. Maintenance: Normal operation and maintenance of the project continued.

49. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Projects in New York, Pennsylvania, Maryland, District of Columbia, and Virginia were inspected during the period by hired labor. See table 4-I.

50. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Operations and results during fiscal year. The operation of George B. Stevenson Dam, PA, was coordinated with the operation of Alvin R. Bush, Curwensville, and Foster Joseph Sayers Dams in the West Branch Susquehanna River Basin in order to secure optimum flood control benefits from the system operation. Costs during the period were $2,077,920.

Supplemental instructions for the operation of Savage River Dam, MD, were provided, during periods of high water, to insure maximum protection for downstream localities. Costs during the period were $87,686.

51. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Cost for the period was $356,090 for the Disaster Preparedness Program; $43,175 for Mobilization, Continuity of Government and Emergency Water Preparedness Programs; $76,449 for Emergency Operations; $79,593 for Rehabilitation; $780,788 for the Nationwide Civil Works Activities. Federal year costs were $11,023 for Section 205 Coordination; $21,463 for Elkton, MD; $1,002 for Gwynns Falls, Baltimore, MD; $3,075 for Paxton Creek Harrisburg, PA; $29,480 for North Branch at Westernport, MD; $15,241 for Middle North Branch, MD; $31,972 for Heshbon to Hepburnville, Lycoming Count; $267,005 for Montoursville Lycoming County, PA, $44,101 for Wills Creek, Allegheny County, MD; $94,503 for Soloman Creek Wilkes-Barre, PA; $4,910 for Flat Run, MD; $3,030 for Cedar Run, PA; $5,309 for Doe Run, PA and $3,814 for Winchester & Warrior Run, MD.

Non-Federal contributed costs were: $6,297 for Paxton Creek Harrisburg, PA; $75,964 for Solomon Creek PA; $112,720 for Elkton 205 Feasibility and $10,810 for Montoursville, Lycoming, PA.

Flood control activities pursuant to Section 14, Public Law 526, 79th Congress, as amended (pre-authorization). Fiscal year costs were $10,624 for Section 14 Coordination; $1,014 for Hooper Island Causeway, MD; $79,335 for Deep Run, Race Road, MD; $64,153 for Newton Creek Newton Avenue, NY; $80,609 for Pine Creek Township Road 566, PA; $94,661 for Chesapeake Bay Punch Island Road, MD; $73,786 for Patuxent River Patuxent Beach Road, MD and $3,894 for St. Mary's River, MD.

Non-Federal contributed costs was: $685 for Hooper Island Causeway, MD; and $85,000 for Deep Run, Race Road, MD.

MULTIPLE-PURPOSE PROJECTS INCLUDING POWER - None

ENVIRONMENTAL

52. ANACOSTIA RIVER AND TRIBUTARIES, MD AND DC

Location. The project area is the 170-square mile watershed of the Anacostia River. This watershed encompasses approximately 145 square miles in Montgomery and Prince George's Counties, Maryland,

and 25 square miles in the District of Columbia. The entire area is within the Washington, D.C. metropolitan area.

Existing project. The authorized plan provides for the construction of 80 acres of tidal and non-tidal freshwater wetlands, the restoration of 5 miles of piedmont streams, and the planting of 33 acres of bottomland hardwood forest within the highly urbanized Anacostia River watershed. The construction is located at 13 sites within the project area. The 13 actions include 2 wetland restorations, development of 5 stormwater management wetlands areas, and restoration of 6 stream reaches. The current estimated total cost for the Anacostia environmental restoration project is $18 million.

Local cooperation. The non-Federal sponsors for the project are Montgomery County, Prince George's County, the District of Columbia, the Maryland-National Capital Park and Planning Commission, and the National Park Service. The last two sponsors are the current landowners of the project sites. The non-Federal sponsors are required to pay 25 percent of the cost allocated to fish and wildlife restoration and to bear all costs of operation, maintenance, repair, rehabilitation and replacement of the facilities after construction.

Operations and results during fiscal year. The construction at eight sites in Montgomery County and the Kingman Lake site in the District of Columbia was completed in 2000-2002. Construction of the River Fringe Wetlands site was initiated in March 2003, and completed in September 2003. Project design continued for the Stewart-April Lane site in Montgomery County.

53. CHESAPEAKE BAY OYSTER RECOVERY, MD

Location. The project is located in the Maryland portion of the Chesapeake Bay.

Existing project. The authorized project contributes to multi-agency and private efforts to restore oyster populations in the Maryland portion of the Chesapeake Bay. Project elements include: construction and rehabilitation of oyster habitat; construction of seed bar facilities for production of oyster seed or "spat"; purchase of disease-free spat from the state-owned hatcheries, planting of disease-free spat in locations which best foster oyster production and health; and monitoring of project performance to increase oyster populations. Phase I of the project has an estimated total cost of $3,334,000. Phase II of the project, which will extend into the waters of Virginia, has an estimated project cost of $23,333,000.

Local cooperation. The State of Maryland is the sponsor for the Maryland action of the project. The local sponsor is required to pay 25% of the cost allocated to fish and wildlife restoration and to bear all costs of operation, maintenance, repair, rehabilitation and replacement of fish and wildlife facilities after construction.

Operations and results during fiscal year. New Work: The Phase I project construction was completed in September 2000, with monitoring activities continuing through September 2004. Planning for the long-term Phase II project was initiated in January 2001 and will continue through 2004. Short-term construction activities for the Phase II project were conducted in the summer of 2002 and 2003, and will continue through the summer of 2004.

54. CHESAPEAKE BAY ENVIRONMENTAL RESTORATION/PROTECTION PROGRAM, MD

Location. The project is located in the Chesapeake Bay area within portions of the states of Maryland, Virginia and Pennsylvania.

Existing Project. Section 510 of WRDA 1996 authorizes the Corps of Engineers to provide design and construction assistance to non-Federal interests for publicly owned water-related environmental infrastructure and resource protection and development of projects affecting the Chesapeake Bay estuary. These projects include sediment and erosion control, protection of eroding shorelines, creation or restoration of wetlands, protection of essential public works, wastewater treatment and related facilities, water supply and related facilities, and beneficial uses of dredged material, and other related projects that may enhance the living resources of the estuary. At least one project shall be established in each of the states of Maryland, Virginia and Pennsylvania. The Maryland projects include Tylerton, Shoreline Protection, Taylors Island Shoreline Protection, Warner Street Wetland Creation-Middle Branch Patapsco River, and an upgrade of the two Smith Island Wastewater Treatment Plants. The Virginia project was an oyster restoration project completed by Norfolk District and the Pennsylvania project will be an upgrade of the Scranton Wastewater Treatment Plant to include nitrogen removal.

Local cooperation. In order of the projects listed above, the Maryland sponsors include Somerset County, the Council for Dorchester County, the city of Baltimore, and the Maryland Department of the Environment. For Virginia, the sponsor was the Marine Resources Commission and for Pennsylvania, it will be the Sewer Authority of the City of Scranton.

Operations and results during fiscal year. Tylerton construction was completed except for some final drainage issues, the Taylors Island project management plan and design agreement were prepared and executed, the Warner Street fact sheet was prepared, and the Smith Island Wastewater Treatment Plants were designed and submitted for permit approval.

55. HART MILLER ISLAND, MD

Location. Hart-Miller Island (HMI) is located in the open waters of the northern Chesapeake Bay in Baltimore County, Maryland. The 1100 island is located adjacent to the Brewerton section of the 50-foot navigation channel serving the port of Baltimore.

Previous project. HMI was constructed of dredged material beginning in 1981 and is the authorized placement site for dredged material removed from the Federal navigation project serving the Port of Baltimore. The island is divided into two cells, a north cell and a south cell. In 1991, the State of Maryland closed the 300-acre a south cell of the facility to further placement of dredged material.

Existing project. The project for the restoration of the south cell of the island consists of approximately 180 acres of wetlands and mudflats for shorebird habitat, a one-acre nesting island, and 118 acres of upland for songbird habitat. A pumping system manages the water levels in the project area. The project is expected to provide habitat for over 200 species of birds and create nesting habitat for the endangered Least Tern.

Local Cooperation. The Maryland Port Administration is the non-Federal sponsor. The Maryland Department of Natural Resources will operate and maintain the site upon completion of construction. The state has completed their cost-sharing requirements, pending financial closeout. The State has provided sufficient cash and credits to satisfy the requirement of Section 1135 for the costs associated with the study, plans and specifications, and construction.

Operations and results during fiscal year. Project construction was initiated in August of 2002 and is expected to be completed in April 2004. Following construction the project will be monitored for five years. The final project cost is estimated to be $4.3 million.

56. NORTHEAST PENNSYLVANIA, PA

Location. The authorized program area consists of the following Pennsylvania counties: Lycoming, Sullivan, Bradford, Susquehanna, Wyoming, Lackawanna, Wayne, Pike, and Monroe including assistance for the Mountoursville Regional Sewer Authority, Lycoming County, Pennsylvania.

Existing program. Section 219, WRDA 92 establishes a pilot program to provide planning and design assistance for water- and sewer-related environmental infrastructure and resource protection and development projects for local communities. The program was amended by Section 502, WRDA 99 to allow for the provision of construction services as well. The current estimated project cost is $26,667,000, which includes a future inflation allowance through project completion.

Local cooperation. Cost sharing is 75% Federal and 25% non-Federal. The non-Federal Sponsor can use real estate credit and cash to meet their cost-sharing requirement; no in-kind credits are permitted. The non-Federal sponsor assumes 100% of the responsibility for operations & maintenance.

Operations and results during fiscal year. Maintenance: A $1.4 million contract was awarded to Braun Enterprises in Summer 2003 for the Section 219 Halls Station Sewer Project to construct approximately 1,200 LF of gravity sewer, 21,000 LF of forcemain, fourteen grinder pumps, and five pump stations that will convey wastewater collected at Halls Station to the Montoursville Regional Sewer System Wastewater Treatment Plant. A letter Report to support the PCA for the Muncy Creek Routes 405/442 Sewer Project was completed in Fall 2003.

57. ROOSTER ISLAND, MD

Location. Rooster Island is located in Cambridge, Maryland, on the south bank of the Choptank River about 1.75 miles northwest of the Choptank River Bridge (U.S. Route 50) and about 70 miles southeast of Baltimore, Maryland.

Previous project. The Corps maintains the Cambridge Harbor navigation channel, which is a channel 150 feet wide and 25 feet deep at mean low water from the depth in the Choptank River for an approximate distance of 2,000 feet. Approximately 78,000 cubic yards of material was dredged from the Choptank River by the Corps in 1988 as part of routine maintenance of the Cambridge Harbor navigation project.

Existing project. Rooster Island was at one time a sand spit containing vegetated wetlands that protected Hambrooks Bay and the adjacent shorelines. Due to the lack of a continuous sediment source caused by increased development and hardened shoreline, the spit has eroded to inter- and subtidal shoals leaving the adjacent shorelines vulnerable to erosion. The project consists of a 2,100-foot breakwater to protect the exposed northern side of the spit from wave attack. In addition, a groin field to stabilize the leeward side of the restoration was constructed and approximately 28,000 cubic yards of fill was taken from the previously used upland dredged material placement site and placed at the island and planted with wetland vegetation. Approximately 1.1 acres of uplands and 4.9 acres of tidal marsh were planted and approximately 80 acres of shallow water habitat is being protected.

Local Cooperation. Dorchester County is the non-Federal sponsor. The County has completed their cost-sharing requirements, pending project financial closeout. The County has provided sufficient cash and

credits to satisfy the requirement of Section 1135 for the costs associated with the study, plans and specifications, and construction.

Operations and results during fiscal year. Following the completion of construction, and during the five-year post construction monitoring period, it was discovered that the salt marsh had not survived. New bathymetric survey information has been gathered and options are being formulated to recreate the marsh and ensure its stability. The construction cost was $900,000.

58. POPLAR ISLAND, MD

Location. The group of islands known as Poplar Island is located in the upper middle Chesapeake Bay approximately 34 nautical miles southeast of the Port of Baltimore and 1 mile northwest of Tilghman Island, Talbot County, MD.

Existing project. The authorized project provides for the use of approximately 33 million cubic yards of dredged material from the southern approach channels of the Baltimore Harbor and Channels navigation project to restore 1,140 acres of remote habitat. The restoration project will employ dikes to contain the dredged materials necessary for the wetlands vegetation and to protect the facility from the severe wave activity common in this region of the Chesapeake Bay. The placement site will restore Poplar Island to its approximate 1847 configuration and will consist of 570 acres of upland habitat at an elevation up to +20 feet MLLW and 570 acres of wetland habitat that would be further divided into approximately 444 acres of low marsh and 111 acres of high marsh. The current estimated total project cost is $340 million (including a future inflation allowance through the project completion).

Local cooperation. The State of Maryland is the project sponsor and the Local Cooperation Agreement was executed April 4, 1997. The sponsor is required to provide lands, easements, and rights-of-way; pay 25% of the cost of the project; and bear all costs of operation, maintenance, replacement and major rehabilitation of the ecosystem restoration project.

Operations and results during fiscal year. New Work: The third inflow of dredged material (1.1 million cubic yards) started in November 2002 and was completed in January 2003. A 15 acre wetland demonstration cell (4DX) was completed in June 2003. A contract to raise the upland dikes in Cell 2 to their fully authorized height was awarded in September 2003. A General Re-evaluation Report was initiated in June 2003 to evaluate the potential for expansion of the project.

59. SOUTH CENTRAL PENNSYLVANIA ENVIRONMENTAL IMPROVEMENT PROGRAM

Location. The south central Pennsylvania area includes fifteen counties defined by the authorizing legislation. Funds for an additional six counties were provided in the FY 1998 and FY 1999 Energy and Water Appropriation Act. The program area within the Baltimore District consists of the Chesapeake Bay watershed portion of the program area including Bedford, Blair, Clearfield, Franklin, Fulton, Huntingdon, Juniata, Mifflin, Snyder, and a portion of Cambria Counties.

Existing project. Section 313 of the Water Resources Development Act of 1992, as amended, established a pilot program for providing environmental assistance to non-Federal interests in south central Pennsylvania. Such assistance may be in the form of design and construction assistance for water-related environmental infrastructure and resource protection and development projects, including projects for waste water treatment and related facilities, water supply, storage treatment, distribution facilities, and surface water resource protection and development. The Federal share may be provided in the form of grants or reimbursements to the sponsor. Section 313 as amended authorizes Federal appropriations of $180 million to carry out the program, including $90 million within the Chesapeake Bay watershed area. From FY 94 through FY03, Congress has added $71,392,774 to the Corps budget for 65 projects in the Baltimore District for water supply and distribution, wastewater collection and treatment and a master plan.

Local cooperation. The non-Federal sponsors are required to provide 25% of project costs including lands, easements, rights-of-way, and relocations and bear all costs of operation, maintenance, replacement, repair and rehabilitation of the project after construction.

Operations and results during fiscal year. New Work: Construction of the passive treatment measures at PA 3888 are scheduled to be completed in July 2004. Other FY 2004 construction activities include: mine-land reclamation at PA 3896, 3897, and 3898, and passive treatment installation at PA 3895.

REGULATORY PROGRAM

60. REGULATORY PROGRAM

The Regulatory Program began FY03 with 864 applications pending from FY02. During FY03, 4565 new applications were received; 3657 permits were issued; 0 application were denied and 0 were withdrawn; for activities in regulated waterways and wetlands in MD, Washington DC, and part of PA. At the beginning of the FY, 182 enforcement cases were

pending. During FY03, 20 violations were resolved and 131 new violations were discovered/reported. 595 Jurisdictional determinations were requested and verified. Total FY03 Regulatory Program costs were $4,990,000.00.

AQUATIC ECOSYSTEM RESTORATION

61. DEEP RUN/TIBER HUDSON, MD

Location. The study area is located within a highly developed eastern portion of Howard County, Maryland, Howard County lies southwest of Baltimore, within the Baltimore-Washington, DC metropolitan corridor. Both the Deep Run and Tiber-Hudson watersheds are located in the 685-square mile drainage basin of the Patapsco River.

Existing project. The project will consist of 2 stormwater management ponds, 3 wetland creation sites and 7 stream restoration sites.

Local cooperation. Howard County is the non-Federal sponsor and is providing sufficient cash and credits to satisfy the requirements of Section 206 for plans and specifications and construction.

Operations and results during fiscal year. The construction portion of a design-build contract is currently being negotiated for two of the projects and coordination with the non-Federal sponsor for the remaining real estate interests is on-going. Project construction is currently scheduled to begin in Summer 2005 and be complete by Fall 2005. The current construction cost estimate is $252,000.

62. DENTS RUN, PA

Location. The Dents Run watershed is located in Benezette Township, Elk County, Pennsylvania. The lower 4.5 miles of Dents Run is devoid of aquatic life due to acid mine drainage along its tributary, Porcupine Hollow. In addition, approximately 250 acres of upland habitat scarred from past mining activities does not provide suitable habitat for wildlife.

Existing Project. On March 11, 2002, the Chief of Engineer, under the authority provided by Section 206 of the Water Resources Development Act of 1996, as amended, authorized construction of aquatic ecosystem restoration and protection measures. The work consists of mining of 500,000 tons of limestone and remediation work at PA 1934, which is located on Winslow Hill Road off Route 555.

Local cooperation. The sponsor is the Bennett Branch Watershed Association. The sponsor funds are provided from PADEP-BAMR ($2.7 million) and the Pennsylvania Growing Greener Program ($1.3 million), and in partnership with the Pennsylvania Game Commission (PGC) is responsible for providing 35 percent of the project costs and for providing the entire cost of design and construction reclamation and passive treatment system work at PA 1934. The Western Pennsylvania Conservancy, under a Memorandum of Understanding with the sponsor, will assist the sponsor in all real estate acquisition activities.

Operations and results during fiscal year. Construction of the passive treatment measures at PA 3888 are scheduled to be completed in July 2004. Other FY 2004 construction activities include: mine-land reclamation at PA 3896, 3897, and 3898, and passive treatment installation at PA 3895. The construction cost estimate is $5 million.

63. ISLE OF WIGHT BAY, MD

Location. The Isle of Wight is a 223 acre island located 2 miles west of Ocean City at the confluence of Isle of Wight and Assawoman Bays; the mouth of the St. Martins River lies to the west of the island. The island is bisected by Route 90, which provides one of two links between Ocean City and the Worcester County mainland. The site of the salt marsh restoration/shoreline re-establishment project lies along the southeastern shoreline of the island.

Existing Project. The project consists of replacement of a failing steel bulkhead on the eastern end of the site with a sloped stone revetment; construction of a series of detached and attached offshore breakwaters and sill structures along approximately 2,500 linear feet of shoreline; pulverization and placement of the existing concrete rubble; placement of material landward of the breakwaters to provide a substrate for marsh creation; planting marsh grasses; and construction of several recreational features on the adjacent upland.

Local cooperation. The Maryland Department of Natural Resources is the non-Federal sponsor and has completed their cost-sharing requirements, pending project financial closeout. The non-Federal sponsor has provided sufficient cash and credits to satisfy the requirements of Section 206 for plans and specifications and construction.

Operations and results during fiscal year. Project construction was initiated in February 2003 and is expected to be completed in Spring 2004. A dedication ceremony is scheduled for May 2004, by which time all construction activities are expected to be complete. The project implementation cost is $2.3 million.

64. LITTLE FALLS FISH PASSAGE #2

Location. Little Falls is located in Montgomery County just upriver from the District of Columbia.

Existing project. Little Falls Dam was built in 1959 as a water supply facility for the Washington D.C. metropolitan area. A fishway was recently constructed within the dam and is centered 75 feet from the Virginia side of the river. This is where migratory fish typically congregate below the dam. The innovative design uses three "W"-shaped labyrinth weirs within and below a 36-foot wide, 4 foot deep notch in the dam. The weirs reduce water velocity to levels that allow fish to move upstream over the passage despite a wide range of river flow. The main target species of the fishway is American shad (alosa sapidissima). The goal of the project was to reestablish migrating fish access to 10 miles of historic spawning habitat upstream of the dam. Construction was completed in February 2000.

Local cooperation. The State of Maryland Department of Natural Resources (DNR), is the project sponsor under this Section 1135 project. As required under the Section 1135 project program, the State contributed 25 percent of the total project cost of $2 million. The Washington Aqueduct has assumed these responsibilities because the dam serves as a water supply conduit.

Operations and results during fiscal year. As part of the post construction activities for this project, a five year monitoring program was established to verify the effectiveness of the modification. This is a continuation of stocking and monitoring efforts begun in 1995, by the Interstate Commission for the Potomac River Basin (CPRB), DC Fisheries, Maryland DNR, and citizen volunteers. The monitoring will determine how many of the original hatchery fish return to the area as adults to spawn. Three American shad were collected during the spring 2000 monitoring efforts in the Mater Gorge area and no other migratory fishes were captured.

65. AQUATIC ECOSYSTEM RESTORATION

Fiscal year costs were $9,946 for Section 206 Coordination; $1,232 for Ocean Pines, Worcester County, MD; $234,145 for Nanticoke Creek Luzerne, PA; $63,763 for Easton, MD; $284,829 for Blackwater, MD; $105,278 for Lower Anacostia Park, DC; $50,274 for Ft. Chaplin/Ft. Dupont, DC; $55,270 for Eastonbrook Reservoir, NY; $172,873 for Loyalsock Creek-Dushore; PA; $245,717 for North Beach, MD; $77,288 for Northwest Branch Anacostia; $130,226 for St. Martin's River Ocean City, MD; $184.212 for Western Branch Patuxent; MD; $47,506 for Parsons Creek; MD; $376,495 for Kettle Creek, PA; $173,016 for Fall Brook, PA; $211,272 for Powderly Creek, PA; $162,634 for Dog Island Shoals, MD; $53,267 for Chenango Lake, NY; $49,842 for Six Mile Run, PA; $48,316 for Sandy Run, PA; $4,186 for Longs Run, PA; $17,838 for Great Cypress Swamp, DE; $29,934 for Paint Branch Fish Passage, MD; $240,927 for Sweet Arrow Lake, PA; $156,288 for Lower Gwynns Falls, MD; $18,178 for Delaware Forested Wetlands, DE; $156,228 for Codorus Creek, PA; $20,721 for Forestville, MD; $91,940 for Brubaker Run, PA; $35,247 for Wright's Creek, MD; $104,483 for Tidal Middle Branch, MD; $1,996 for Betterton, MD; $83,518 for Urieville Lake, MD; $9,937 for Watts Branch, D.C.; $7,120 for Hurst Creek, MD and $9,326 for Shoups Run, PA.

Fiscal year costs were $55,690 for Aquatic Plant Control. Fiscal year costs were $9,992 for Section 1135 Coordination; $2,000 for Jennings Randolph Lake, MD & WV Nitroge; $236,170 for Whitney Point Reservoir, NY; $55,865 for Kitzmiller, MD; $53,786 for Heritage Island, DC; $110,303 for Lower Kingman Island; and $368,958 for York Restoration Project, PA.

Fiscal year miscellaneous costs were $9,965 for Coordination Account Funds and $2,618 for Initial Appraisals.

WATER SUPPLY

66. WASHINGTON AQUEDUCT

Location. The diversion dam and raw water supply intakes at Great Falls, the two collecting conduits, part of Dalecarlia receiving reservoir, the booster pumping of Dalecarlia receiving reservoir, the booster pumping station and the Little Falls raw water pumping station are located in Maryland. All other structures of the water supply system including parts of the raw water collecting system, two purification plants, pumping stations, storage reservoirs, and transmission mains are in the District of Columbia. Federally owned water mains are maintained in Virginia and Maryland.

Existing project. Control of the water supply system is vested in the Chief of Engineers (see Acts of March 3, 1859, and March 2, 1867, November 22, 1973 and Sec. 1800 of Revised Statutes). The project includes: administration; operation and maintenance of the collection, purification, pumping, and transmission facilities; protection of the water supply system; engineering; and construction of major water system additions and improvements.

Authority to supply water to Arlington County, the City of Falls Church, and other jurisdictions in Virginia is contained in Public Law 119, 69th Congress, approved April 14, 1926; and Public Law 118, 80th Congress, June 26, 1947.

Local cooperation. Requirements are described in full on page 4-19 of the Fiscal Year 1981 Annual Report.

Operations and results during fiscal year. Purified water was furnished to the District of Columbia; Arlington County, and Falls Church, VA; and to Federal Establishments in the District of Columbia,

Arlington County, VA, and Montgomery County, MD. Total consumption for fiscal year 2003 was 58.81 billion gallons. The average amount furnished Arlington County and Falls Church, VA was 33.72 million gallons per day. The Corps of Engineers was reimbursed $20,261,576 for operations and maintenance of which $7,536,854 was from Virginia.

GENERAL INVESTIGATIONS

67. SURVEYS

Federal costs for the fiscal year were $2,437,626 including $351,472 for flood damage prevention studies, $1,362,471 for special studies, $153,809 for special investigations, $14,787 for interagency water resource development, $4,597 for National estuary studies, and $212,326 for coordination with other agencies and non-Federal interests.

Non-Federal contributed costs for the fiscal year were $20,036 of which ($619,911) was for navigation studies, $445,961 for flood damage prevention studies, and $193,987 for special studies and non-Federal interest.

68. COLLECTION AND STUDY OF BASIC DATA

Costs for flood plain management activities and general planning guidance during the period was $141,795. Providing assistance and guidance to local interests on methods and procedures for preventing and reducing flood damages was in progress at end of fiscal year.

69. PRECONSTRUCTION ENGINEERING AND DESIGN

Smith Island Environmental Restoration--Smith Island is Maryland's only inhabited offshore island having been settled in the mid 1600's. There are three towns on the island Ewell, Rhodes Point and Tylerton, with harbors that are used by the oystering and crabbing industries. In the past 100 years, 1,200 acres of Smith Island have eroded into the Chesapeake Bay, and future erosion will destroy the island if unchecked. There are existing Federal navigation channels being maintained for the island, all of which were formulated and constructed prior to today's recognition of fish and wildlife values. The recommended projects include construction of environmental restoration measures including protection/restoration of SAV habitat and protection/creation of wetlands and navigation improvements. Total Federal costs during the fiscal year was $178,840 and total Non-Federal costs was $102,154. Estimated pre-construction planning cost is $680,000.

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

70. W.R. GRACE, CURTIS BAY FACILITY, MD

Location. The W.R. Grace Curtis Bay Facility is located at 5500 Chemical Road in Baltimore, Maryland on an industrialized peninsula in south Baltimore, and consists of 260 acres owned by Grace. The property is bordered on the north by Curtis Bay, on the west by Curtis Creek, on the east by the Patapsco River, and on the south by the Baltimore City Municipal Landfill. The facility currently consists of a manufacturing plant and waste disposal areas.

Existing project. Currently, W.R. Grace manufactures and produces specialty chemicals at its Curtis Bay facility. Contamination at the site consists of radioactively-contaminated slabs and other surfaces impacted by the thorium extraction process in Building 23 and the Radioactive Waste Disposal Area to the east of the plant property. The W.R. Grace Site has been separated into 2 distinct work components: Building 23 and the Radioactive Waste Disposal Area. The overall project cost is estimated at over $50 million.

Local Cooperation. Not applicable.

Operation and results during fiscal year. New Work: Feasibility Studies for the Radioactive Waste Disposal Area and Building 23 continued throughout the fiscal year. Total cost for the fiscal year was $1,279,694.

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
1.	**Baltimore Harbor and Channels, MD and VA**	New Work					
		Approp.	1,714,000	4,900,000	129,000	8,000	151,613,712 [1]
		Cost	432,753	5,460,858	861,825	8,233	151,579,056 [1]
		Maint.					
		Approp.	22,016,323	17,325,481	10,730,464	7,759,690	265,700,627 [2]
		Cost	22,071,927	17,332,787	10,416,822	7,859,899	264,699,521 [2]
		Contributed					
		Approp.	1,000,000	1,560,000	5,141	0	70,234,755
		Cost	121,854	1,957,850	477,634	0	69,359,689
1A.	**Tolchester Channel, S-Turn, MD**	Maint.					
		Approp.	0	0	0	0	11,096,533
		Cost	0	0	0	0	11,096,530
2.	**Baltimore Harbor, Anchorage & Channels, MD**	New Work					
		Approp.	--	314,000	6,891,000	11,200,000	18,405,000
		Cost	--	182,741	7,020,722	11,070,466	18,273,929
		Contributed					
		Approp.	0	0	3,500,000	3,800,000	7,300,000
		Cost	0	0	2,207,072	4,287,075	6,494,147
3.	**Baltimore Harbor, MD, Collection & Removal of Drift**	Maint.					
		Approp.	419,100	498,022	490,000	376,000	9,415,821
		Cost	423,940	498,209	489,226	371,772	9,410,895
4.	**Bonum Creek, VA**	Maint.					
		Approp.	--	--	--	13,800	13,800 [3]
		Cost	--	--	--	13,762	13,762 [3]
5.	**Coan River, VA**	New Work					
		Approp.	--	--	--	551,800	551,800 [4]
		Cost	--	--	--	284,096	284,096 [4]
6.	**Duck Point Cove, MD**	Maint.					
		Approp.	--	--	19,476	3,943	23,419 [5]
		Cost	--	--	19,308	4,110	23,418 [5]
7.	**Fishing Creek, MD**	Maint.					
		Approp.	--	--	50,735	314,000	364,735 [6]
		Cost	--	--	50,545	306,514	357,059 [6]
8.	**Honga River & Tar Bay, MD**	New Work					
		Approp.	0	0	0	0	66,119 [7]
		Cost	0	0	0	0	66,119 [7]
		Maint.					
		Approp.	850,497	25,882	55,840	1,067,000	8,902,287
		Cost	853,101	25,222	56,074	420,124	8,288,427
9.	**Knapps Narrows, MD**	New Work					
		Approp.	--	--	--	--	23,836
		Cost	--	--	--	--	23,836
		Maint.					
		Approp.	--	--	--	21,000	21,000 [8]
		Cost	--	--	--	21,010	21,010 [8]

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
10.	**Monroe Bay and Creek, VA**	New Work					
		Approp.	--	--	--	--	22,434
		Cost	--	--	--	--	22,434
		Maint.					
		Approp.	--	--	--	14,000	14,000 [9]
		Cost	--	--	--	14,000	14,000 [9]
11.	**Muddy Hook & Tyler Cover**	New Work					
		Approp.	--	--	--	--	64,001
		Cost	--	--	--	--	64,001
		Maint.					
		Approp.	--	--	22,788	164,000	186,788 [10]
		Cost	--	--	22,787	45,944	68,731 [10]
12.	**Nanticoke River, MD**	Maint.					
		Approp.	--	15,082	408,565	354,000	777,647 [11]
		Cost	--	14,917	406,101	355,735	776,753 [11]
13.	**Occoquan River, VA [12]**	Maint.					
		Approp.	0	19,850	327,457	135,000	482,307 [13]
		Cost	0	19,850	322,676	138,078	480,604 [13]
14.	**Ocean City Harbor and Inlet and Sinepuxent Bay, MD**	New Work					
		Approp.	0	0	0	0	362,193 [14]
		Cost	0	0	0	0	362,193 [14]
		Maint.					
		Approp.	267,000	702,131	2,671,733	2,575,775	18,471,439
		Cost	248,170	721,814	2,661,697	2,581,449	18,466,903
15.	**Potomac River, MD**	Maint.					
		Approp.	--	--	72,315	111,600	183,915 [15]
		Cost	--	--	71,681	111,125	182,806 [15]
16.	**Potomac and Anacostia Rivers, DC, Collection Removal of Drift**	Maint.					
		Approp.	709,700	981,703	717,120	906,000	18,361,898
		Cost	715,626	982,650	716,444	836,822	18,291,743
17.	**Potomac River Below Washington, DC**	New Work					
		Approp.	0	0	0	0	254,036
		Cost	0	0	0	0	244,858
		Maint.					
		Approp.	1,918,417	105,595	130,876	53,200	5,020,382
		Cost	1,919,978	105,315	131,182	6,759	4,973,937
18.	**Prevention of Obstruction & Injurious Deposits Baltimore Harbor, MD**	Maint.					
		Approp.	605,600	678,904	624,000	631,000	12,818,549
		Cost	609,935	678,916	623,782	628,892	12,816,326
19.	**Rhodes Point to Tylerton, MD**	Maint.					
		Approp.	0	62,259	944,062	160,000	1,166,321 [16]
		Cost	0	61,805	944,514	159,502	1,165,821 [16]

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
20.	**Tilghman Island Harbor**	Maint.					
		Approp.				20,000	20,000 [17]
		Cost				20,000	20,000 [17]
21.	**Tall Timber, MD**	Maint.					
		Approp.	--	--	--	151,400	151,400 [18]
		Cost	--	--	--	8,977	8,977 [18]
22.	**Twitch Cove & Big Thorofare, MD**	New Work					
		Approp.	0	0	0	0	424,800
		Cost	0	0	0	0	424,800
		Maint.					
		Approp.	549,296	63,686	1,126,263	1,150,000	9,239,356
		Cost	553,039	63,687	1,106,150	1,170,084	9,199,409
23.	**Upper Thorofare Deal Island, MD**	Maint.					
		Approp.	0	31,681	38,751	53,700	173,680 [19]
		Cost	0	31,679	28,398	64,024	173,649 [19]
24.	**Washington Harbor, DC**	New Work					
		Approp.	0	0	0	0	3,191,077 [20]
		Cost	0	0	0	0	3,191,077 [20]
		Maint.					
		Approp.	29,900	36,454	45,723	38,000	5,355,760 [21,22]
		Cost	29,806	36,657	45,721	35,613	5,353,271 [21,22]
25.	**Wicomico River, MD**	New Work					
		Approp.	0	0	0	0	471,609 [23]
		Cost	0	0	0	0	471,609 [23]
		Maint.					
		Approp.	220,228	893,419	212,035	1,961,700	15,435,781
		Cost	219,794	896,227	200,531	1,973,019	15,407,888
28.	**Assateague Island**	New Work					
		Approp.	200,000	484,560	5,344,000	5,016,000	11,044,560
		Cost	77,561	367,011	4,252,217	6,289,324	10,986,113
29.	**Atlantic Coast of Maryland**	New Work					
		Approp.	172,000	155,000	3,000,000	176,000	35,507,000
		Cost	143,953	76,860	2,928,362	395,302	35,476,824
		Contributed					
		Approp.	237,249	94,420	2,518,420	746,616	25,680,757
		Cost	169,279	189,412	2,463,878	354,048	24,857,599
31.	**Cumberland, MD and Ridgely, WV**	New Work					
		Approp.	0	0	493,000	960,000	17,087,070
		Cost	181,884	13,811	383,474	672,909	16,981,111
		Maint.					
		Approp.	112,200	112,345	135,414	125,900	2,391,372
		Cost	112,594	112,402	135,441	125,642	2,098,466
32.	**Jennings Randolph Lake, MD and WV**	New Work					
		Approp.	23,035	0	0	0	176,644,435
		Cost	119,471	0	0	0	176,644,034

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
		Maint.					
		Approp.	1,549,150	2,334,295	4,318,289	1,344,700	35,076,006
		Cost	1,574,734	2,334,161	2,364,805	2,799,810	34,575,957
33A.	**Aylesworth Creek Lake, PA**	New Work					
		Approp.	0	0	0	0	2,320,410
		Cost	0	0	0	0	2,320,410
		Maint.					
		Approp.	234,100	202,736	211,676	257,000	3,928,035
		Cost	231,582	205,551	211,111	256,846	3,927,125
34.	**Loyalsock Creek Warrensville Rd., PA**	New Work					
		Approx.	0	0	0	72,500	72,500
		Cost	0	0	0	62,529	62,529
35.	**Lycoming County Flood Warning System, PA**	New Work					
		Approp.	0	0	0	126,300	126,300
		Cost	0	0	0	198,945	198,945
36.	**Moorefield, WV**	New Work					
		Approp.	86,000	0	85,000	(60,000)	19,099,100
		Cost	391,998	80,985	27,074	26,078	19,094,307
		Contributed					
		Approp.	0	0	0	0	1,205,602
		Cost	0	0	0	0	1,199,461
37.	**Lackawanna River, Olyphant, PA**	New Work					
		Approp.	0	0	0	946,000	9,993,000
		Cost	125,487	368,350	2,225,114	4,754,754	9,720,079
38.	**Raystown Lake Raystown Branch, Juniata River, PA**	New Work					
		Approp.	0	0	0	0	77,418,770
		Cost	0	0	0	0	77,418,770
		Maint.					
		Approp.	3,844,000	4,656,922	3,817,999	4,724,000	79,729,336
		Cost	3,948,300	4,663,903	3,775,871	4,036,001	78,998,377
		Contributed					
		Approp.	4,264	8,520	1,500	0	29,834
		Cost	2,025	1,500	5,321	0	20,125
39.	**Scranton, Lackawanna River, PA**	New Work					
		Approp.	0	0	0	(17,000,000)	28,792,000
		Cost	1,263,132	454,158	9,478,736	2,966,002	17,573,745
		Contributed					
		Approp.	0	0	400,000	450,000	891,000
		Cost	0	40,728	339,017	381,824	761,569
40.	**Ocean Pines, Worcester County, MD**	New Work					
		Approp.	70,200	480,600	342,700	1,000	1,004,300
		Cost	65,790	495,817	342,089	1,232	1,003,798
		Contributed					
		Approp.	0	156,961	20,000	0	176,961
		Cost	0	48,140	121,484	7,296	176,920

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
41.	**Williamsport Hagerman Flume**	New Work					
		Approp.	0	374,000	(500,000)	30,000	129,000
		Cost	20,028	24,490	9,757	42,145	110,446
		Contributed					
		Approp	21,000	0	0	0	21,000
		Cost	6,242	2,374	7,505	4,035	20,156
42.	**PA and WV Flooding Program**	New Work					
		Approp.	727,000	838,000	(783,000)	(727,000)	305,000
		Cost	47,648	50,264	107,874	18,346	250,074
		Contributed					
		Approp.	0	20,950	37,863	0	58,813
		Cost	0	10,334	27,838	18,494	56,666
43A.	**Addison, NY**	New Work					
		Approp.	0	0	0	0	827,050
		Cost	0	0	0	0	827,050
		Maint.					
		Approp.	21,200	14,260	18,855	25,000	409,880
		Cost	24,014	14,949	18,849	23,976	408,852
43B.	**Almond Lake, NY**	New Work					
		Approp.	0	0	0	0	5,760,211
		Cost	0	0	0	0	5,760,211
		Maint.					
		Approp.	432,620	450,624	455,593	435,000	9,632,518
		Cost	427,918	455,343	451,981	427,137	9,592,910
43C.	**Arkport Dam, NY**	New Work					
		Approp.	0	0	0	0	1,910,000 [24]
		Cost	0	0	0	0	1,910,000 [24]
		Maint.					
		Approp.	232,900	240,360	240,427	234,000	4,824,499
		Cost	228,366	245,376	240,364	233,894	4,824,322
43D.	**Avoca, NY**	New Work					
		Approp.	--	--	--	--	436,374 [25]
		Cost	--	--	--	--	436,374 [25]
		Maint.					
		Approp.	16,800	17,960	25,039	29,000	663,560
		Cost	17,187	17,987	25,037	28,745	663,201
43E.	**Binghamton, NY**	New Work					
		Approp.	0	0	0	0	3,460,000 [26]
		Cost	0	0	0	0	3,460,000 [26]
		Maint.					
		Approp.	54,500	96,313	79,234	24,000	1,201,028
		Cost	54,913	96,351	79,226	24,004	1,201,024
43F.	**Canisteo, NY**	New Work					
		Approp.	0	0	0	0	1,183,111 [27]
		Cost	0	0	0	0	1,183,111 [27]
		Maint.					
		Approp.	46,900	35,654	35,372	41,000	1,283,161
		Cost	47,790	35,753	35,371	39,683	1,281,854

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
43G.	Corning, NY	New Work					
		Approp.	0	0	0	0	3,322,000 [28]
		Cost	0	0	0	0	3,322,000 [28]
		Maint.					
		Approp.	31,500	44,730	54,160	70,000	1,463,668
		Cost	32,319	44,740	54,160	67,673	1,462,332
43H.	East Sidney Lake, NY	New Work					
		Approp.	0	0	0	0	6,049,504
		Cost	0	0	0	0	6,049,504
		Maint.					
		Approp.	580,700	494,183	465,104	462,200	11,805,958
		Cost	580,171	494,912	456,111	466,854	11,781,548
43I.	Elmira, NY	New Work					
		Approp.	0	0	0	0	6,883,305
		Cost	0	0	0	0	6,883,305
		Maint.					
		Approp.	20,400	14,127	26,010	69,000	572,346
		Cost	20,343	14,184	26,010	68,987	572,333
43J.	Hornell, NY	New Work					
		Approp.	0	0	0	0	4,558,698 [29]
		Cost	0	0	0	0	4,558,698 [29]
		Maint.					
		Approp.	194,400	312,579	164,481	224,000	10,862,166
		Cost	203,720	312,827	163,913	218,465	10,856,259
43K.	Lisle, NY	New Work					
		Approp.	0	0	0	0	661,199 [30]
		Cost	0	0	0	0	661,199 [30]
		Maint.					
		Approp.	37,100	35,719	26,668	46,000	1,186,559
		Cost	38,007	35,764	26,668	45,939	1,186,399
43L.	Oxford, NY	New Work					
		Approp.	0	0	0	0	131,000 [31]
		Cost	0	0	0	0	131,000 [31]
		Maint					
		Approp.	15,000	16,051	28,284	28,000	465,437
		Cost	14,985	16,066	28,280	27,997	465,432
43M.	Whitney Point Lake, NY	New Work					
		Approp.	0	0	0	0	5,421,540
		Cost	0	0	0	0	5,421,540
		Maint.					
		Approp.	703,800	707,227	582,793	592,900	18,147,777
		Cost	693,742	717,392	573,585	558,137	18,103,639
43N.	Whitney Point Village, NY	New Work					
		Approp.	0	0	0	0	424,196
		Cost	0	0	0	0	424,196
		Maint.					
		Approp.	35,800	18,040	29,765	25,000	681,586
		Cost	35,914	18,116	26,679	28,083	681,584

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
44.	**Stillwater Lake, Lackawanna River, PA**	New Work					
		Approp.	0	0	0	0	5,725,700
		Cost	0	0	0	0	5,725,700
		Maint.					
		Approp.	408,300	368,149	332,090	373,000	7,463,529
		Cost	407,946	369,313	329,115	369,056	7,456,424
45A.	**Cowanesque Lake, PA**	New Work					
		Approp.	0	0	0	0	107,470,700
		Cost	0	0	0	0	107,470,751
		Maint.					
		Approp.	1,701,600	2,118,469	1,821 295	1,875,800	31,380,345
		Cost	1,698,550	2,131,176	1,817,584	1,834,824	30,348,513
		Contributed					
		Approp.	141,591	0	0	0	13,760,935
		Cost	126,366	15,226	0	0	13,780,934
45B.	**Tioga-Hammond Lakes, PA**	New Work					
		Approp.	0	0	0	0	186,244,800
		Cost	0	0	0	0	186,244,800
		Maint.					
		Approp.	2,007,703	3,110,180	2,918,856	4,068,100	45,406,982
		Cost	2,029,549	3,120,402	2,866,426	3,983,565	45,288,185
46A.	**Alvin R. Bush Dam, PA**	New Work					
		Approp.	0	0	0	0	7,103,001
		Cost	0	0	0	0	7,103,001
		Maint.					
		Approp.	707,000	639,410	570,840	602,000	14,645,326
		Cost	703,924	642,677	563,244	604,690	14,649,470
46B.	**Curwensville Lake, PA**	New Work					
		Approp.	0	0	0	0	20,406,060
		Cost	0	0	0	0	20,406,060
		Maint.					
		Approp.	752,600	654,525	645,169	662,400	17,251,870
		Cost	754,830	658,672	632,202	672,131	17,246,554
		Contributed					
		Approp.	37,500	0	0	0	1,751,053
		Cost	20,518	16,507	0	0	1,734,053
46C.	**Foster Joseph Sayers Dam, PA**	New Work					
		Approp.	0	0	0	0	30,887,063 [32]
		Cost	0	0	0	0	30,887,063 [32]
		Maint.					
		Approp.	685,000	691,812	707,351	765,500	18,017,971
		Cost	685,383	691,612	699,991	748,694	17,992,745
47.	**Wyoming Valley, PA (Levee Raising)**	New Work					
		Approp.	8,875,000	13,980 000	19,319,000	10,542,000	86,559,000
		Cost	10,503,210	13,412,414	21,850,803	10,790,048	86,456,186
		Contributed					
		Approp.	0	5,000,000	9,000,000	3,000,000	24,500,000
		Cost	1,623,010	5,756,344	9,839,345	3,392,789	24,491,865

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
48.	York, Indian Rock Dam, PA	New Work					
		Approp.	0	0	0	0	5,601,167 [33]
		Cost	0	0	0	0	5,601,167 [33]
		Maint.					
		Approp.	552,000	640,041	543,906	532,000	19,079,737 [34]
		Cost	569,543	641,146	511,430	550,897	19,070,769 [34]
52.	Anacostia River & Tributaries, MD & DC	New Work					
		Approp.	3,757,000	2,811,000	(573,000)	2,827,000	10,355,000
		Cost	4,112,045	1,340,481	1,055,120	2,529,169	10,044,812
		Contributed					
		Approp.	--	--	--	990,000	990,000
		Cost	--	--	--	941,239	941,239
53.	Chesapeake Bay Oyster Recovery, MD	New Work					
		Approp.	365,000	389,000	536,000	915,000	4,346,000
		Cost	317,947	70,096	917,920	912,498	4,342,592
54.	Chesapeake Bay Environmental Program, MD	New Work					
		Approx.	114,000	749,000	98,000	108,000	2,705,000
		Cost	301,186	985,525	1,146,395	24,653	2,548,555
		Contributed					
		Approp.	400,000	266,666	12,500	0	679,166
		Cost	11,461	277,256	377,659	11,965	678,341
55.	Hart Miller Island, MD	New Work					
		Approp.	--	--	769,500	2,729,400	3,498,900
		Cost	--	--	664,400	2,831,578	3,495,978
		Contributed					
		Approp.	--	--	281,000	0	281,000
		Cost	--	--	0	117,630	117,630
56.	Northeast Pennsylvania, PA	New Work					
		Approp.	--	116,000	703,000	(680,000)	139,000
		Cost		6,829	26,045	44,947	77,821
		Contributed					
		Approp.	--	--	--	343,975	343,975
		Cost	--	--	--	855	855
57.	Rooster Island, MD	New Work					
		Approp.	--	--	--	13,500	13,500
		Cost	--	--	--	13,359	13,359
		Contributed					
		Approp.	0	0	0	0	298,100
		Cost	0	12,325	1,489	4,218	296,833
58.	Poplar Island, MD	New Work					
		Approp.	14,606,000	36,482,000	18,243,000	8,215,000	112,363,000
		Cost	14,824,205	36,090,147	18,729,738	8,043,926	111,962,020
		Contributed					
		Approp.	6,175,000	13,500,000	8,100,000	0	40,100,000
		Cost	5,518,176	13,979,114	6,646,012	1,075,452	39,076,664

TABLE 4-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept. 30, 2003
59.	**South Central Environmental Restoration Infrastructure and Resource Protection Development Pilot, PA**	New Work					
		Approp.	0	4,880,000	1,404,000	(2,955,000)	55,995,775
		Cost	9,555,699	10,408,290	12,969,239	6,819,303	55,637,699
		Contributed					
		Approp.	0	0	1,300,000	0	6,972,923
		Cost	0	0	356,020	1,067,131	7,096,075
61.	**Deep Run/Tiber Hudson, MD (New Project)**	New Work					
		Approp.	--	--	--	173,300	173,300
		Cost	--	--	--	154,902	154,902
62.	**Dents Run, PA**	New Work					
		Approp.	--	--	148,300	456,100	604,400
		Cost	--	--	148,858	454,881	603,739
63.	**Isle of Wight Bay, MD**	New Work					
		Approp.	--	--	--	1,784,614	1,784,614 [35]
		Cost	--	--	--	1,783,746	1,783,746 [35]
		Contributed					
		Approp.	--	--	--	412,021	412,021
		Cost	--	--	--	0	0
64.	**Little Falls Fish Passage #2**	New Work					
		Approp.	--	--	--	23,300	23,300 [36]
		Cost	--	--	--	23,276	23,276 [36]
		Contributed					
		Approp.	274,641	0	0	0	489,641
		Cost	348,418	18,032	17,842	7,326	447,955

1. Includes $8,467,003 for previous projects.
2. Includes $399,802 for previous projects.
3. Excludes $456,576 for previous projects.
4. Excludes $643,304 for previous projects.
5. Excludes $378,477 for previous projects.
6. Excludes $2,198,174 for previous projects.
7. Excludes $2,200 contributed funds and includes $27,668 emergency relief funds.
8. Excludes $1,207,831 in previous projects.
9. Excludes $483,685 for previous projects.
10. Excludes $687,568 for previous projects.
11. Includes $604,441 for previous projects.
12. Unconstructed portion of the project was deauthorized November 2, 1979.
13. Includes $203,198 for previous projects.
14. Includes $283,008 public works funds and $67,185 emergency relief funds; excludes $500,000 contributed funds.
15. Excludes $3,454,849 for previous projects.
16. Includes $2,368,946 for previous projects.
17. Excludes $464,788 for previous projects.
18. Excludes $1,504,297 for previous New Start projects, $216,265 for previous O&M projects. And $10,306 for contributed funds.
19. Excludes $864,205 for previous projects.
20. Includes $3,029,001 for previous projects.
21. Excludes $1,831,609 for previous project.
22. Excludes $4,000 for emergency dredging under provisions of Section 3, 1945 River and Harbor Act.
23. Includes $50,000 for previous project and excludes $14,000 contributed funds.
24. Includes $62,577 emergency relief funds.
25. Includes $109,944 emergency relief funds.
26. Excludes $163,096 contributed funds.
27. Includes $207,520 rehabilitation funds.
28. Excludes $34,729 contributed funds.
29. Includes $250,899 emergency relief funds and excludes $15,000 contributed funds.
30. Includes $71,557 emergency relief funds.
31. Includes $73,465 emergency relief funds.
32. Excludes $263,900 contributed funds in accordance with the Tri-party Agreement for construction of a sanitary system for public use.
33. Includes $11,588 emergency relief funds.
34. Includes $15,000 for deferred maintenance.
35. Excludes $1,300,298 for previous projects.
36. Excludes $1,407,918 for previous projects.

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**BALTIMORE HARBOR AND CHANNELS, MD and VA**	
	Aug 8, 1917	Branch channel 35 feet deep to head to Curtis Bay, and one 35 feet deep and 400 feet wide Fort McHenry to Port Covington entrance channel, thence 150 feet wide to Ferry Bar, and thence 27 feet deep and 150 feet wide to Hanover Street Bridge, widen approaches and bends, and enlarge anchorage basin near entrance. Inclusion of Patapsco River and tributaries into one project for Baltimore Harbor.	H. Doc. 799, 64th Cong., 1st Sess.
	Jan 21, 1927	Change in location of anchorage near upper end of Fort McHenry Channel.	
	Jul 3, 1930	Increased anchorage facilities Rivers and Harbors.	Committee Doc. 11, 70th Cong., 1st Sess.
	Jul 3, 1930	For 37-foot depth in that portion of channel to Baltimore lying between 37-foot depth curve near Baltimore Light to Sparrows Point entrance channel; widen angle between Fort McHenry and Ferry Bar section; and for width of 400 feet in Curtis Bay section.	H. Doc. 86, 85th Cong., 1st Sess.
	Oct 17, 1940	For 22-, 18-, and 15-foot channels in Curtis Creek from 22-foot depth below Pennington Avenue Bridge to upper end of marginal wharf of U.S. Ordinance Depot	Adopted as a national defense project. (No printed report.)
	Mar 2, 1945	Uniform main channel 309 feet deep from the ocean through York Spit section and Craighill entrance to Fort McHenry, additional anchorage area, 2,400 feet long, 1,200 feet wide, and 30 feet deep; a connecting channel 400 feet wide and 27 feet deep from Cutoff Brewerton Angle in main channel to Inland Waterway from Delaware River to Chesapeake Bay; a channel in Curtis Creek 200 feet wide and 35 feet deep from head of existing 35-foot project channel in Curtis Bay to a point in the creek about 750 feet below Pennington Avenue Bridge.	H. Doc. 741, 79th Cong., 2nd Sess.
	Mar 2, 1945	A channel 22 feet deep and 200 feet wide from 22-foot depth curve south of Baltimore & Ohio R.R. bridge about 2,800 feet to vicinity of Arundel Cove, thence 100 feet wide in Arundel Cove for about 2,100 feet; with an anchorage basin about 700 feet square adjacent to channel southwesterly of Coast Guard wharf.	In accordance with plans on file in the Office, Chief of Engineers
	Jul 3, 1958	Main channel 42 feet deep and 1,000 feet wide in Cape Henry section at entrance to Chesapeake Bay and in York Spit section; 42 feet deep and 800 feet wide in Rappahannock Spit section and in approach channel to Baltimore Harbor from Craighill entrance to Fort McHenry, with widening at entrance and bends; channels 42 feet deep and 600 feet wide in Curtis Bay and Ferry Bar sections of harbor; a connecting channel 35 feet deep and 600 feet wide from main channel to approach channel to Chesapeake and Delaware Canal; and for three disjointed sections of channels of same depth and width in Chesapeake Bay leading to Chesapeake and Delaware Canal; and to provide Federal maintenance of 39-foot depth in Northwest Branch, in areas dredged to that depth by local interests.	H. Doc. 86, 85th Cong., 1st Sess.
	Dec 31, 1970	Deepening of the Cape Henry Channel to 50 feet at the existing width of 1,000 feet, with widening at bends; deepening of the Spit Channel to 50 feet at the existing width of 1,000 feet, with widening at bends; enlargement of the Rappahannock Shoal Channel to a depth of 50 feet and a width of 1,000 feet; deepening of the main ship channel from Chesapeake Bay to Fort McHenry to a depth of 50 feet at the existing width of 800 feet, with widening at bends and at the Craighill Entrance; deepening of the Curtis Bay Channel to a depth of 50 feet at the existing width of 600 feet, and deepening of the 950-foot wide and 980-foot long turning basin at the head of channel to the same depth; deepening of the Northwest Branch--East Channel to a depth of 49 feet from the depth existing at the time of construction at a width of 600 feet, and deepening of the 950-foot wide and 950-foot long turning basin at the head of the channel to the same depth; and deepening and extension of the Northwest Branch--West Channel to a depth of 40 feet from the depth existing at the time of construction, at a width of 600 feet, and with an irregularly shaped turning basin at the head of the channel 40 feet deep and about 2,000 feet long with a maximum width of 1,150 feet.	H. Doc. 181, 94th Cong., 1st Sess.
	Aug 5, 1999	Dredge a new straight channel 35 feet deep, 600 feet wide, and 2 miles long to replace the existing Tolchester Channel S-Turn off Tolchester Beach.	Water Resources Dev. Act of 1999

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
2.		**BALTIMORE HARBOR ANCHORAGES AND CHANNELS, MD**	
	Aug 17, 1999	Widen and deepen two existing Federal anchorages; widen several connecting channels; provide a new turning basin near Fort McHenry; and provide a new branch channel within the Port of Baltimore.	Chief of Engineers Report dated Jun 8, 1998
3.		**BALTIMORE HARBOR, MD, COLLECTION AND REMOVAL OF DRIFT**	
	Jun 30, 1948	Collection and removal of drift from Baltimore Harbor and its tributary waters.	River and Harbor Act of 1948
4.		**BONUM CREEK, VA**	
	May 12, 1966 Sec. 107 Jul 14, 1960	A channel 60 feet wide and 6 feet deep from that depth in the Potomac River to and including an anchorage basin of the same depth, 160 feet wide and 200 feet long. Protection of the entrance channel on both sides by jetties. The north jetty is about 700 feet long and south jetty is about 300 feet long.	Detailed Project Report, August 1965
5.		**COAN RIVER, VA**	
	Jul 14, 1960	Dredging a new Federal channel approximately 570 feet long with an elevation of –10 MLLW depth plus 1-foot overdepth. The proposed channel width is approximately 60 feet. To protect the new channel, construction of a 485-foot stone jetty is also recommended.	Sec 107 Detailed Project Report, May 2002
6.		**DUCK POINT COVE, MD**	
	Mar 2, 1945	A channel 60 feet wide and 6 feet deep, from that depth in Fox Creek to a mooring basin of same depth, 100 feet wide and 300 feet long, roughly parallel to county road at head of waterway.	H. Doc. 241, 76th Cong., 1st Sess.
7.		**FISHING CREEK, MD**	
	Aug 26, 1937	A channel 7 feet deep with widths of 100 feet and 60 feet from deep water in Chesapeake Bay to an anchorage of the same depth, 120 feet wide and 400 feet long, located in the marsh 500 feet above the mouth of the creek and twin stone jetties at the entrance.	H. Doc. 241, 75th Cong., 1st Sess.
8.		**HONGA RIVER AND TAR BAY, MD**	
	Aug 30, 1935	Channel 60 feet wide and 7 feet deep from the 7-foot contour in Chesapeake Bay through Tar Bay and Fishing Creek to the 7-foot contour in Honga River.	Rivers and Harbors Committee Doc. 35, 74th Cong., 1st Sess.
	Jun 30, 1948	Modification providing for a channel in Back Creek 7 feet deep and 60 feet wide from the 7-foot depth curve in Honga River to a point near the head of Back Creek, with a turning basin of the same depth, 150 feet long and 200 feet wide.	H. Doc. 580, 80th Cong., 2nd Sess.
9.		**KNAPPS NARROWS, MD**	
	Aug 30, 1935	A channel 9 feet deep at mean low water, 75 feet wide, widened at the bends from deep water in Chesapeake Bay in deep water in Harris Creek, MD with a turning basin west of the drawbridge, 7 feet deep at mean low water, about 320 feet long and 120 feet wide. Project channel was authorized by the Public Works Administration September 16, 1933 and later adopted by 1935 River and Harbor Act.	H. Doc. 308, 72nd Cong., 1st Sess.
10.		**MONROE BAY AND CREEK, VA**	
	Jul 3, 1930	A channel 8 feet deep, 100 feet wide, and 950 feet long, through the bar at the entrance, and within the creek a channel 7 feet deep, 100 feet wide, and 2,500 feet long, with turning and anchorage basin 500 feet wide at upper end.	H. Doc. 172 70th Cong., 1st Sess. [2]
11.		**MUDDY HOOK & TYLER COVE, MD**	
	Dec 4, 1964 Sec. 107 Jul 14, 1960	An entrance channel 60 feet wide and 6 feet deep from that depth in Honga River to and including an anchorage basin of same depth, 160 feet wide and 400 feet long, in Fishing Creek into Tyler Cove and includes an anchorage basin 200 feet wide, 250 feet long and 6 feet deep.	Detailed Project Report, May 1964

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
12.		**NANTICOKE RIVER, MD**	
	Aug 30, 1937	A small boat harbor 7 feet deep, 120 feet wide, and 400 feet long in the marsh at Nanticoke with an entrance channel of the same depth and 60 feet wide protected on either side by stone jetties in the river.	H. Doc. 242, 75th Cong., 1st Sess. [2]
13.		**OCCOQUAN CREEK, VA**	
	Dec 5, 1980	Channel 6 feet deep and 100 to 150 feet wide through four bars and construction of dikes.	Annual Report for 1801, p. 1254
	Mar 2, 1907	Extending channel 6 feet deep and 150 feet wide through outer bar.	H. Doc. 190, 59th Cong., 1st Sess. (The latest published map is in H. Doc. 190, 63d Cong., 2d Sess.)
14.		**OCEAN CITY HARBOR AND INLET AND SINEPUXENT BAY, MD**	
	Aug 30, 1935	Construction of an inlet between the Atlantic Ocean and Sinepuxent Bay, 10 feet deep and 200 feet wide, protected by jetties; a channel 8 feet deep and 100 feet wide from the inlet to Ocean City, 6 feet deep and 150 feet wide to Green Point, and 100 feet wide into Chincoteague Bay.	Rivers and Harbors Committee Doc. 38, 72nd Cong., 1st Sess.
	Aug 30, 1935	Modification providing a 10-foot by 100-foot channel from the inlet to the west side of the bay with two turning basins; a channel 6 feet deep and 125 feet wide from the inlet to Ocean City, 6 feet deep and 150 feet wide to Green Point feet wide into Isle of Wight Bay.	Rivers and Harbors Committee Doc. 60, 74th Cong., 1st Sess.
	Sep 3, 1945	Modification providing for raising the north jetty to an elevation 9 feet above mean low water, and a channel 300 feet wide and 16 feet deep from the ocean through the inlet to the Isle of Wight Bay Channel, thence 200 feet to the project harbor, and a depth of 14 feet in the project harbor. Channel depths refer to project datum.	H. Doc. 444, 82nd Cong., 2nd Sess.
15.		**POCOMOKE RIVER, MD**	
	Jun 3, 1896	A 9-foot channel from Shad Landing to Snow Hill.	Annual Report for 1895, p. 1167.
	Aug 30, 1935	A channel 7 feet deep and 100 feet wide from Pocomoke Sound to Pocomoke River.	H. Doc. 227, 74th Cong., 1st Sess. [2] H. Doc. 429, 76th Cong., 1st Sess. [2]
	Mar 2, 1945	Extend channel above bridge at Snow Hill, 100 feet wide, 9 feet deep, widened to 150 feet to form a turning basin at upper end.	H. Doc. 486, 81st Cong., 2nd Sess. [2]
	Sep 3, 1954	Channel 11 feet deep by 150 feet wide from Pocomoke Sound to Tulls Point, thence a channel of the same depth and 100 feet wide to deep water in Pocomoke River above William Point, and dike construction along south side of channel from existing dike to Tulls Point.	
16.		**POTOMAC & ANACOSTIA RIVERS, DC, COLLECTION & REMOVAL OF DRIFT**	
	Oct 27, 1985	Collection and removal of drift from waters of the Potomac and Anacostia Rivers and their tributaries in the Washington, DC area from the head of the tidewater to Mount Vernon. VA.	H. Doc. 286, 89th Cong., 1st Sess.
17.		**POTOMAC RIVER BELOW WASHINGTON, DC**	
	Mar 3, 1899	A channel 24 feet deep and 200 feet wide between mouth at Chesapeake Bay and Giesboro Point at Washington, DC, a distance of 108 miles.	H. Doc. 33, 52nd Cong., 1st Sess.
18.		**PREVENTION OF OBSTRUCTIONS AND INJURIOUS DEPOSITS, BALTIMORE HARBOR, MD**	
	Aug 30, 1935	Continuous patrol and inspection of Baltimore Harbor, Chesapeake Bay, and its tributaries to prevent and detect violations, and issue permits as required for transporting and depositing waste materials in navigable waters. (The project is limited to the tidal waters of Chesapeake Bay and its tributaries that lie within the State of Maryland.)	River and Harbor Act, June 28, 1888 as amended by Public Law 85-802, dated August 29, 1959

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
19.		**RHODES PT TO TYLERTON, MD**	
	Jan 22, 1982	A channel 6 feet deep and 50 feet wide at mean low water from Tylerton to limit of existing Rhodes Point to Tylerton Federal navigation channel, a dis-	Detailed Project Report,
	Sec. 107 Jul 14, 1960	tance of about one-mile, through Sheel Pen Gut to deep water in the Chesapeake Bay.	June 1981
	Sep 3, 1954	A channel 4 feet deep at mean low water and 50 feet wide from Tylerton to Rhodes Point via Rhodes Point Gut.	H. Doc. 51 82nd Cong., 1st Sess. [2]
	Aug 1, 1968 Sec. 107 Jul 14, 1960	Modification providing for a channel 6 feet deep and 50 feet wide from that depth in Tyler Creek to and including an anchorage basin of the same depth 150 feet wide and 400 feet long at Tylerton; channel 6 feet deep and 50 feet wide from that depth in Shanks Creek to and including an anchorage basin of the same depth 100 feet wide and 400 feet long at Rhodes Point' channel 6 feet deep and 50 feet wide from that depth in Big Thorofare River to Tylerton; channel 6 feet deep and 50 feet wide from Rhodes Point to Tylerton.	Detailed Project Report, February 1968
20.		**TILGHMAN ISLAND HARBOR, MD**	
	May 13, 1966 Sec. 107 Jul. 14, 1960	A channel 60 feet wide and 6 feet deep from that depth in Harris Creek to and including two anchorage basins of the same depth, 300 feet by 70 feet and 500 feet by an average width of 110 feet.	Detailed Project Report, August 1965.
	Oct 20, 1980 Sec. 107 Jul 14, 1960	Modification to provide for construction of a breakwater at the harbor entrance.	Detailed Project Report, July 1980
21.		**TALL TIMBERS, MD**	
	Jul 3, 1950	Provides for an entrance channel 6 feet deep and 60 feet wide a turning basin of irregular shape and 6 feet deep, and riprap stone jetties on the upstream and and downstream sides of the entrance channel 770 and 650 feet long, respectively. The project length is 1,630 feet.	H. Doc. 159 84th Cong., 1st Sess [2]
	May 7, 1986 Sec. 111	Constructing 250 feet of beachfill, 2,187 linear feet of stone revetment, and upgrading 350 feet of existing revetment along the Tall Timbers waterfront.	Detailed Project Report July 18, 1985
22.		**TWITCH COVE AND BIG THOROFARE, MD**	
		A channel 4 feet deep and 25 feet wide from Tangier Sound into Big Thorofare River, and one of same dimensions around point between said river and Tyler River.	H. Doc. 285, 62nd Cong., 2nd Sess.
23.		**UPPER THOROFARE DEAL ISLAND, MD**	
	Aug 30, 1935	A 9-foot channel 75 feet wide protected by breakwater at entrance, with turning basin at inner end and anchorage area 6 feet deep and 150 foot wide.	Rivers and Harbors Commitee Doc. 37, 72nd Cong., 1st Sess.
	Aug 26, 1937	Widen entrance channel to 100 feet, extend 9-foot turning basin an 6-foot anchorage, and dredging an additional anchorage area on north side of channel.	H. Doc. 76, 75th Cong., 1st Sess.
24.		**WASHINGTON HARBOR, DC**	
	Aug 30, 1935	Provides for: (a) Virginia Channel, from Giesboro Point to area for 25,000 square feet; (b) Washington Channel, from Haines Point to head of Washington Channel, 24 feet deep and 400 feet wide; (c) Anacostia River from Giesboro Point to Anacostia Bridge, 24 feet deep and 400 feet wide, with turning basin 800 feet wide and about 2,400 feet long of same depth opposite Naval Weapons Plant, (d) Anacostia River from Anacostia Bridge 24 feet deep and 200 feet wide to turning basin 400 feet square of same depth at foot of 15th Street SE Channel lengths including turning basins are: Virginia Channel, 25,000 feet; Washington Channel, 10,000 feet; and Anacostia River, 15,000 feet; and (e) operation and maintenance of inlet gates and lock and outlet gates of Tidal Basin constructed under a previous project to flush Washington Channel.	Rivers and Harbors Committee Doc. 22, 74th Cong., 1st Sess .

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
25.		**WICOMICO RIVER, MD**	
	Sep 19, 1890	Channel 9 feet deep from Main Street Bridge to about 2 miles below.	H. Doc. 20, 51st Cong., 1st Sess., and Annual Report 1890, p. 947
	Jun 25, 1910	Extend 9-foot depth into north prong from Main Street Bridge to the Salisbury Dam and turning basin.	H. Doc. 569, 61st Cong., 2nd Sess.
	Mar 2, 1919	Extend 9-foot depth into south prong to head of navigation at Cathell Street, including a turning basin, and extend project down to mouth of river in Monie Bay.	H. Doc. 1509, 63rd Cong., 3rd Sess.
	Jul 3, 1930	A 12-foot channel below the Main Street Bridge.	
	Aug 26, 1937	A 14-foot channel, 150 feet wide; depths of 14 feet in the north and south prongs and a basin 6 feet deep at Webster Cove and approach channel thereto of the same depth.	Senate Committee Print, 75th Cong., 3rd Sess. [2]
	Sep 3, 1954	Enlarge existing basin at Webster Cove, by dredging an extension 6 feet deep, 100 feet wide, and 200 feet long on each side of existing basin to form a T-shaped harbor.	H. Doc. 619, 81st Cong., 2nd Sess. [2]
28.		**ASSATEAGUE ISLAND, MD**	
	Oct 12, 1996	Provides for expediting the Assateague Island restoration feature of the Ocean City, Maryland and vicinity study with a Federal appropriation limit of $35 million.	P.L. 104-303
29.		**ATLANTIC COAST OF MARYLAND**	
	Nov 17, 1986	Consists of a dune beginning at 27th Street extending north to the Delaware line; a steel sheetpile bulkhead from 27th Street south to Fourth Street; and widened and raised beach from Third Street to just beyond the Delaware line.	Report of the Chief of Engineers dated Sept. 29, 1981 Energy Water Dev. Approp. Act
	Sep 29, 1989	Modification reauthorized the project at a higher project cost determined by Section 902 of the Water Resources Development Act of 1986.	District Engineer's Post Authorization Notification Report 1989
31.		**CUMBERLAND, MD, AND RIDGELEY, WV**	
	Jun 22, 1936	Levees, retaining walls, movable dam, and channel clearing for Cumberland, West Cumberland and South Cumberland, MD and Ridgeley, WV.	H. Doc. 101, 73rd Cong., 1st Sess.
	Jul 24, 1946	Levees, wall, channel improvement, remove Chesapeake and Ohio Canal Dam and construct new industrial dam.	Report on file in Office, Chief of Engineers
32.		**JENNINGS RANDOLPH LAKE, MD AND WV**	
	Oct 23, 1962	Construction of Bloomington Lake project.	H. Doc. 469, 87th Cong., 2nd Sess.
33.		**LACKAWANNA RIVER BASIN, PA**	
	Oct 23, 1962	Construction of Aylesworth Creek Lake, Fall Brook Lake, and local protection works on Lackawanna River at Scranton, Pennsylvania	S. Doc. 141, 87th Cong., 2nd Sess.
35.		**LYCOMING FLOOD WARNING SYSTEM, LYCOMING COUNTY, PA**	
	Jun 30, 1948, as amended	Design and implementation of a flood warning system for Lycoming County, Pennsylvania.	Sec. 205 PL 80-858 Authorized by Detailed Project Report, Dec 2001

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
36.		**MOOREFIELD, WV**	
	Nov 28, 1990	Levee, floodwall, closures, relocations, and improvements to the flood warning system.	Report of the Chief of Engineers dated July 23, 1990
	Sep 30, 1996	Authorization limit increase.	P.L. 104-206
37.		**OLYPHANT, LACKAWANNA RIVER, PA**	
	Oct 31, 1992	Provides for 3,800 feet of earth levee, 1,400 feet of concrete floodwall, a closure structure, interior drainage facilities, 1,500 feet of gabion slope protection and asscociated cultural mitigation and environmental restoration.	Report of the Chief of Engineers dated June 29, 1992
	Dec 1, 2003	Increasing project authorization to $23,000,000.	P.L. 108-137
38.		**RAYSTOWN LAKE, RAYSTOWN BRANCH, JUNIATA RIVER, PA**	
	Oct 23, 1962	Construction of dam and appurtenant facilities.	H. Doc. 565, 87th Cong., 2nd Sess.
39.		**LACKAWANNA RIVER, SCRANTON, PA**	
	Oct 31, 1992	Provides for 5,800 feet of earth levee, 1,700 feet of concrete floodwall, 3 closure structures, interior drainage facilities, 2,700 feet of gabion slope protection, an improved flood warning system, removal of a railroad bridge, access ramp, and associated cultural mitigation.	Report of the Chief of Engineers dated June 29, 1992
	Modified by Act of Oct 12, 1996	Directs Secretary to carry out the project for Plot and Green Ridge sections and allows non-Federal interest to participate in the financing of the project in accordance with Section 903(c) of WRDA 86.	P.L. 104-303
40.		**OCEAN PINES, WORCESTER COUNTY, MD**	
	Oct 12, 1996	Restoration of 6.3 acres of filled salt marsh to tidal salt marsh.	Ecosystem Restoration Report
41.		**WILLIAMSPORT, PA - HAGERMAN'S RUN**	
	Oct 13 1997	Directs the Secretary of the Army to use $225,000 to construct necessary repairs to the flume and conduit for flood control at the Hagerman's Run project.	P.L. 105-62
42.		**WV & PA FLOODING PROGRAM**	
	Oct 12, 1996	Provides for design and construction of structural and non-structural flood control, streambank protection, stormwater management and channel clearing and modification measures in the West Branch Susquehanna River and Juniata River Basins in Pennsylvania.	P.L. 104-303
	Aug 17 1999	Requires flood protection not less than 100-year level for measures that incorporate levees or floodwalls.	P.L. 106-53
43.		**SOUTHERN NEW YORK FLOOD CONTROL PROJECTS**	
	Jun 22, 1936 modified by Acts of Jun 28, 1938 Aug 18, 1941; Dec 22, 1944; May 17, 1950; and Jul 3, 1958	Construction of detention reservoirs and related flood control works for protection of Binghamton, Hornell, Corning and other towns in New York and Pennsylvania.	H. Doc. 702, 77th Cong., 2nd Sess.

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
44.		**STILLWATER LAKE, LACKAWANNA RIVER, PA**	
	Aug 18, 1941	Construction of a flood control reservoir.	H. Doc. 702, 77th Cong., 2nd Sess.
45.		**SUSQUEHANNA RIVER FLOOD CONTROL PROJECTS, NY AND PA**	
	Jul 3, 1958	Construction of Cowanesque and Tioga-Hannond reservoirs, local flood protection works at Elkland, PA, and Nichols, NY and channel improvement at Cortland, NY.	H. Doc. 702, 77th Cong., 2nd Sess.
	Oct 22, 1976	Modification in connection with the construction of Cowanesque Lake to relocate the Town of Nelson, PA, to a new townsite.	H. Doc. 394, 84th Cong., 2nd Sess.
	Mar 1, 1983	Modification of Cowanesque Lake to include water supply as provided by Section 4 of the Flood Control Act of 1944 (PL 78-534) and Section 301 of Water Supply Act of 1958 (PL 85-500).	
46.		**WEST BRANCH OF SUSQUEHANNA RIVER, PA**	
	Sep 3, 1954	Construction of three flood control reservoirs.	H. Doc. 29, 84th Cong., 1st Sess.
47.		**WYOMING VALLEY, PA (LEVEE RAISING)**	
	Nov 17, 1986	Modification provides for raising existing levees and floodwalls between 3 and 5 feet, modifying closure structures, relocating utilities and providing some new floodwalls and levees to maintain the integrity of the existing flood control system.	Report of the Chief of Engineers dated October 19, 1983
	Oct 12, 1996	Modification to include as part of the construction of the project mechanical and electrical upgrades to stormwater pumping stations. The second modification is for the non-Federal sponsor to carry out mitigation measures that the Secretary would otherwise be authorized to carry out.	PL 104-303 Sec. 346
48.		**YORK, INDIAN ROCK DAM, PA**	
	Jun 22, 1936	Construction of Indian Rock Dam and channel improvements on Codorus Creek.	H. Doc. 702, 77th Cong., 2nd Sess.
52.		**ANACOSTIA RIVER AND TRIBUTARIES, MD AND DC**	
	Oct 12, 1996	The project consists of two wetland restoration sites in the District of Columbia, one stream restoration site and one stormwater wetland site in Prince George's County, and nine stream restoration and stormwater wetland sites in Montgomery County. The project will restore a total of 80 acres of tidal and non-tidal freshwater wetlands, 5 miles of piedmont streams, and 33 acres of bottomland hardwood forest within the highly urbanized Anacostia River watershed.	Report of the Chief of Engineers, dated November 15, 1994
53.		**CHESAPEAKE BAY OYSTER RECOVERY, MD**	
	Nov 17,	Contributes to multi-agency and private efforts to restore oyster populations in the Maryland portion of the Chesapeake Bay.	P.L. 99 - 662
	Oct 12, 1996	Modification by inserting "and Virginia" after "Maryland" and increased program Authorization to $7 million.	P.L. 104-303
	Dec 11, 2000	Increased program authorization to $20 million.	P.L. 106-541 Sec. 342
54.		**CHESAPEAKE BAY ENVIRONMENTAL RESTORATION**	
	Oct 12, 1996	Establishes a pilot program to provide environmental design and construction assistance to new Federal interests in the Chesapeake Bay watershed.	P.L. 104-303
55.		**HART MILLER ISLAND, MD**	
	Nov 17, 1986	Provide avian habitat and significantly improve regional wildlife habitat diversity in the northern Chesapeake Bay. Restoration of the south cell of the existing placement site includes approximately 180 acres of wetlands and mudflats for shorebird habitat, a one-acre nesting island, and 118 acres of upland for songbird habitat.	Sec. 1135 PL 99-662 Authorized by Detailed Project Report, Sep 1998

TABLE 4-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
56.		**NORTHEAST PENNSYLVANIA, PA**	
	Oct 31, 1992	Establishes a pilot program for water-related environmental infrastructure and resource protection and development projects, including waste water treatment and related facilities and water supply, storage, treatment, and distribution facilities. Such assistance may be in the form of technical and planning and design assistance.	Water Resources Dev. Act of 1992
	Aug 17, 1999	Provides construction assistance of $20,000,000 for water related infrastructure in the counties of Lackawanna, Lycoming, Susquehanna, Wyoming, Pike, Wayne, Sullivan, Bradford, and Monroe, PA, including assistance for the Mountoursville Regional Sewer Authority, Lycoming Country, PA.	Water Resources Dev. Act of 1999 Sec. 502(f)(11), P.L. 106-53
57.		**ROOSTER ISLAND, MD**	
	Nov 17, 1986	Restoration plan includes construction of a 2,100-foot breakwater to protect the exposed northern side of the island. The plan also includes a groin field to stabilize the leeward side of the restoration and placement of about 28,000 cubic yards of fill at the island which will be planted with wetland vegetation.	Sec. 1135 PL 99-662 Authorized by Detailed Project Report, Nov. 1995
58.		**POPLAR ISLAND, MARYLAND**	
	Oct 12, 1996	The project consists of reconstructing Poplar Island to its approximate size in 1847 (1,110 acres), using an estimated 38 million cubic yards of uncontaminated dredged material from maintenance dredging of the southern approach channels of the Baltimore harbor and Channels navigation project.	Report of the Secretary of the Army, dated September 3, 1996
	Dec 11, 2000	Modification that the non-Federal share of the cost of a project may be provided in cash or in the form of In-kind-services or materials.	P.L. 106-541
59.		**SOUTH CENTRAL PA ENVIRONMENTAL IMPROVEMENT PROGRAM**	
	Oct 31, 1992	Pilot program for providing environmental assistance to non-Federal interests in South Central Pennsylvania.	P.L. 102-580
	Modified by Acts of Nov 13, 1995	Expanded scope to include 15 counties; increased program authorization limits to $50 million; provided for non-Federal sponsor credit for design and construction prior to PCA execution; allowed for Federal share of project costs to be provided in the form of grants or reimbursement of project costs; and provided the non-Federal sponsors to receive credit for reasonable interest to provide non-Federal share of project's cost.	P.L. 104-46
61.		**DEEP RUN/TIBER HUDSON, MD**	
	Oct 12, 1996	Provide aquatic ecosystem restoration and protection improving the quality of the environment. The recommended plan included implementation of 12 projects, which include 2 stormwater management ponds, 3 wetland creation sites, and 7 steam restoration sites.	Sec. 206 PL 104-303 Authorized by Detailed Project Report, Jul 1999
62.		**DENTS RUN, PA**	
	Oct 12, 1996	An aquatic ecosystem restoration and protection project if the Secretary determines that the project will improve the quality of the environment and is in the public interest.	Detailed Project Report, Oct. 2001
63.		**ISLE OF WIGHT, MD**	
	Oct 12, 1996	Re-establish salt marsh restoration/shoreline that lies along the southeastern shoreline of the island. Phase I is to provide restoration of intertidal connectivity to provide proper inundation and tidal flushing for 2 existing marshes located shoreward of the project site. Phase II is to follow the maintenance dredging contouring of the dredge material along with 10,000 cubic yards of select marsh fill to approximate desired marsh elevation and configuration within breakwater/fill area.	Sec. 206 PL 104-303 Authorized by Detailed Project Report, Jun 1998
64.		**LITTLE FALLS FISH PASSAGE ,MD**	
	Nov 17, 1986	Reestablish migratory fish access to 10 miles of historic spawning habitat upstream of the Little Falls Dam.	Sec. 1135 P.L. 99-662 Authorized By Detailed Project Report, Apr 1996

TABLE 4-B AUTHORIZING LEGISLATION

1. Exclusive of portion considered inactive. Inactive portion is widening 35-foot depth channel from 150 to 400 feet from Port Covington to Ferry Bar, widening 27-foot depth channel from 150 to 250 feet to Hanover Street Bridge, and providing a channel 127 feet deep by 250 feet wide to Western Maryland Railway Bridge with an anchorage and turning basin at the upper end.
2. Contains latest published maps.
3. Included in Public Works Administration program September 16, 1993. The site chosen for the inlet under this authorization was opened just south of Ocean City by natural forces during a severe storm in August 1933. This eliminated the necessity for an 8-foot channel from the inlet to Ocean City.
4. Included in Emergency Relief Program 1935.
5. Raising of the north jetty to an elevation of 9 feet above mean low water was accomplished with maintenance funds in 1956.

TABLE 4-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Accotink Creek, VA[1]	Completed	1878	$ 5,000	$ --
Anacostia River and Flats[2]	Deferred	1953	3,910,582	--
Annapolis Harbor, MD	Completed	1993	34,250[3]	51,366
Aquia Creek, VA	Inactive	1928	52,465[4]	11,770
Back Creek, MD	Completed	1946	23,061	41,378
Black Walnut Harbor, MD	Completed	1982	32,631	431,478
Branson Cove, Lower Machodoc River, VA	Completed	1950	15,755	35,684
Breton Bay, MD[6]	Completed	1950	47,924[5]	47,593
Broad Creek, River, DE	Completed	1964	65,510[6]	
Cambridge Harbor, MD	Completed	1993	195,974[7]	946,934
Chester River, MD	Completed	2003	70,495	864,155[8]
Chester River, Bodkin Island, MD	Deferred	2000	67,000	0
Choptank River, MD[9]	Completed	1979	96,796	104,230
Claiborne Harbor, MD[1]	Deferred	1987	42,974	709,047
Colonial Beach, VA	Completed	2003	41,200	
Corsica River, MD	Completed	1948	39,071[10]	134 770
Crisfield Harbor, MD	Completed	2003	416,736[11]	1,923,394
Cypress Creek, MD	Completed	1947	3,057	14,729
Elk and Little Elk Rivers, MD[12]	Completed	1932	90,121[13]	53,808[14]
Fishing Bay, MD	Completed	1998	34,074[15]	2,161,260
Goose Creek, MD[16]	Completed	1973	75,900	22,013
Herring Bay & Rockhold Creek, MD	Completed	2003	133,337	1,657,824
Herring Creek, MD	Completed	1989	1,506,259	1,124,317
Hudson Branch, Howard County, MD	Completed	2002	1,406,838	
Isle of Wight Bay, MD	Completed	2002	1,300,298	
Knapps Narrows, MD	Completed	2001	23,836	1,207,831
LaTrappe, MD	Completed	1980	8,064[17]	40,475
Little Creek, Kent Island, MD	Completed	1958	23,000[18]	7,327
Little Wicomico River, MD	Completed	2002	81,886	2,882,531
Loch Haven, PA	Completed	2001	55,323,950	6,878,038
Lowes Wharf, MD	Completed	1986	2,100	327,530
Lower Machodoc Creek, VA	Completed	1904	9,916	30,432
Lower Thorofare, Deal Island, MD	Completed	2000	1,832,411	1,264,372
Madison Bay, MD[16]	Completed	1977	125,550	42,643
Manokin River, MD[19]	Completed	1919	34,788[20]	43,534
Middle River and Dark Head Creek, MD	Completed	1947	38,715[21]	96,785
Muddy Hook Tyler Coves, MD	Completed	1996	64,001	687,568
Nan Cove, MD[4]	Completed	1965	34,861[22]	33,138
Nanticoke River at Bivalve, MD	Completed	1983	240,817	142,131
Neale Sound, MD	Completed	2003	73,243[23]	945,585
Neavitt Harbor, MD[16]	Completed	1968	36,500	45,019
Nomini Bay and Creek, VA[24]	Completed	1946	78,446	42,063
Northeast River, VA	Completed	2002	28,489	1,816,146
Parish Creek, MD	Completed	1988	19,170[26]	533,808
Patuxent River, MD[12]	Completed	1905	14,000[27]	---
Petersburg, WV	Completed	2001	18,554,009[39]	0
Potomac River at Mount Vernon, MD	Completed	2003	17,000	1,926,137
Potomac River at Alexandria, VA	Completed	2001	95,214	1,957,668
Potomac River - Aquatic Plant Control, MD, VA, and DC	Completed	1998	2,363,589	292,116
Potomac River and Tributaries at and below Washington, DC, Elimination of Waterchestnut	Completed	1977	--	184,394
Potomac River at Lower Cedar Point, MD	Completed	1920	10,234	6,216
Potomac River North Side of Washington Channel, DC[1]	Completed	1956	1,744,692[28]	27,461[29]
Queenstown Harbor, MD	Completed	1985	72,858[30]	321,803
Rock Hall Harbor, MD	Completed	1998	1,072,500[31]	457,157
Shad Landing State Park, MD	Completed	1966	33,531	19,198
Shallow Creek, MD	Completed	1989	1,137,692	523,792
Slaughter Creek, MD	Completed	1994	4,140	682,983
St. Catherine's Sound, MD	Completed	1989	29,947[32]	659,369
Potomac River and Tributaries at and below Washington, DC, Elimination of Waterchestnut	Completed	1977	---	184,394
Potomac River at Lower Cedar Point, MD	Completed	1920	10,234	6,216
Potomac River North Side of Washington Channel, DC[1]	Completed	1956	1,744,692[28]	27,461[29]

TABLE 4-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Queenstown Harbor, MD	Completed	1985	72,858 [30]	321,803
Rock Hall Harbor, MD	Completed	1998	1,072,500 [31]	457,157
Shad Landing State Park, MD	Completed	1966	33,531	19,198
Shallow Creek, MD	Completed	2002	1,137,692	523,792
Slaughter Creek, MD	Completed	1994	4,140	682,983
St. Catherine's Sound, MD	Completed	1989	29,947 [32]	659,369
St. George's Creek, MD	Completed	1985	147,650	---
St. Jerome's Creek, MD	Completed	1991	44,357 [33]	756,360
St. Michael's Harbor, MD [16]	Completed	1964	16,723 [32]	35,666
St. Patrick's Creek, MD	Completed	1987	15,752	151,849
St. Peter's Creek, MD [16]	Completed	1963	46,740 [34]	41,223
Smith Creek, MD	Completed	1936	5,252	16,448
Susquehanna River above and below Havre De Grace, MD	Completed	1985	293,570 [35]	859,051
Susquehanna River at Williamsport, PA [16]	Completed	1974	57,031 [36]	41,437
Tilghman Island Harbor, MD	Completed	1996	424,800	464,788
Tedious Creek, MD	Completed	1998	2,330,013	0
Town Creek, MD	Completed	1950	43,220	62,386
Tred Avon River, MD	Completed	1994	523,310	927,949
Tuckahoe River, MD	Completed	1980	9,727	23,489
Tyaskin Creek, MD	Completed	1923	19,297 [37]	54,302
Upper Machodoc Creek, VA	Completed	1971	20,281	34,777
Warwick River, MD	Completed	1984	22,041 [38]	148,728

1. Unconstructed portion of the project was deauthorized August 5, 1977.
2. Project deferred for restudy.
3. Includes $8,476 for previous projects.
4. Includes $31,065 for previous projects.
5. Includes $37,500 for previous projects.
6. Includes $50,000 for previous projects.
7. Excludes $3,998 contributed funds and includes $61,321 for previous projects.
8. Includes $40,041 for previous projects.
9. Authorization for the unconstructed portion of the project was withdrawn by the Chief of Engineers January 22, 1979.
10. Includes $30,000 for previous projects.
11. Includes $87,741 for previous projects.
12. Unconstructed portion of the project was deauthorized November 2, 1979.
13. Includes $79,626 for previous project and excludes $8,414 contributed funds.
14. Includes $24,321 for previous projects.
15. Includes $2,840 for previous projects.
16. Authorized by Chief of Engineers.
17. Excludes $10,306 contributed funds.
18. Excludes $1,100 contributed funds.
19. Abandonment recommended in 1926 (H. doc. 467, 69th Cong., 1st Sess.)
20. Includes $2,000 expended outside project limits.
21. Excludes $111,581 expended by Navy Department and $52,000 from contributed funds.
22. Excludes $565 contributed funds.
23. Excludes $1,000 contributed funds.
24. Unconstructed portion of the project was deauthorized November 6, 1977.
25. Includes $25,000 for previous projects.
26. Includes $19,170 Works Progress Administration funds.
27. Includes $10,617 for previous projects.
28. Excludes $389,000 contributed funds.
29. Excludes $101,162 Public Health Service funds expended for waterchestnut removal.
30. Includes $19,000 for previous projects.
31. Excludes $672,880 contributed funds.
32. Excludes $600 contributed funds.
33. Includes $26,500 for previous projects.
34. Excludes $6,984 contributed funds.
35. Unconstructed portion of the project was deauthorized November 6, 1977. Includes $22,905 Works Progress funds and $97,390 for previous projects.
36. Excludes $40,000 contributed funds.
37. Excludes $10,158 contributed funds.
38. Includes $6,000 for previous projects.
39. Excludes $80,000 contributed funds.

TABLE 4-D OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Oxford, MD [1]	Complete	1978	97,750 [2]	---
Punch Island Road, MD	Complete	1996	199,105	---
Town of North Beach, MD	Complete	1995	450,610 [3]	---

1. Authorized by Chief of Engineers.
2. Excludes $80,648 contributed funds.
3. Excludes $245,262 contributed funds.

TABLE 4-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Anacostia River and Tributaries Flood Protection and Navigation Improvements, DC and MD	Completed	1995	$ 6,042,325	$3,735,979 [1]
Anacostia River and Tributaries, Prince Georges Co., MD [2]	Completed	1977	1,000,000 [3]	---
Bainbridge, NY [3,4]	Completed	1959	382,000	---
Bath, NY [5]	Completed	1970	638,332	---
Bayard, WV [4]	Completed	1965	55,218 [6]	---
Black Walnut Point, MD	Completed	1985	200,500	---
Bridgewater, VA [4]	Completed	1953	136,500	---
Broad Top Region, PA	Completed	2003	4,732,874	---
Bull Run, PA	Completed	1984	2,742,000	---
Chesapeake Bay at Hoopersville Road, MD	Completed	1993	156,491 [7]	---
Conklin-Kirkwood, NY [4]	Completed	1955	71,000	---
Cortland, NY [8]	Completed	1970	324,486	---
Dickson City, (Olyphant), PA	Completed	2003	1,000,000	1,178,137
Elkland, PA	Completed	1971	1,297,850	---
Endicott Johnson City and Vestal, NY	Completed	1979	7,034,534 [9]	---
Forest Heights, MD [4]	Completed	1964	430,000 [10]	---
Fourmile Run, VA	Completed	1987	52,480,000	---
Hills Point Road, Dorchester Co., MD [3]	Completed	1989	186,077	---
Greene, NY [4]	Completed	1951	37,000	---
Kingston-Edwardsville, PA	Completed	1979	4,731,394 [11]	---
Kitzmiller, MD	Completed	1965	501,500 [12]	---
Latta Brook Rd., NY	Completed	1984	115,500	---
McCready's Point Road, MD	Completed	1993	74,019 [13]	---
Middle Hooper Island, MD	Completed	1993	327,165 [14]	---
Neabsco Creek, VA	Completed	2003	57,841	2,227,375
Nichols, NY	Completed	1974	1,487,800	---
Norwich, NY [4]	Completed	1950	94,500	---
Painted Post, NY [5]	Completed	1970	414,181	---
Paxton Creek, Harrisburg, PA	Completed	1998	48,509 [15]	---
Plymouth, PA	Completed	1958	1,911,689 [16]	---
Savage River Dam, MD	Completed	1954	2,271,939 [17]	33,999
Scranton, PA [18]	Completed	1971	2,006,800	---
Spring Brook Creek, Pittston Township, PA	Completed	1993	425,960 [19]	---
Solomon Creek, Ashley Borough, Luzerne County, PA	Completed	1993	70,441 [20]	---
Solomons Island, Calvert County, MD	Completed	1993	126,049 [21]	---
Sunbury, PA	Completed	1953	6,063,000 [22]	---
Swoyersville-Forty Fort, PA	Completed	1968	2,728,113	---
Tunkhannock Creek, Tunkhannock, PA	Completed	1991	174,491 [23]	---
Tyrone, PA [24]	Deferred	1980	6,401,016	---
Unadilla, NY	Completed	1970	1,000,000 [25]	---
Upper Marlboro, MD [4]	Completed	1965	590,013	---
Verona Lake, VA [26]	Deferred	1978	992,000	---
Washington, DC and Vicinity	Completed	1953	331,927 [27]	---
Wilkes-Barre, Hanover Township, PA	Completed	1958	3,853,457 [28]	---
Williamsport, PA	Completed	1979	12,964,893 [29]	---
Wyoming Valley, PA	Completed	1987	25,549,098	---

TABLE 4-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

1. Includes $49,998 emergency relief funds.
2. Local interests will not accept opeartion and maintenance responsibility of the project until the severe erosion and sedimentation of the project caused by tropical storm Eloise is cor-rected and the project is restored to design condition.
3. Excludes $357,022 contributed funds.
4. Authorized by Chief of Engineers.
5. Unit of Southern New York Flood Control Projects.
6. Excludes $182,672 Public Works Acceleration funds and $4,290 contributed funds.
7. Excludes $67,954 Contributed funds.
8. Unit of Susquehanna River Flood Control Projects.
9. Excludes $154,694 contributed funds.
10. Excludes $87,720 contributed funds.
11. Includes $1,162,548 emergency relief funds and excludes $225,877 emergency relief funds expended prior to adoption of project.
12. Excludes $6,616 contributed funds.
13. Excludes $42,081 contributed funds.
14. Excludes $137,900 contributed funds.
15. Excludes $14,917 contributed funds.
16. Includes $4,357 emergency relief funds.
17. Includes $200,000 expended from contributed funds.
18. Unit of Lackawanna River Basin Projects.
19. Excludes $126,255 contributed funds.
20. Excludes $25,014 contributed funds.
21. Excludes $51,666 contributed funds.
22. Excludes $140,504 contributed funds.
23. Excludes $53,383 contributed funds.
24. The unconstructed portion of the project was reclassified to the deferred category January 8, 1981.
25. Excludes $132,578 contributed funds.
26. Authorized for the design memorandum state of advanced.
27. Cost of previous project includes $106,500 emergency relief funds.
28. Includes $872,715 emergency relief funds. Excludes $36,375 emergency relief funds expended for new work before adoption of project.
29. Includes $1,887 emergency relief funds and excludes $110,835 contributed funds.

TABLE 4-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Almond Village, NY [1,2]	1970	May 26, 1953 1941 Flood Control Act	$ 24,622 [3]	---
Baltimore Harbor & Channels, MD (Ferry Bar & Spring Garden Channel)	1920	Nov. 17, 1986 1966 Water Res. Dev. Act	787,710	---
Betterton Harbor, MD	1960	Dec. 31, 1989 1986 Water Res. Dev. Act	3,482	---
Breton Bay, MD (1902 River & Harbor Act)	1950	Dec. 31, 1989 1986 Water Res. Dev. Act	10,424	---
Broadwater Creek, MD	1949	Nov. 6, 1977 1974 Water Res. Dev. Act	212	---
Cadle Creek, MD [2]	1949	Nov. 6, 1977 1974 Water Res. Dev. Act	---	---
Cambridge Harbor, MD (1948 River & Harbor Act)	1989	Dec 31, 1989 1986 Water Res. Dev. Act	---	---
Channel Connecting Plain Dealing Creek and Oak	1940	Aug. 5, 1977 1974 Water Res. Dev. Act.	112	---
Chester River, MD (1873 River & Harbor Act)	1988	Dec. 31, 1989 1986 Water Res. Dev. Act	25,419	---
Coan River, VA	1937	Aug. 5, 1977 1974 Water Res. Dev. Act	---	---
Copes Corner Lakes, NY [2]	1970	May 6, 1981 1974 Water Res. Dev. Act	106,700 [3]	---
Cuckold Creek, MD [4]	1978	Jan 22, 1979 1960 River and Harbor Act	5,720	---
Cunninghill Cove, MD [4]	1977	Jan. 22, 1979 1960 River and Harbor Act	11,200	---
Curwensville Lake (WaterLine), PA [5]	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Davenport Center Lake, NY [2]	1970	May 6, 1981 1974 Water Res. Dev. Act	286,400 [3]	---
Endicott, Johnson City, and Vestal (Remedial), NY [5]	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Fall Brook Lake, PA [6]	1970	May 6, 1981 1974 Water Res. Dev. Act	46,100	---

TABLE 4-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Genegantslet Lake, NY	1954	May 6, 1981 1974 Water Res. Dev. Act	214,578 [3]	---
Governors Run, MD	1950	Aug. 5, 1977 1974 Water Res. Dev. Act	---	---
Harpers Ferry, WV	1937	Aug. 5, 1977 1974 Water Res. Dev. Act	---	---
Hellens Creek, MD	1950	Nov. 6, 1977 1974 Water Res. Dev. Act	---	---
Lake Ogleton, MD	1950	Nov. 6, 1977 1974 Water Res. Dev. Act	---	---
Marsh Creek Bridge, Foster Joseph Sayers Dam, PA 5	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Mill Creek, MD	1949	Nov. 6, 1977 1974 Water Res. Dev. Act	---	---
Moorefield, WV	1941	Oct. 3, 1978 1974 Water Res. Dev. Act	7,928 [3]	---
Neabsco Creek, VA (1881 River & Harbor Act)	1978	Dec. 31, 1989 1986 Water Res. Dev. Act	14,600	---
Ocean City Harbor and Inlet and Sinepuxent Bay, MD (1954 River & Harbor Act)	1989	Dec. 31, 1989 1986 Water Res. Dev. Act	---	---
Pocomoke River, MD (1945 River & Harbor Act)	1989	Dec. 31, 1989 1986 Water Res. Dev. Act	---	---
Pocomoke River, MD & VA (1954 River & Harbor Act)	1989	Dec. 31, 1989 1986 Water Res. Dev. Act	---	---
Saint Georges Creek, MD	1971	Sep. 23, 1986 1974 Water Res. Dev. Act	---	---
Sixes Bridge Lake, MD & PA [7]	1974	Dec. 29, 1981 1974 Water Res. Dev. Act	---	---
South Plymouth Lake, NY	1953	May 6, 1981 1974 Water Res. Dev. Act	100,036 [3]	---
Susquehanna River, Sunbury Closure Structure, PA [7]	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Tyrone, PA	1980	Nov. 1, 1997 1992 Water Res. Dev. Act	6,401,016	---

TABLE 4-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Waterway from Little Choptank River to Choptank River, MD	1939	Aug. 5, 1977 1974 Water Res. Dev. Act	305	---
West Oneonta Lake, NY [2]	1970	May 6, 1981 1974 Water Res. Dev. Act	189,100 [3]	---

1. Local cooperation withdrawn, project authorization expired May 26, 1958.
2. Unit of Southern New York Flood Control Projects.
3. Cost for preliminary work only.
4. Project authorization was withdrawn by the Chief of Engineers.
5. Project deauthorized by Section 100(A) of Public Law 99-662.
6. Unit of Lakawanna River Basin Projects.
7. Authorized for the design memorandum stage of advanced engineering and design.

TABLE 4-H RECONNAISSANCE AND CONDITION SURVEYS

Project	Date Survey Completed
MARYLAND	
Annapolis Harbor	April 2003
Back Creek	April 2003
Cambridge Harbor	April 2003
Chester River, Bodkin Island	June 2003
Fishing Bay	
Farm Creek	June 2003
Goose Creek	April 2003
Goose Creek, Somerset County	June 2003
McCready's Creek	Apil 2003
Little Creek, Kent Island	February 2003
Middle River and Dark Head Creek	April 2003
Ocean City Harbor and Inlet and Sinepuxent Bay	February 2003
Parish Creek	June 2003
Queenstown Harbor	June 2003
Shallow Creek	June 2003
Slaughter Creek	June 2003
Susquehanna River	
Above and below Havre De Grace	June 2003

TABLE 4-I INSPECTION OF COMPLETED PROJECTS

Project	Date Inspected
MARYLAND	
Anacostia River Basin	October 2003
Cumberland	November 2002
Forest Heights	October 2002
Kitzmiller	November 2002
Upper Marlboro	October 2002
NEW YORK	
Addison	September 2002
Avoca	October 2002
Bainbridge-Newton Creek	October 2002
Bath-Cohocton River	October 2002
Binghamton	October 2002
Canisteo	September 2002
Cincinnatus	October 2002
Conklin-Kirkwood	October 2002
Corning-Monkey Run	October 2002
Cortland	October 2002
Elmira	October 2002
Endicott-Johnson City & Vestal	October 2002
Greene	October 2002
Hornell	October 2002
Latta Brook	October 2002
Lisle	October 2002
Nichols	October 2002
Norwich	October 2002
Owego	October 2002
Oxford	October 2002
Painted Post	October 2002
Port Dickinson	October 2002
Sherburne	October 2002
Unadilla	October 2002
Whitney Point	October 2002
PENNSYLVANIA	
Ashley	October 2002
Elkland	October 2002
Hanover	October 2002
Kingston-Edwardsville	October 2002
Lock Haven	October 2002
Loyalsock	October 2002
Milton	November 2002
Pittston	October 2002
Plymouth	October 2002
Scranton	October 2002
Solomon Creek	October 2002
South Williamsport	November 2002
Sunbury	November 2002
Swoyersville-Forty Fort	October 2002
Tunkhannock	October 2002
Tyrone	October 2002
Wilkes-Barre-Hanover Twp.	October 2002
Williamsport	October 2002

TABLE 4-I INSPECTION OF COMPLETED PROJECTS

Project	Date Inspected
VIRGINIA	
Bridgewater	May 2003
Fourmile Run	October 2002
District of Columbia & MD Projects	October 2002
Anacostia River	October 2002
Washington, DC & Vicinity	October 2002
WEST VIRGINIA	
Bayard	November 2002
Moorefield	November 2002
Petersburg	November 2002
Ridgeley	November 2002

NORFOLK, VA DISTRICT

The district comprises the State of Virginia, except the Potomac, Roanoke, and Ohio River Basins; the entire area on the eastern shore of Virginia except for the project for Pocomoke River, Maryland and Virginia. On the west shore of Chesapeake Bay, all waterways south of Smith Point, VA, at the mouth of the Potomac River except the project for Little Wicomico River, VA. North Carolina, only the Chowan River Basin downstream to and including the mouth of the Meherin River, and the Dismal Swamp Canal Route of the Atlantic Intracoastal Waterway to the Albemarle Sound. West Virginia, only the James River Basin.

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NAVIGATION

1. APPOMATTOX RIVER, VA

Location. This river rises in Appomattox County, VA, flows northeasterly 137 miles, and empties into the James River at Hopewell, VA. The portion under improvement extends from its mouth to Petersburg, VA, a distance of 11 miles, which is the length of the tidal and navigable reach. (See National Ocean Service Chart No. 12251.)

Previous projects. For details see page 469 of Annual Report for 1938.

Existing project. This project provides for a channel 60 to 80 feet wide and 10 feet deep from the mouth of the river to a point 400 feet above Lieutenant Run; thence 80 feet wide and of such depth, not exceeding 10 feet, as can be obtained without rock excavation to the head of navigation at Petersburg; including a turning basin at the mouth of Lieutenant Run 410 feet long, 80 to 140 feet wide, and 10 feet deep. All depths are referred to mean low water.

The project also provides for a dam at Petersburg and the excavation for a width of from 200 to 300 feet of a diversion channel connecting the river above the dam with the river at a point 2.5 miles below; for about 1.7 miles of levees on the low grounds between the navigable and the diversion channels; for a highway bridge and a railway bridge across the diversion channel; and for other work incidental to the diversion channel.

Under ordinary conditions the mean tidal range is 2.9 feet and the extremes 2.4 and 3.3 feet. There are no records available of the heights of stage due to ordinary floods. These are estimated at 6 to 8 feet above mean low water at Petersburg, where the extremes are from 15.6 feet to 17.1 feet.

Local cooperation. Fully complied with. City of Petersburg, VA is the local sponsor. For details, see page 212 of Annual Report for 1969.

Terminal facilities. There are about 2,500 feet of wooden bulkhead and a shore landing in Petersburg Harbor. These facilities are in an abandoned, dilapidated condition and have not been used by commercial traffic on the river since 1950. There are two large recreational facilities now in operation on the Appomattox River. One is located about 2 miles downstream from Petersburg, VA and the other is at Hopewell, VA near the confluence of the Appomattox and the James. There is also a sand and gravel loading facility at Puddledock, located about 3 miles downstream from Petersburg, VA.

Operations during fiscal year. Work consisted of performing engineering, design, environmental analyses, soil borings, surveys and numerical modeling. Work also consisted of coordination and technical assistance to the City of Petersburg in its efforts to secure a site for placing contaminated dredged material.

2. ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA, AND ST. JOHNS RIVER, FL (NORFOLK DISTRICT)

Location. Two inland water routes approximately paralleling Atlantic coast south of Norfolk, VA ,between a point in

Southern Branch of Elizabeth River, VA, 2,500 feet upstream of Norfolk & Western Railway bridge and Virginia-North Carolina state line in North Landing River, a distance of 27.2 miles; and 64.6 miles between mouth of Deep Creek, VA, and mouth of Pasquotank River, NC. These routes are shown on National Ocean Service Chart 12206.

Existing project. A channel 12 feet deep at mean low water and 90 to 250 feet wide following southern Branch of Elizabeth River, 5.2 miles, Virginia Land Cut, 8.3 miles, and North Landing River, 13.7 miles; and construction of tidal guard lock at Great Bridge, VA. It also provides channels 10 feet deep at mean low water and 90 to 100 feet wide in Deep Creek, 3.1 miles, Turners Cut, 4.3 miles and Pasquotank River, 35.1 miles; maintaining Dismal Swamp Canal, 22.1 miles, to about 9 feet deep mean canal level over a width of 50 feet; protection of banks in Turners Cut with sheet piling, and cutting curtain sharp points in Pasquotank River to shorten its course. Project includes operating and care of completed locks, dams and bridges. Southern Branch of Elizabeth River and Deep Creek sections of the two routes are tidal, mean range being about 3 feet with extremes of minus 3.5 and plus 9.6 feet. Remaining sections are non-tidal with fluctuations of 1 to 2 feet in level due to winds.

Local cooperation. None required.

Terminal facilities. Existing facilities are considered adequate. See Annual Report for FY 1970.

Operations during fiscal year. Work consisted of operation and operational maintenance of the locks, bridges, spillways, wharves, canal equipment, grounds, roadways, and buildings along Norfolk District's portion of the Atlantic Intracoastal Waterway. All work was performed by contract. Additional contracts were awarded to dredge Deep Creek Channel along the Dismal Swamp Canal and repair the pile supports to the North Landing Bridge in the Albemarle and Chesapeake Canal.

3. ATLANTIC INTRACOASTAL WATERWAY (AIW) BRIDGE REPLACEMENT, DEEP CREEK, CHESAPEAKE, VA

Location. Deep Creek, located in southeastern Virginia within the City of Chesapeake, is the northern terminus of the Dismal Swamp Canal (DSC). The DSC is a portion of the Atlantic Intracoastal Waterway (AIW) that connects the Southern Branch of the Elizabeth River at Deep Creek to the Pasquotank River at South Mills, North Carolina, via Turner's Cut, covering a distance of 64.6 miles. The route of the AIW, extending from New Jersey to Florida, passes through the harbor of Baltimore, Maryland; Norfolk Harbor, Virginia; and down the Southern Branch of the Elizabeth River, to the tidal river Deep Creek, a tributary to the Southern Branch, down to the Deep Creek Locks where the DSC begins. The canal is generally oriented north-south.

Existing projects. Atlantic

Intracoastal Waterway Bridge at Deep Creek, Virginia, is Federally owned and Corps operated facility that is functionally obsolete because of its narrow roadway and poor alignment with the connection roads, compounded by increasing traffic volumes. This project is to replace the existing structure in conjunction with the city's and the Commonwealth of Virginia's plans to improve the road system in this area. The new bridge will be a split leaf pit bascule consisting of a 2-lane leaf (eastbound) and a 3-lane leaf (westbound). Once completed, the local sponsor will assume ownership of the bridge and take over operation and maintenance.

Local cooperation. Complied with except that the entire project through construction will be Federally funded. Upon completion of construction, the bridge will be turned over to the City of Chesapeake, Virginia, for operation and maintenance.

Operations during fiscal year. Work consisted of continuing Preconstruction Engineering and Design (PED).

4. ATLANTIC INTRACOASTAL WATERWAY BRIDGE AT GREAT BRIDGE, VA

Location. The project is located in the city of Chesapeake, in the southeastern portion of VA. The city is bordered by the city of Suffolk on the west, the cities of Norfolk and Portsmouth on the North, the city of Virginia Beach on the east, and North Carolina on the south. The federally owned Atlantic Intracoastal Waterway highway bridge crosses the Albermarle and Chesapeake Canal in the community of Great Bridge.

Existing project. The plan of improvement includes replacement of the existing 55-year old, U.S. Army Corps of Engineers, 2-lane swing bridge with a 5-lane, double-leaf, rolling-lift bascule bridge, 2000 LF of approach roadway, utility relocations, and removal of the existing bridge. The feasibility report was approved in Jul 94. Pre-construction engineering and design was initiated during FY 95 and completed in FY 97. Project Cooperation Agreement was executed on 22 Nov 99. The construction contract for the bascule bridge was awarded on 13 Jul 01.

Local cooperation. The local sponsor (city of Chesapeake) is required to assume OMRR&R responsibility on project completion in accordance with the provisions described in Section 339 of the National Highway System Designation Act of 1995. (P.L. 104-59)

Operations during fiscal year. Ownership and operation of the bridge will be turned over to the City of Chesapeake, VA, on 1 July 2004. Completion of the roadway construction is schedule for December 2004.

5. BACK RIVER, POQUOSON, VA

Location. Back River is a tidal estuary located within the cities of Poquoson and Hampton, VA. The project channel joins Front Cove with Back River at Messick Point, near the river's confluence

with the Chesapeake Bay. (See National Ocean Service Chart No. 12222.)

Existing project. Provides for a channel 6 feet deep and 60 feet wide from deep water in Back River to the city boat ramp and public landing at Messick Point, a distance of approximately 3,000 feet; also provides a turning basin located adjacent to the boat ramp 100 feet square. Mean tidal range is 2.3 feet.

Local cooperation. Fully complied with. City of Poquoson, VA is the local sponsor.

Terminal facilities. Existing terminal facilities are adequate for present commerce.

Operations during fiscal year. The Norfolk District coordinated with the City of Poquoson and initiated fiscal close out of the new work construction, completed in May 2002.

6. BENNETT'S CREEK, VA

Location. Bennetts Creek is located on the south shore of the Nansemond River in the City of Suffolk, VA. (See National Ocean Service Chart No. 12248)

Existing project. Provides for a channel 6 feet deep and 60 feet wide over a length of about 1 mile, from the 6-foot contour in the Nansemond River to the 6-foot contour within the mouth of Bennetts Creek, and extending upstream to the city boat ramp at Bennetts Creek Park, a distance of approximately 2.4 miles. Mean range of tide is 2.8 feet.

Local cooperation. Fully complied with. City of Suffolk, VA is the local sponsor.

Terminal facilities. Terminal facilities are adequate for existing commerce.

Operations during fiscal year. The U.S. Army Corps of Engineers Special Purpose Dredge CURRITUCK was used to dredge the entrance channel during July 2003; the dredged material was placed into the Craney Island Rehandling Basin. Additionally, a project condition survey of the channel was performed and distributed to the users.

7. CHANNEL TO NEWPORT NEWS, VA

Location. West of north entrance to Norfolk Harbor Channel, connects deep water in James River with Hampton Roads. (See National Ocean Service Chart No. 12245.)

Existing project. A channel 55 feet deep at mean low water and 800 feet wide from Norfolk Harbor Channel in Hampton Roads to Newport News, a distance of about 5.4 miles, and two deep-draft anchorage berths opposite Newport News 45 feet deep over a 1,200-foot swinging radius. Under ordinary conditions mean tidal range is 2.7 feet and extremes 2.1 and 3 feet. Extremes of irregular fluctuations due to combined wind and tides, referred to mean low water, are minus 2 feet and plus 9.5 feet.

Local cooperation. Fully complied with for dredging the channel to an intermediate depth of 50 feet, which was completed December 2, 1988. The local sponsor (Virginia Port Authority) is required to furnish cost sharing in accordance with the provisions described in the Water Resources Development Act of 1986, as amended, for additional deepening.

Terminal facilities. See Port Series No. 11, (Revised 1993) on Ports of Hampton Roads, prepared by the Water Resources Support Center.

Operations during fiscal year. A contract to dredge the 50-foot channel was executed in April and May of 2002; a total of 280,424 cubic yards was removed. A condition survey of the channel and associated anchorages was performed in February 2003.

8. CHINCOTEAGUE BAY, VA

Location. The project is just south of the Maryland state line and provides access to Chincoteague Bay from a public landing and marina at the town of Greenbackville, VA. (See National Ocean Service Chart 12211.)

Existing project. Provides an approach 5 feet deep and 60 feet wide from that depth in Chincoteague Bay to an L-shaped harbor of the same depth, 60 feet wide, and 1500 feet long. The total length is approximately 4200 feet. Mean range of tide is about 0.6 feet. All depths are referred to mean low water.

Local cooperation. Fully complied with

Terminal facilities. Existing facilities are considered adequate for current and prospective traffic.

Operations during fiscal year. Work on the project consisted of condition surveys of the channel.

9. CHINCOTEAGUE INLET, VA

Location. Chincoteague Inlet at the southern end of Assateague Island provides access to the Atlantic Ocean from the inland waterway near the town of Chincoteague, VA. (See National Ocean Service Chart 12211.)

Existing project. Provides for a channel 12 feet deep and 150 feet wide across the ocean bar in the Atlantic Ocean and to the mouth of the inlet, a channel 9 feet deep and 100 feet wide from the inlet through the canal, and then along Chincoteague Channel to a point approximately 2,000 feet north of the state highway bridge to Chincoteague, a distance of about 6.6 miles. Mean range of tide is about 3 feet. All depths are referred to mean low water.

Local cooperation. Fully complied with. For details see Annual Report for 1974.

Terminal facilities. Existing facilities at Chincoteague are considered adequate for current and prospective traffic.

Operations during fiscal year. Maintenance dredging was performed on the inner channel and removed 12,261 cubic yards of material to restore project depths. A project condition survey of the entire project was performed.

10. CRANEY ISLAND EASTWARD EXPANSION FEASIBILITY STUDY, VA

Location. The Craney Island Dredged Material Management Area (CIDMMA) is a man-made dredge containment area located along the south bank of the James River in Portsmouth, Virginia.

Existing project. Authorized in 1946 and constructed between 1956 and 1958, provides a 2,500 acre dredge disposal site for the deposition of dredge spoils from the Hampton Roads inner harbor. The site is owned by the Federal government and operated by the Corps of Engineers, Norfolk District. Project is operated and maintained by the collection of tolls from users. Feasibility study was authorized by a 1997 resolution of the U.S. House of Representatives Committee on Transportation and Infrastructure. Purpose of the study is to investigate an eastward expansion of Craney Island giving specific attention to rapid filling to accommodate anticipated port expansion and to the operation of the existing facility while extending the useful life of Craney Island, and shall take into account all relevant environmental issues and the subsequent transfer of the expanded area to the Commonwealth of Virginia.

Local cooperation. Commonwealth of Virginia is funding 50% of the feasibility study cost.

Terminal facilities. Existing facilities require expansion to meet future dredge material placement needs of the Hampton Roads Port.

Operations during fiscal year. Conduct of feasibility study.

11. DEEP CREEK, NEWPORT NEWS, VA

Location. Deep Creek is a tidal estuary of the James River, lying wholly in the City of Newport News, Virginia. It is about 3 miles in length, flows in a southeasterly direction, and empties into the James River on its northerly side about 10.5 miles upstream from the mouth of the James River. (See U.S. Coast Guard and Geodetic Survey Chart No. 12222.)

Previous projects. For details, see page 360 of Annual Report for 1962.

Existing project. Provides for an approach channel 8 feet deep at mean low water and 100 feet wide extending from the 8-foot depth contour in James River to a point where the natural creek entrance to Deep Creek is constricted, a distance of 9,040 feet; thence 8 feet deep and 60 feet wide through the constricted entrance, a distance of 700 feet. The enlargement of the harbor in Deep Creek opposite Menchville, extending upstream to a point near Parkers Landing and to the foot of Maxwells Lane,

from 6.4 acres to about 20 acres with depth of 8 feet, 400 to 740 feet wide and 1,940 feet long, and a harbor 300 feet 2ide by 500 feet long to a depth of 6 feet upstream of the existing harbor.

Under ordinary conditions the mean tidal range is 3 feet. The extremes of irregular fluctuations referred to mean low water due to the combined effect of wind and tides are minus 2 feet and plus 98 feet.

Local cooperation. Fully complied initial construction under Section 122 of the 1976 Water Resources Development Act. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to review the requirement of local cooperation with respect to providing a spoil disposal area for the project and Deep Creek, Warwick County (now within the City of Newport News), Virginia, authorized by the Act of August 26, 1937 (commonly referred to as the River and Harbor Act of 1937, 50 Stat.845), to determine if (1) such requirement should be eliminated, and (2) Craney Island disposal area should be used as the spoil disposal area for dredged material from such project. Such review shall be completed and submitted in a report to congress within two years after the date of enactment of this action.

Beginning on the date of enactment of this section (1) the requirement of local cooperation described in subsection (a) shall be suspended, and (2) Craney Island disposal area shall be used as the spoil disposal area for dredged material from such project until Congress, by a statue enacted after the date on which the report required by subsection (a) is submitted, removes such suspension.

Terminal facilities. There are four privately owned piers and one public county pier and bulkhead of wooden construction at Menchville. One pier is used for pleasure craft only. The remainder are commercial. There is also a shore landing for the receipt of sand and gravel, several privately owned wooden piers and two marinas are on the south side of the harbor. The wharves have no rail connections, but are served by State highways. The existing facilities are considered adequate for the present commerce.

Operations during fiscal year. Engineering and design were accomplished to perform maintenance dredging. A dredging contract was awarded to Hampton Roads Leasing Corporation, DACW65-03-C-0023 on July 10, 2003. Between July 28 and October 17, 2003, the contractor removed a total of 84,788 cubic yards and placed the material in the Craney Island Rehandling Basin.

Conditions and end of fiscal year. Construction of the project to a depth of 6 feet at mean low water, over depth of 50 to 80 feet, was commenced in March and completed in November 1956. Proposals in recent years to dispose of dredged material on marshy islands in the James River have been environmentally unacceptable. Consequently, periodic maintenance of the project was delayed until fiscal year 1979 and is in progress to restore full project dimensions. Construction of the 1979 modification to extend the harbor upstream by 600 feet and widen the entrance channel

to 100 feet at the harbor entrance has not started.

12. GREENVALE CREEK, VA

Location. Greenvale Creek is a tidal creek located in Lancaster County, VA. The creek is tributary to the Rappahannock River. (See National Ocean Service Chart No. 12237.)

Existing project. The project authorization provides for a channel 6 feet deep and 60 feet wide from that depth in Rappahannock River to the mouth of Greenvale Creek. Once inside the mouth of the creek the channel narrows to 50 feet wide.

Local cooperation. Lancaster County, VA, is the local sponsor and is in full compliance with all items of local cooperation.

Terminal facilities. Terminal facilities are adequate for existing commerce.

Operations during fiscal year. The project requires maintenance dredging. The Norfolk District prepared and issued a maintenance dredging contract solicitation package for bid. Funds expended for fiscal year 2002 enabled the project to progress forward to bid opening. Award of the contract is scheduled for fiscal year 2003.

13. GUILFORD CREEK, VA

Location. Guilford Creek is located in Accomack County, VA, near the communities of Guilford and Parksley, VA, and is tributary to the Chesapeake Bay. (See National Ocean Service Chart No. 12225.)

Existing project. Provides for a channel 6 feet deep and 60 feet wide over a length of about 1 mile, from Beasley Bay into Guilford Creek, and including a turning basin 6 feet deep and 100 feet square. The project also includes construction of a rock groin approximately 140 feet long at the dredged material placement site. Mean range of tide is 2.3 feet.

Local cooperation. Fully complied with. County of Accomack, VA is the local sponsor.

Terminal facilities. Existing terminal facilities are adequate for present commerce.

Operations during fiscal year. A project condition survey of the channel was performed and distributed to the users.

14. HAMPTON ROADS, VA COLLECTION AND REMOVAL OF DRIFT

Location. Hampton Roads is a natural harbor 300 miles south of New York and 180 miles south of Washington, DC. Its principal tributaries are the James River, affording a natural deep harbor at Newport News, VA; Elizabeth River, with its Southern, Eastern, and Western Branches providing harbors for Norfolk and Portsmouth, VA; and Hampton Creek, serving the harbor at Hampton, VA. (See National Ocean Service Chart Nos.

12248,12245 and 12253.)

Existing project. Collection and removal of drift in Hampton Roads and its tributary waters authorizes the Secretary of the Army to allot necessary amounts of work from Appropriations for main-other available Appropriations and that this work shall be carded on as a separate and distinct project. It is wholly a work of maintenance. The purpose of work is to afford relief from variable conditions of obstruction. No advance estimate of the amount of work is required.

Local cooperation. None required.

Terminal facilities. See Norfolk Harbor, VA, and Channel to Newport News, VA.

Operations during fiscal year. Maintenance: Operation of the project resulted in collection and disposal of a variety of floating refuse. Operations were performed using government plant and hired labor.

15. HOSKINS CREEK, VA

Location. Hoskins Creek is a tidal estuary 2.5 miles long flowing easterly and entering the right bank of the Rappahannock River in Essex County, VA, 42 miles upstream from its mouth in the Chesapeake Bay. It is located at the southern limits of the Town of Tappahannock, VA. (See National Ocean Service Chart No. 12237)

Existing project. Provides for a channel 10 feet deep at mean low water from the 10-foot contour in the Rappahannock River to the US Route-17 Bridge, a distance of approximately 1 mile. The channel width is 100 feet through the entrance to the Rappahannock River and 80 feet within the creek. Also provides a turning basin of the same depth 250 feet long by 200 feet wide, with flared approaches, at the public landing. Mean tidal range is about 1.6 feet.

Local cooperation. Fully complied with. County of Essex, VA is the local sponsor.

Terminal facilities. Two bulkheaded landings and two wharves, with a public boat ramp. Terminal facilities are adequate for existing commerce.

Operations during fiscal year. A condition survey performed in September 2000 was distributed to the locals, Coast Guard and users of the project. A "Plans for Dredging" Survey was performed in February 2003, and engineering and design work continues in support of a planned dredging event for FY 2004.

16. JAMES RIVER, VA

Location. The river is formed by the junction of the Cowpasture and Jackson Rivers in Botetourt County, VA, flows east 340 miles and empties into Hampton Roads at Newport News, VA. (See National Ocean Service Chart Nos. 12248 and 12251.)

Existing project. A channel 25 feet deep and 300 feet wide from the mouth to Hopewell, 25 feet deep and 200 feet from

Hopewell to the Richmond Deepwater Terminal, and a channel 18 feet deep and 200 feet wide from the Deepwater terminal to Richmond Lock; a turning basin at Richmond Deepwater Terminal to 500 feet wide, 2,770 feet long and 25 feet deep; a turning basin in Richmond Harbor 200 feet wide, 600 feet long and 18 feet deep; and construction of spur and training dikes. Depth of channels is referred to mean lower low water. Total length of channel included in the project is 91 miles, which is the navigable section. Mean tidal ranges under ordinary conditions for different parts of the river are: mouth, 2.6 feet; Jamestown, 2 feet; City Point, 2.6 feet; and Richmond, 3.2 feet. Spring tide ranges under ordinary conditions at the same localities are mouth, 3.1 feet; Jamestown, 2.4 feet; City Point, 3 feet; Richmond, 3.2 feet. Ordinary fluctuations of stage at Richmond, due to floods are 6 to 12 feet above mean low water. Extreme fluctuations are 16 to 32 feet. Flood heights below Richmond diminish rapidly. The extreme according to available information is about 11 feet lower at Dutch gap, 14 miles below and 17 to 18 feet lower, 20 miles below. For previous projects, see Annual Report for 1938.

Local cooperation. Fully complied with for conditions imposed by River and Harbor Act of 1962. However, the local sponsor (City of Richmond) is required to furnish cost sharing in accordance with the provisions described in the Water Resources Development Act of 1986, as amended. Deepening the project from 25 feet to 35 feet, and the widening, authorized by the River and Harbor Act of 1962 has not been started.

Terminal facilities. There are city-owned wharves at Richmond Harbor and at Richmond Deepwater Terminal, and numerous private facilities elsewhere on the James River. The Deepwater Terminal is at the head of the 25-foot deep improved channel, and it serves oceangoing vessels and larger ships engaged in coast-wide trading. For detailed information on the terminal facilities on the James River, see Port Series No. 11, (Revised 1993) on Ports of Hampton Roads, prepared by the Water Resources Support Center. Existing terminal facilities are adequate for present commerce.

Operations during fiscal year. Maintenance dredging was performed under an Indefinite Quantities Contract to remove shoals on several areas of the James River; at Thimble Shoal Channel, Dancing Point – Swann Point Shoal Channel, Richmond Deepwater Terminal to Hopewell, and Richmond Deepwater Terminal. Related work performed during the year included condition surveys, environmental and archeological studies, and engineering investigations related to shoaling and river currents.

17. JONES CREEK, VA

Location. Jones Creek is a tributary to the Pagan River, in Isle of Wight County on the southwest shore of the James River. (See National Ocean Service Chart No. 12248.)

Existing project. Provides for a channel 6 feet deep and 60 feet wide

over a length of about 5,000 feet, from the Pagan River into Jones Creek and as far upstream as the State Highway Route 704 Bridge at Rescue, VA.

Local cooperation. Fully complied with. County of Isle of Wight, VA is the local sponsor.

Terminal facilities. Existing terminal facilities at Rescue, VA are adequate for present commerce.

Operations during fiscal year. None.

18. LYNNHAVEN INLET, VA

Location. On the south shore of the Chesapeake Bay, 5 miles west of Cape Henry, and 10 miles east of Norfolk, VA, the inlet connects Lynnhaven Roads, a part of the Chesapeake Bay, with a network of inland waters in the northern half of the city of VA Beach. (See National Ocean Survey Chart 12254.)

Existing project. An entrance channel from Chesapeake Bay through Lynnhaven Inlet, 10 feet deep and 150 feet wide; a mooring and turning basin inside of Lynnhaven Inlet, 10 feet deep, 1,100 feet long, and 750 feet wide; a channel 9 feet deep and 90 feet wide to extend from the mooring and turning basin into Broad Bay via Long Creek-Broad Bay Canal, a side channel from the basin into Long Creek at a depth of 8 feet and width of 100 feet, and a channel through the Narrows connecting Broad and Linkhorn Bays, 6 feet deep and 90 feet wide. Mean range of tide in Lynnhaven Inlet is about 2 feet with extreme fluctuations of 1.5 feet below and 9.5 feet above mean low water. Range in Lynnhaven Bay is a little more than 2 feet, in Broad and Linkhorn Bays, fluctuations in water level are caused by local winds.

Local cooperation. Fully complied with. The city of Virginia Beach is the local project sponsor. For details see page 308 of Annual Report for 1965.

Terminal facilities. Existing facilities are considered adequate. For details see page 308 of Annual Report for 1970.

Operations during fiscal year. Maintenance dredging was performed on the entrance channel to restore project depth. Navigation and sediment studies were performed to determine the proper alignment of the entrance channel. An archeological study was started to determine any historical significance of a shipwreck that lies adjacent to the entrance channel.

19. NEWPORT NEWS CREEK, VA

Location. On the southern end of the peninsula between the James and York Rivers and within the corporate limits of the city of Newport News. (See National Ocean Survey Chart 12245.)

Existing project. A channel 12 feet deep and with width varying from 150 to 90 feet, from deep water in Hampton Roads to the municipal boat harbor, and including a turning and anchorage basin at the upper end of the same depth, width varying from 188

to 214 feet, and 500 feet in length. Under a Section 107 modification, a portion of the entrance channel 125 feet wide is being deepened to 18 feet, to connect with the adjacent harbor protected with an L-shaped wave screen. Portions of this harbor are also being deepened to 18 feet under Section 107 authority. Mean range of tide is 2.6 feet.

Local cooperation. Fully complied with. The city of Newport News is the local project sponsor.

Terminal facilities. Existing facilities are considered adequate, and the local sponsor is constructing a new pier to service commercial vessels.

Operations during fiscal year. None.

20. NORFOLK HARBOR AND CHANNELS, VA.

Location. Norfolk, VA, is 187 miles south of Baltimore, MD, and 30 miles from entrance to Chesapeake Bay at Cape Charles and Cape Henry. Harbor extends 18.3 miles from 40-foot contour in Hampton Roads to a point 2,500 feet above Norfolk and Western Railway bridge over a Southern Branch of Elizabeth River. (See National Ocean Service Chart Nos. 12245 and 12253.)

Previous projects. For details see Annual Report for 1938.

Existing project. For details see Annual Report for 1993.

HAMPTON ROADS AND ELIZABETH RIVER: A channel 55 feet deep and 1,500 feet wide from that depth in Hampton Roads to a point approximately 6.3 miles upstream from the Hampton Roads Bridge-Tunnel; thence 55 feet deep and 800 feet wide to Lamberts Point; thence 45 feet deep and 750 feet wide to the junction of Southern Branch and Eastern Branch.

Operations during fiscal year. The District is completing Preconstruction, Engineering and Design (PED) for the 50-Foot Inbound Element. Plans and specifications are underway and a Project Cooperation Agreement (PCA) is being developed and negotiated with the Non-Federal Sponsor. Construction scheduled for initiation in calendar year 2004.

EASTERN BRANCH: A channel 25 feet deep and 500 feet wide from the junction of the branches to Norfolk and Western Railway Bridge, from the Norfolk and Western Railway Bridge a channel 25 feet deep and 200 feet wide to the Campostella Bridge, channel 25 feet deep and 200 feet wide to the Norfolk and Western Railway Bridge (formerly Virginian), including a turning basin 25 feet deep and approximately 5.5 acres in size located at the upstream end of the project.

Operations during fiscal year. A condition survey was performed in June of 2003.

WESTERN BRANCH: A channel 24 feet deep and 300 feet wide to a point 0.78 mile from the 40-foot channel, thence 24 feet deep and 200 feet wide for a distance of 0.38 mile; thence 18 feet deep

and 150 feet wide for 0.57 mile to a point 0.34 mile above the West Norfolk Bridge.

Operations during fiscal year. A condition survey was performed in June of 2003.

SCOTTS CREEK: A channel 12 feet deep at mean low water and 100 feet wide from the 40-foot channel for a distance of 0.73 mile.

Operations during fiscal year. A condition survey was performed in May of 2003.

ANCHORAGES: Three fixed mooring anchorage facilities with a depth of 55 feet, each capable of accommodating two large vessels simultaneously; anchorage area on the west side of the 55-foot channel opposite Lamberts Point aggregating 173 acres consisting of open space 1,500 feet square and 38 feet deep, one space 1,500 feet square and 35 feet deep, and one space 3,000 feet long, 1,000 feet wide and 20 feet deep; and 45-acre anchorage, 12 feet deep, near Pinners Point.

Operations during fiscal year. A condition survey was performed on the Hampton Roads 50-Foot Anchorage and Sewells Point Anchorage on November 2002 and 2003, respectively. A maintenance dredging contract to dredge the Sewells Point Anchorage was awarded in July of 2003 and completed in November of 2003; a total of 916,000 cubic yards was removed.

SOUTHERN BRANCH: The southern branch of the Elizabeth River generally oriented and flows south to north, and in the vicinity of this project is bordered on the east bank by the city of Chesapeake. The Southern Branch 40 Foot Deepening element will deepen a 2.5 mile section of the Elizabeth River from its current depth of 35 feet to 40 feet between the Norfolk and Western Railroad Bridge at mile 15, upstream to the U.S. Routes 460 and 13 highway bridge (also known as Gilmerton Bridge) at mile 17.5. This reach of the channel ranges in width between 250 and 500 feet, with an average width of 300 feet. The channel will be widened at selected points to permit vessels to safely negotiate bends. At mile 17.5, in the vicinity of the Gilmerton Bridge, an 800 foot turning basin with a depth of 40 feet will be constructed. In addition, the possible need for modifying the Gilmerton Bridge will be explored as part of this project.

Operations during fiscal year. A contract to maintenance dredge a portion of the Southern Branch from Paradise Creek to Lamberts Bend was awarded in April 2003, with work completed in July 2003; a total of 328,000 cubic yards was removed. Additionally, a condition survey was performed to reflect the work accomplished. Preliminary engineering and design was accomplished in support of maintenance dredging a portion of the Southern Branch from Paradise Creek to the Newton Creek turning basin in FY 2004.

CRANEY ISLAND DREDGED MATERIAL AREA: A dredge material placement area of about 2,500 acres adjacent to and north of Portsmouth, Virginia,

enclosed by stone-faced levee of sand; re-handling basin, approach and exit channels connecting re-handling basin and Norfolk Harbor 55-foot channel.

Operations during fiscal year. Craney Island received 4,279,579 cubic yards of dredged material in 2003. A maintenance dredging contract to dredge the Craney Island Rehandling basin was awarded in December 2002 and completed in March 2003; a total of 1,557,000 cubic yards was removed.

Local cooperation. Fully complied with for dredging the outbound channel to an intermediate depth of 50 feet, which was completed December 15, 1988. A Project Cooperation Agreement (PCA) for the 50-Foot Inbound Element was executed with the Virginia Port Authority (Non-Federal Sponsor) on April 23, 2003. The local sponsor (Virginia Port Authority) is required to furnish cost sharing in accordance with the provisions described in the Water Resources Development Act of 1986, as amended for additional deepening.

Terminal facilities. See Port Series No. 11 (revised 1993) on Ports of Hampton Roads, prepared by the Water Resources Support Center.

NORFOLK HARBOR CHANNEL:

Operations during fiscal year. Maintenance: A contract to dredge the 45-Ft. and 50-Ft. Channels was awarded in June 2002, with work completed in September 2002; a total of 759,492 cubic yards was removed. In addition to maintenance dredging, work on the project included condition surveys, environmental studies, and preliminary engineering and design in support of maintenance dredging in FY 2004.

THIMBLE SHOAL CHANNEL:

Location. In the lower portion of Chesapeake Bay between Hampton Roads and the ocean, 20 miles northeast of center of Norfolk Harbor, extending southeasterly 12 miles from a point 1.25 miles east of Thimble Shoal lighthouse toward entrance to Chesapeake Bay. (See National Ocean Service Chart No. 12222.)

Existing project. Provides for dredging a channel 12 miles long, 1,000 feet wide, and 55 feet deep at mean low water. To date, both the outbound and the inbound elements have been deepened to a depth of 50 feet. Under ordinary conditions mean tidal range is 2.5 feet and extreme 3 feet. Extremes of irregular fluctuation, due to combined wind and tides referred to mean low water, are minus 3 feet and plus 7 feet.

Local cooperation. Fully complied with for the deepening of the outbound lane to an intermediate depth of 50 feet in 1988. The Commonwealth of Virginia, acting through its agent, the Virginia Port Authority, was the Non-Federal project sponsor and shared in the cost of the improvement. A Project Cooperation Agreement for the deepening of the inbound lane to an intermediate depth of 50 feet is scheduled for execution between the Federal Government and the Commonwealth of Virginia during the third quarter of Fiscal

Year 2003.

Terminal facilities. Project serves as an entrance channel to Hampton Roads. See Port Series No. 11 (revised 1993) on Ports of Hampton Roads, prepared by the Water Resources Support Center.

Operations During Fiscal Year. A "New Work" contract to deepen the inbound element to 50 feet was awarded in August 2003, with work completed in December 2003. A total of 1,828,312 cubic yards of material was removed. In addition to dredging, work consisted of engineering and design for maintenance dredging the outbound element in FY 2004 and monitoring of the Dam Neck Ocean Dredged Material Management Site as required by the EPA.

21. OYSTER CHANNEL, VA

Location. Oyster Channel is located in Northampton County, Virginia, at the town of Oyster, VA. The channel is tributary to Mockhorn Bay on the Virginia Eastern Shore. Vessel access to the project is via the Waterway on the Coast of Virginia (See National Ocean Service Chart No. 12224).

Existing project. Provides for a channel 6 feet deep and 80 feet wide from deep water in Liscombes Channel to and including a turning basin 6 feet deep and 1,100 feet long at Oyster, VA.

Local cooperation. Fully complied with. The county of Northampton, VA, is the local sponsor.

Terminal facilities. Existing terminal facilities are adequate for the present commerce.

Operations during fiscal year. An earthwork contract was awarded in fiscal year 2002 to manage the upland dredged material placement site for Oyster Channel.

22. PAGAN RIVER, VA

Location. Pagan River is located in Isle of Wight County, VA, and is a tributary to the James River. The project provides vessel access to the Town of Smithfield, VA. (See National Ocean Service Chart No. 12248).

Existing project. A channel 10 feet deep at mean low water and 80 feet wide between Smithfield and the 10-foot contour in James River. A traffic survey revealed that the maintenance of a 10-foot deep channel is not justified at this time. A 6-foot deep channel will be maintained until traffic indicates the need for a change.

Local cooperation. The Town of Smithfield is the local sponsor and is in full compliance with items of local cooperation.

Terminal facilities. Terminal facilities are adequate for existing commerce.

Operations during fiscal year. The U.S. Army Corps of Engineers Special Purpose Dredge CURRITUCK was utilized to dredge portions of the Pagan River channel. The Norfolk District also performed after dredging surveys of the

federal channel and paid Rehandling Basin toll charges at the Craney Island Dredged Material Management Area.

23. RUDEE INLET, VA

On the Atlantic Coast of Virginia, within the City of Virginia Beach, approximately 5 miles south of Cape Henry. (See National Ocean Service Chart No. 12205.)

Existing Project. An entrance channel 10 feet deep, 100 to 72 feet wide and 1,605 feet long; an inner channel 7 feet deep, 72 to 53 feet wide and 2,495 feet long, including a safety area 7 feet deep, and approximately 1.9 acres in size and a turning basin 7 feet deep, 175 feet wide and 1,570 feet long; a sand trap 18 feet deep and approximately 3.3 acres in size; and a weir and jetty system at the mouth of the inlet. Mean tidal range is about 3.3 feet.

Local cooperation. Fully complied with. The City of Virginia Beach as local sponsor is required to financially participate in continued annual maintenance as described in the Local Cooperation Agreement, and has fully participated through the current fiscal year.

Terminal facilities. Existing terminal facilities are considered adequate for present commerce.

Operations during fiscal year. A contract to dredge the entrance channel and sand trap was awarded in May 2003. The contract was completed in May 2003; a total of 27,756 cubic yards was removed. The U.S. Army Corps of Engineers Special Purpose Dredge *CURRITUCK* was utilized to dredge the entrance channel during March and July 2003; a total of 28,050 cubic yards was removed. Also, the U.S. Army Corps of Engineers Dredge Merritt performed emergency dredging of the entrance channel in November 2002 and removed 38,550 cubic yards of material.

24. SUPERVISOR OF NORFOLK HARBOR (PREVENTION OF OBSTRUCTIVE AND INJURIOUS DEPOSITS)

The District Engineer, Norfolk District, was designated Supervisor of the harbor of Hampton Roads under the provisions of the River and Harbor Act of June 29, 1888 (33 U.S.C. 441-451), as amended July 12,1952. Under this Act, the Supervisor of the harbor of Hampton Roads is charged with the mission of preventing the deposit of obstructive and injurious materials in the tidal waters of the harbors of Norfolk, Portsmouth, Newport News, Hampton Roads, and their adjacent and tributary waters, so much of the Chesapeake Bay and its tributaries as lies within the state of Virginia, and so much of the Atlantic Ocean and its tributaries as lies within the jurisdiction of the United States within or to the east of the State of Virginia. The River and Harbor Act of March 3, 1899 (33 U.S.C. 403,407,409), as amended, prohibits obstructions to navigable waters such as unauthorized structures, unauthorized fill, deposit of refuse, and sinking of vessels. Other laws relating to the supervision of Norfolk Harbor and its tributary waters are the Clean Water Act, The Marine Protection,

Research and Sanctuaries Act of 1972, the Coastal Zone Management Act of 1969, the Fish and Wildlife Act of 1956, the Federal Power Act of 1920, the National Historic Prevention Act of 1966, the Endangered Species Act of 1973, the Deepwater Port Act of 1972, the Wild and Scenic Rivers Act, and the Land and Water Conservation Fund Act. Direct supervision of the waters under the jurisdiction of the Norfolk District was accomplished by means of two patrol vessels performing inspections, removing debris and investigating navigational hazards and sunken abandoned vessels. A derrick boat and crane barge performs removal of sunken vessels and navigational hazards and supports federal dredging projects. In addition, surveillance of the harbor was performed regarding the Corps' regulatory program, using also two small outboard craft, motor vehicles from land and occasional chartered aerial reconnaissance. This regulatory surveillance involved compliance surveys of permitted activities and evaluation of navigational impacts of proposed piers and other structures.

Operations during fiscal year. None.

25. TYLERS BEACH, VA

Location. Tylers Beach is located on the south shore of the James River in the County of Isle of Wight, VA, in a deep depression known as Burwells Bay about 13 miles above the mouth of the James River. (See National Ocean Service Chart No. 12248)

Existing project. Provides for a harbor of refuge 6 feet deep at mean low water and 150 feet wide and 300 feet long just south of Tylers Beach and a channel 6 feet deep, 50 feet wide, and about 2,350 feet long from that depth in Burwells Bay to the harbor of refuge. The project also includes two stone revetments/jetty structures approximately 370 feet long. Mean tidal range is about 2.4 feet.

Local cooperation. Fully complied with. County of Isle of Wight, VA is the local sponsor.

Terminal facilities. Terminal facilities are adequate for existing commerce.

Operations during fiscal year. A project condition survey of the channel was performed and distributed to the users. Work also consisted of coordination with, and technical assistance to, Isle of Wight County in their efforts to secure a site for placing the dredged material.

26. WATERWAY ON THE COAST OF VA (WCV)

Location. The project is a waterway between the barrier islands along the Atlantic Ocean and Virginia's Eastern Shore on the west. (See National Ocean Service Chart Nos. 12210, 12211, and 12221.)

Existing projects. The waterway is 6 feet deep at mean low water and 60 feet wide. It provides a north-south route approximately 90 miles long from Chincoteague Bay to Chesapeake Bay. WCV provides an essential connection

between many shallow draft harbors along the Eastern Shore. The project includes about 18 shoals that require periodic maintenance dredging. During a typical year an average of about 3 shoals are dredged.

Local cooperation. Accomack and Northampton Counties are the local sponsors for the project. The local sponsors are in compliance with all items of local cooperation. Local interests are to continue furnishing dredged material placement sites for future channel maintenance.

Terminal facilities. Existing facilities are considered adequate.

Operations during fiscal year. A dredging contract was awarded in fiscal year 2001 to dredge shoals in Sloop, North, and Swash Bay Channels. The contract continued into fiscal year 2002 with payment for Swash Bay dredging and dredge plant demobilization occurring with 2002 funds. Other project costs for fiscal year 2002 included supervision and administration of contracts, engineering and design, environmental coordination and monitoring, and project condition surveys.

27. YORK RIVER, VA

Location. This river is formed at West Point, VA by the confluence of the Mattaponi and Pamunkey Rivers, and flows southeasterly about 41 miles into the Chesapeake Bay, which it enters about 20 miles in a northerly direction from Norfolk, VA, and 20 miles in a northwesterly direction from the Atlantic Ocean at Cape Henry. (See National Ocean Service Chart Nos. 12238 and 12243.)

Existing project. Provides for dredging a channel 22 feet deep at mean low water and 4300 feet wide through the bars with a basin of the same depth at the wharves at West Point, and construction of a dike 1.9 miles in length near the west bank at West Point to assist in maintaining the channel. Also provides for dredging a channel 37 feet deep at mean lower low water and 750 feet wide from the 38 foot contour in the Chesapeake Bay to a point adjacent to the piers at the Yorktown Naval Weapons Station, approximately 8 miles above the mouth of the river. Mean range of tide is 2.2 feet at the mouth and 2.9 feet at West Point.

Local cooperation. Fully complied with. Virginia Port Authority was project sponsor and shared in the cost of the improvement to the Entrance Channel.

Terminal facilities. The facilities are considered adequate for the existing commerce.

Operations during fiscal year. A maintenance dredging contract to dredge the York River Entrance channel was awarded in August 2003, with work completed in early December 2003. It is currently estimated a total of 469,000 cubic yards of material was removed. In addition to dredging, a blue crab study for Wolf Trap (alternate) Dredged Material Site was implemented, and should be completed in FY 2004. Coordination with the channel users to assess future needs and strengthen the partnership between project stakeholders

continues.

BEACH EROSION CONTROL

28. CHESAPEAKE BAY SHORELINE, HAMPTON, VA

Location. The city of Hampton is located approximately 135 miles southeast of Washington, D.C. at the junction of Hampton Roads and the Chesapeake Bay. The city is bordered by the Chesapeake Bay on the east; the Chesapeake Bay and Hampton Roads harbor on the south; the city of Newport News on the west; and York County, the city of Poquoson, and the Chesapeake Bay on the north. The city has approximately 6 miles of shoreline which fronts on the Chesapeake Bay and includes the areas of Buckroe Beach, Salt Ponds, White Marsh, Grandview, and Grandview Nature Preserve. The location and orientation of this shoreline on the western side of the southern Chesapeake Bay and immediately within the mouth of the bay have made this area susceptible to damages associated with coastal storms such as hurricanes and northeasters. (See National Ocean Service Chart No. 12222.)

Existing projects. There are a variety of existing coastal protection structures located along the beach within the study area including groins, bulkheads, riprap, and jetties. The condition of these structures ranges from good to completely deteriorated, with ages varying from relatively new to 35 years old. In addition, the city of Hampton has conducted several beach nourishment activities in the study area to provide storm protection and to alleviate the erosion problem, primarily along the public section of Buckroe Beach. However, these projects have been small in scope, given the limited resources of the city.

A Federal feasibility study was authorized by Section 114 of the Water Resources Development Act of 1992 (Public Law 102-580). However, during the course of the feasibility study, the authorization was changed to Section 103 of the River and Harbor Act of 1962 (Public Law 87-874), as amended, due to the limited size and complexity of the project. This is now a Continuing Authorities Program project. The final feasibility report was approved in September 2002 and the design phase was initiated that same month. The Federal project provides a beach in the Buckroe Beach area that is 3,785 feet long with a berm 50 feet wide at elevation 5.4 feet. The local sponsor has requested that it maintain an option of adding the public beach in the Salt Ponds area as a local project that would consist of a berm 50 feet wide at elevation 5.4 feet for a distance of about 2,050 feet.

Local cooperation. The local sponsor, the city of Hampton, provided a letter of intent in March 2002 to cost share in the Federal project.

Operations during fiscal year. FY 2003 funds were used to continue to design phase.

29. SANDBRIDGE, VIRGINIA BEACH, VA

Location. The City of Virginia Beach is located on the southeastern coast of Virginia, bordered by the Atlantic Ocean on the east, Chesapeake Bay on the north, the cities of Norfolk and Chesapeake on the west, and North Carolina on the south (See National Ocean Service Chart 12207.)

Existing project. The plan of improvement includes construction of a fifty foot wide beach berm at elevation six from the Back Bay National Wildlife Refuge to the Dam Neck Naval Base. Periodic beach nourishment every two to thr4ee years will maintain the beach over the 50 year project life. The Project Cooperation Agreement was executed in July 2002 and the initial beach fill was completed in May 2003.

Local cooperation. The local sponsor (City of Virginia Beach) is required to furnish cost sharing in accordance with the provisions described in The Water Resources Development Act of 1986.

Operations during fiscal year. The initial beach berm was completed in May 2003. The sacrificial beach is scheduled for renourishment in the spring of FY 2006.

30. VIRGINIA BEACH, VA (HURRICANE PROTECTION)

Location. The city of Virginia Beach is located on the southeastern coast of Virginia bordered by the Atlantic Ocean on the east, Chesapeake Bay on the north, the cities of Norfolk and Chesapeake on the west, and North Carolina on the south (See National Ocean Service Chart 12207.)

Existing project. The plan of improvement includes construction of a vertical steel sheet-pile wall with concrete cap extending from Rudee Inlet to 58th Street (about 4 miles), enhancement of the existing dune system between 58th Street and 89th Street (about 2 miles), construction and periodic re-nourishment of a widened and raised beach berm between Rudee Inlet and 89th Street (about 6.2 miles), a new boardwalk integrated with the vertical wall which will be placed seaward of the existing boardwalk extending from Rudee Inlet to approximately 40th Street (about 3 miles), a storm water runoff system consisting of the offshore discharge by pumped flow through submarine pipelines, Appropriate beach access structures consisting of ramps and stairs and dune crossover facilities. Periodic beach nourishment will maintain the beach and dune system over the 50 year project life. The Project Cooperation Agreement was executed in June 1996 and the first construction contract was underway in October, 1996. Initial construction of the project is scheduled for completion in September 2004.

Local cooperation. The local sponsor (city of Virginia Beach) is required to furnish cost sharing in accordance with the provisions described in The Water Resources Development Act of 1986.

Operations during fiscal year. The project was in continuing construction: Several corrections were performed on the pump stations. The one remaining element, 79th Street Interceptor, has been scheduled for design and construction starting in late FY 2004 due to lack of Federal

Appropriations. The sacrificial beach is scheduled for4 renourishment in the spring of FY 2004; however, the beach structure is holding up well despite heavy storms and Hurricane Isabel. The renourishment may not be needed this spring.

31. WILLOUGHBY SPIT, NORFOLK, VA

Location. The project area is located in the City of Norfolk, Virginia, and consists of 7.3 miles of southern Chesapeake Bay extending from the tip of Willoughby Spit near the Hampton Roads Bridge-Tunnel to the Federal navigation project at Little Creek Inlet.

Existing project. The Water Resources Development Act of 1986 authorized the project to include the construction and periodic nourishment of a 60-foot wide beach berm, at an elevation of 5.0 feet above mean low water, for the entire shoreline. With the assistance of the Commonwealth of Virginia, the City constructed a series of breakwaters along the Willoughby Spit-Ocean View shoreline in the late 1990s. State funding was discontinued before beach nourishment behind the breakwaters could be accomplished, leaving the project area with a reduced level of protection. Shoreline recession is a major problem in the easternmost portion of the shoreline. The Norfolk District is currently conducting a reconnaissance-type investigation to determine if the authorized project is still economically viable, is still in the federal interest to construct, and requires any modifications to meet the current needs and conditions of the project area. This effort will be followed with Preconstruction, Engineering, and Design investigations to include the conduct of a General Reevaluation study to determine continued Federal interest in the authorized project or a reformulated project.

Local cooperation. None required at this time. A Design Agreement will require execution prior to the start of the Preconstruction, Engineering, and Design investigations.

Operations during fiscal year. None.

FLOOD CONTROL

32. EMERGENCY FLOOD CONTROL ACTIVITIES

During FY 2003, a total of $28,777 was spent on Catastrophic Disaster Preparedness Program (Approp ($000). 96X3123), and $331,772 on Flood Control and Coastal Emergencies including Emergency Operations (Approp ($000). 96X3125).

33. GATHRIGHT DAM AND LAKE MOOMAW, VA

Location. Gathright Dam is on the Jackson River, a tributary of James River at mile 43.4 in Allegheny County. Gathright Dam site is in the reach of the Jackson River known as the Gorge, about 19 miles upstream from Covington, VA. At the elevation of the top of the conservation pool, the lake extends upstream about 9 miles.

(See Falling Spring and Mountain Grove, Virginia-West Virginia quadrangles of geological survey.)

Existing project. Gathright Dam consists of a 1,172-foot long, rolled-rock-fill dam with an impervious core, with the top at elevation 1,684.5; outlet works consisting of a concrete intake structure located in the right bank 500 feet upstream from the axis of the dam: a 1,075-foot long outlet tunnel through the right abutment and a stilling basin; and a 2,450-foot long fixed-crest emergency spillway excavated in a low saddle in the divide at Fortney Branch about 2.5 miles south of the dam. Discharges through the maximum conservation port elevation 1,582 will be provided for water quality control. The reservoir area at elevation 1,582 will be 2,530 acres. A total of 302,000 acre-feet of storage between elevation 1,582 and the spillway crest (elevation 1,663.5) will be reserved for flood control. At the spillway crest the reservoir will have an area of 4,540 acres.

Local cooperation. None required.

Operations during fiscal year. Care of service and recreational facilities, water control management, testing and monitoring, supervision and administration and engineering and design.

ENVIRONMENTAL RESTORATION

34. AVTEX, FRONT ROYAL, VA

Location. The AVTEX Fibers Plant is located in Front Royal, Virginia, along the Shenandoah River in the foothills of the Blue Ridge Mountains.

Existing project. AVTEX Fibers Plant is located on a 502-acre site. From 1940 to 1989, the plant manufactured rayon, polyester and polypropylene for the defense and space industries. In 1986 the facility was identified by EPA as a Superfund site. The plant was closed in 1989, the closure left the site unusable due to HTRW material. Specific work to be performed by the Norfolk District is considered Non-Superfund work such as asbestos containing materials, lead-based paint, and building demolition.

Work is divided into four phases. The first phase of work (Section 2) was completed in December 2002. The second phase (Section 1) was completed in November 2003. The third phase (Sections 5, 6. And 7) started in August 2003 with a small amount of available funding remaining.

The project has been funded incrementally from three sources: (1) CG funding authorized under Section 591 of the Water Resources Development Act (WRDA) of 1999. Initially $7,000,000 was authorized, an additional $5,000,000 was Appropriated in FY 2004, but is pending authorization. (2) FUDS, military funding in the amount of $5,000,000 was also initially authorized. (3) OEA (Office of Economic Adjustment) military funding was Appropriated in the FY 2004 Defense Bill. This funding is currently being used to complete the third phase of work and to initiate the fourth and last phase of work.

Local cooperation. None required.

Operations during fiscal year. The third phase of work continued in February 224 with the new FY 2004 (OEA) funding, this phase is expected to be completed in August 2004. The fourth and last phase (Powerhouse Complex) is expected to start in June 2004. Completion of this phase is contingent on the availability of an additional $5,000,000 CG funding Appropriated by Congress in FY 2004, but not yet authorized. Authorization requires an amended Section 591 of the Water Resources Development Act (WRDA) of 1999.

35. CHESAPEAKE BAY OYSTER RECOVERY, VA

Location. Tangier Sound.

Existing Projects. Project is authorized by WRDA 1986 as amended. Construction of 150 acres of 2-D reefs and 8 acres of 3-D reefs were completed Sep 2002. These reefs were seeded with disease tolerant oyster seed in April 2003. Recent monitoring of the project sites indicates that the reefs and newly seeded oysters are doing very well. The next restoration project is the Great Wicomico River. In the summer of 2004, approximately $2M is budgeted for the seeding of existing reefs constructed by the Commonwealth of Virginia and the construction of new reefs and seeding the new reefs with disease tolerant oyster seed. Planning is also underway for large restoration projects in the Lynnhaven and Piankatank Rivers. Native oysters have been identified as an important component to the Bay eco-system due to its natural ability to filter water. Oyster population has declined to a dangerous level due to years of over harvesting, diseases, and pollution.

Local cooperation. Commonwealth of Virginia is funding 25% of the project cost through in-kind services.

Operations during fiscal year. $2M will be expended for seeding of existing reefs in the Great Wicomico River with disease tolerant oyster seed, construction of new oyster reefs, and the seeding of those reefs with disease tolerant oyster seed. Monitoring of the Tangier project site will continue.

36. CSO, LYNCHBURG, VA

Location. Lynchburg, Virginia.

Existing project. The project consists of the study and design for the replacement of approximately 39,000 feet of the James River Combined Sewer Overflow Interceptor and other CSO interceptors and outfalls.

Local cooperation. The local sponsor is the City of Lynchburg, Virginia.

Operations during fiscal year. Studies and design are ongoing

37. CSO, RICHMOND, VA

Location. Richmond, Virginia.

Existing project. The project consists of studies to support the re-

evaluation of City of Richmond's Combined Sewer Overflow Long Term Control Plan (LTCP). Work will include reliability and interface planning for Combined Sewer Overflow and Dry Weather Flow facilities and the Wastewater Treatment Plant and Satellite locations.

Local cooperation. The local sponsor is the City of Richmond, Virginia.

Operations during fiscal year. Studies and design are continuing.

38. DISMAL SWAMP & DISMAL SWAMP CANAL, VA

Location. The project is located in the City of Chesapeake, Virginia, centered around a portion of the Atlantic Intracoastal Waterway approximately 64.6 miles long between the mouth of Deep Creek, Virginia, and the mouth of Pasquotank River, North Carolina. The route is shown on National Ocean Service Chart 12206.

Existing project. A channel 10 feet deep at mean low water and 90 to 100 feet wide in Deep Creek, 3.1 miles, Turners Cut, 4.3 miles and Pasqotank River, 35.0 miles; maintaining Dismal Swamp Canal, 22.1 miles, to about 9 feet deep mean canal level over a width of 50 feet; protection of banks in Turners Cut with sheet piling, and cutting curtain sharp points in Pasquotank River to shorten its course. Project includes operating and care of completed locks, dams and bridges. The Deep Creek section of the route is tidal, mean range being about 3 feet with extremes of minus 3.5 and plus 9.6 feet. Remaining sections are non-tidal with fluctuations of 1 to 2 feet in level due to winds.

Local cooperation. The local sponsor has submitted a letter of intent to cost share in the project.

Operations during fiscal year. Norfolk District initiated a Reconnaissance Report that is scheduled for completion in FY 2004.

39. ELIZABETH RIVER BASIN, ENVIRONMENTAL RESTORATION, PHASE I, VA

Location. In general, the study area encompasses the entire Elizabeth River Basin, which includes Suffolk, Portsmouth, Chesapeake, Norfolk, and Virginia Beach, within the Southside Hampton Roads area of southeastern Virginia. The Elizabeth River is approximately 20 miles in length and has a drainage area of about 165 square miles. The river is tidal and empties into the Hampton Roads Harbor in the lower Chesapeake Bay. The specific project area for sediment clean up is the Scuffletown Creek area, a tributary to the Southern Branch of the Elizabeth River, located on the east bank approximately two nautical miles from the Eastern Branch/Southern Branch confluence in the City of Chesapeake.

Existing project. The recommended plan (National Ecosystem Restoration Plan or NER) for addressing the environmental problems and needs in the Elizabeth River Basin, as presented in detail in the Final Feasibility Report and

Environmental Assessment, dated June 2001, is environmental restoration which would involve a combination of both sediment restoration or clean-up at Scuffletown Creek, a tributary to the Southern Branch of the river, and wetland restoration at eight different sites throughout the river system.

Sediment restoration involves environmental dredging, transport of dredged material by barge or truck, permanent placement in a dredged material placement site; and/or temporary placement, treatment, and permanent placement in a regulated landfill. Sediment restoration will result in improved bottom community abundance and diversity, reduced fish cancers, and reduced bottom sediment contaminants and toxicity.

Local cooperation. A Design Agreement will require execution prior to the start of the Preconstruction, Engineering, and Design investigations and is under negotiations at this time. A Project Cooperation Agreement will require execution prior to project construction.

Operations during fiscal year. None.

40. ELIZABETH RIVER BASIN, ENVIRONMENTAL RESTORATION, PHASE II, VA

Location. In general, the study area encompasses the entire Elizabeth River Basin, which includes Suffolk, Portsmouth, Chesapeake, Norfolk, and Virginia Beach, within the Southside Hampton Roads area of southeastern Virginia. The Elizabeth River is approximately 20 miles in length and has a drainage area of about 165 square miles. The river is tidal and empties into the lower Chesapeake Bay.

Existing project. The second feasibility study will address sediment contamination sites in the Elizabeth River identified, but not addressed in detail in the first interim feasibility report. The primary sites under consideration are Eppinger and Russell and Paradise Creek.

Local cooperation. A Feasibility Cost Share Agreement will require execution prior to the start of the second feasibility study and is under negotiations at this time.

Operations during fiscal year. None.

41. LAKE MERRIWEATHER, LITTLE CALFPASTURE, GOSHEN, VA

Location. Goshen, Virginia, is located in the western part of Virginia, approximately 30 miles west of Lexington, Virginia.

Existing project. The project consists of the repair and upgrade of the Goshen Dam and Appurtenant Features to include fixing (setting) the existing spillway crest at elevation 1369 and providing roller compacted concrete armor of the dam embankment.

Local cooperation. The local sponsor is the Commonwealth of Virginia.

Operations during fiscal year. The project was ongoing with final design completed. The PCA is scheduled to be executed in July 2004.

42. RAPPAHANNOCK RIVER, VA

Location. Fredericksburg, Virginia.

Existing project. The project will provide for fish passage by removal of the Embrey Dam located at approximately river mile 109. Also included in the project is sediment removal and placement, bank stabilization and reparian restoration behind the dam and preservation of the historic Rappahannock Canal.

Local cooperation. The local sponsor is the City of Fredericksburg, Virginia.

Operations during fiscal year. The Project Cooperation Agreement was executed on December 2, 2002. The first phase of the project, removal of sediment behind the Embrey Dam, was awarded in April 2003. Removal of the dam will be completed by February 2006.

43. TANGIER ISLAND, VA

Location. Tangier Island is located in the Chesapeake Bay approximately 90 miles Southeast of Washington, DC, and is entirely within the political boundaries of Accomack County on Virginia's Eastern Shore. The island is about 5 miles long and 1-1/2 miles wide, and, with the exception of three sand ridges, it composed of low marshland and tidal flats.

Over 50 percent of the submerged aquatic vegetation (SAV) in the waters adjacent to the island has been lost during the 1990s. SAV is prime habitat for young blue crabs. Since these waters are a significant crab nursery for the Chesapeake Bay, the economic impact could be severe. (See National Ocean Service Chart No. 12228.)

Existing Projects. Three Corps of Engineers projects are located in the vicinity of the island. The Tangier Channel to the Chesapeake Bay (or North Channel) provides a channel 7 feet deep and 60 feet wide from the anchorage basin at the town of Tangier, northwesterly through Tangier Creek to the Chesapeake Bay, a distance of 0.7 mile. The anchorage basin is 7 feet deep and 400 feet square. The Tangier Channel to Tangier Sound provides a channel which approaches the island from the east and is 8 feet deep and 100 feet wide and 0.2 mile long in Tangier Sound; thence 8 feet deep and 60 feet wide and 0.9 mile long to the anchorage basin. The Tangier Seawall project provides over one mile of shore protection to the island's west coast, south of the North Channel.

A Federal Continuing Authorities Program study as authorized by Section 206 (Aquatic Ecosystem Restoration) of the Water Resources Development Act of 1996 (Public Law 104-303), as amended. Various solutions to the SAV losses are being considered in the Feasibility Phase, such as a chain of unconnected, low-sill breakwaters around the southern end of Goose Island, another chain around the northern end of

Tangier Island, and a third chain along the western side of Tangier Island. The primary benefits of the project would be to protect the existing environmental resources and to restore an estimated 17.22 million square feet (395 acres) of current open bottom to dense SAV coverage and, consequently, to support up to an additional 48 million juvenile blue crabs and make a significant contribution toward increasing numbers of blue crabs in the bay. There would also be benefits to the finfish, shellfish, and waterfowl populations. Various other options are being considered in the Feasibility Phase.

Local cooperation. The local sponsor, the Town of Tangier, provided a letter of intent in October 2001 to cost share in subsequent phases of the project.

Terminal facilities. The existing facilities at Tangier are considered adequate for current and prospective traffic.

Operations during fiscal year. FY 2003 funds were used to continue the feasibility study.

GENERAL INVESTIGATIONS

44. FLOOD PLAIN MANAGEMENT SERVICES PROGRAM

The Flood Plain Management Services Program (FPMS) provides various water resources related technical services and planning guidance to federal, state, and local governments, and private requestors. Typical assistance includes quick responses for readily available information, providing guides and pamphlets, flood hazard evaluations, hurricane evacuation planning, etc. FPMS funding for FY 2003 was $130,000, which represented less than half of FY 2002 funding; no funds were provided for the Virginia Hurricane Evacuation Study.

45. GENERAL INVESTIGATION SURVEYS

Total cost of surveys during the fiscal year amounted to $2,261,147. The work consisted of feasibility studies for Elizabeth River $232,400, Craney Island $778,300 (Fed)/ $279,100 (non-Fed), Hampton Shoreline $193,400 (Fed)/ $184,800 (non-Fed) , Deep Creek $372,747, and Embrey Dam $20,800. Also work consisted of Interagency Water Resources Development $28,900; Special Investigations, $33,400; FPMS and Section 22 $137,300.

46. PLANNING ASSISTANCE TO STATES, SECTION 22, VA

Storm Water Management Plan (Storm Water Service Fee), City of Charlottesville, VA. A storm water service fee was developed to assist the City of Charlottesville, located in the upper reaches of the James River basin. It identifies four potential levels of service that the City could use for VPDEs permit compliance and administration, system operation and maintenance, and capital improvements. The city of Charlottesville, Virginia, is the cost-sharing sponsor.

Storm Water Management Plan

(Part II), City of Colonial Heights, VA. A storm water management plan was developed for the City of Colonial Heights, Virginia, located in the middle reaches of the James River Basin. The management plan consisted of mapping, development of data bases, and the public education and involvement program to satisfy the requirements of the Virginia Pollution Discharge Elimination System Phase II storm water permit. The study incorporates a system of mapping of storm water outfalls, BMPs, facilities inventory, a web site for public based information dissemination, as well as the costs for development of a number of BMPs. The City of Colonial Heights, Virginia is the cost-sharing sponsor.

Storm Water Management Plan (39th Drainage Study), City of Newport News, VA. A storm water management plan was developed for the City of Newport News, Virginia, located in the lower reaches of the James River Basin. The plan consisted of GIS base maps, outlining of drainage areas, development of rainfall hydrology, and modeling of the 10-year, 25-year, 50-year, and 100-year rainfall events. The City of Newport News, Virginia, is the cost-sharing sponsor.

Update of the Master Drainage Plan (Phase I), City of Chesapeake, VA. An update to the master drainage plan (originally prepared by the City of Chesapeake in 1988) was developed for the City of Chesapeake, Virginia, located in the Elizabeth River Basin. The work consisted of the development of a PC-SWIM (Storm Water Management) model of the Milldam Creek watershed and the evaluation of the adequacy of the existing pro rata program for development charges. The City of Chesapeake, Virginia, is the cost-sharing sponsor.

47. WORK UNDER CONTINUING AUTHORITY PROGRAM

The district continues work on Section 107 (navigation) studies: Messick Point, Back River, VA, has completed construction and project close out activities have been initiated; Starlings Creek, VA continuing the feasibility phase; Nassawaddox Creek, VA, initiating the feasibility phase. In addition, the district continues work on one Section 205 (Small Flood Control) study, Jamestown Island, VA, initiating the feasibility phase.

INSPECTION OF COMPLETED WORKS

48. INSPECTION OF COMPLETED WORKS

This year's work consisted of inspections and reports of seven completed local flood protection and civil works projects in the Norfolk District for an expenditure of $57,000. The projects were constructed by the Corps, and are operated/maintained by local interests.

Projects inspected included: Hampton Institute Shore Protection, Jamestown Park Shore Protection, Norfolk Floodwall, Newmarket Creek Ditch, Richmond Floodwall, Buena Vista Flood Protection and Richmond Filtration Plant.

Table 5-A OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	For Last Full Report, See Annual Report For:	Cost to Sept 30, 2002 Construction	Cost to Sept 30, 2002 Maintenance	Additional Expenditure Expended From Contributed Funds
206--Acquatic Eco Restoration				
Chesapeake Bay Shoreline Hampton	2001	1,245,500	-	783,000
Saxis Island, VA	1987	273,600	-	3,145

Table 5-B OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report, See Annual Report For:	Cost to Sept 30, 2002 Construction	Cost to Sept 30, 2002 Maintenance	Additional Expenditure Expended From Contributed Funds
James R. Olin Flood Control Project Buena Vista, VA		Total Expenditure $ 18,500.00		
Gathright Dam & Lake Moomaw		Total Expenditure $1,471,653.48		
Newmarket Creek, VA		Total Expenditure $ 3,000.00		
Norfolk Floodwall, VA		Total Expenditure $ 5,000.00		
Scottsville, VA		Total Expenditure $		
Virginia Beach Canal No. 2, VA		Total Expenditure $		

Table 5-C RECONNAISSANCE AND CONDITION SURVEYS

PROJECT NAME	MONTH/YEAR	TYPE OF SURVEY
Aberdeen Creek	01-03	Condition
Anchorage F	11-02	Condition
Atlantic Ocean Channel	05-03	Condition
Bennetts Creek	6-03	Condition
Blackwater River (PCS)	08-03	Condition
Broad Creek (PCS)	04-03	Condition
Cape Charles	1-02	Condition
Cape Henry Channel	09-03	Condition
Carters Creek	10-02	Condition
Channel to Newport News	02-03 and 09-03	Condition
Channel to Phoebus	06-03	Condition
Chincoteague Inlet	09-03	Condition
Chincoteague Channel	09-03	Condition
Cranes Creek	9-02	Condition
Deep Creek Accomack (PCS)	06-03	Condition
Dymers Creek	9-02	Condition
Guilford Creek	06-03	Condition
Hampton and Herberts Creek (PCS)	04-03	Condition
Horn Harbor	7-02	Condition
Jackson Creek	5-02	Condition
Jones Creek (PCS)	04-03	Condition
Lafayette River	07-03	Condition
Little Machipongo River	07-03	Condition
Milford Haven	02-03	Condition
Mill Creek	9-02	Condition
Nandua Creek	08-03	Condition
Nassawadox Creek	05-03	Condition
Newport News Anchorage	02-03	Condition
Norfolk Harbor 50’	09-03	Condition
Occohannock Creek	08-03	Condition
Pagan River (PCS)	06-03	Condition
Parrotts Creek	9-02	Condition
Queens Creek (PCS)	04-03	Condition
Scotts Creek	05-03	Condition
Tangier Channel	03-03	Condition
Tangier Island	09-03	Reconaissance
Winter Harbor	09-03	Condition
Wisharts Point	11-02	Condition
Channel to Newport News	02-03	Condition
James River: City Point Shoal	01-03	Condition
James River: Goose Hill Channel	03-03	Condition
James River: Richmond DWT to Hopewell	03-03	Condition

NORFOLK DISTRICT

PROJECT NAME	MONTH/YEAR	TYPE OF SURVEY
James River: Richmond Deepwater Terminal)	07-03	Condition
James River: Richmond Harbor	03-03	Condition
James River: Richmond Harbor to Richmond DWT	06-03	Condition
Lynnhaven Inlet	02-03	Condition
WCV Bogues Bay	02-03	Condition
WCV Cedar Island Bay	04-03	Condition
WCV Gargathy Inlet to Wire Passage	01-03	Condition
WCV Hog Creek and Hog Neck Creek	03-03	Condition
WCV Magothy Bay Channel	04-03	Condition
WCV Northam Narrows	03-03	Condition
WCV Sloop Channel	04-03	Condition
WCV Swash Bay	03-03	Condition
Elizabeth River Eastern Branch	06-03	Condition
Elizabeth River Western Branch	06-03	Condition
Rappahannock Shoal Channel	07-03	Condition
York River (Proportank and West Point Bar) (PCS)	04-03	Condition

Table 5-D ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VIRGINIA, AND ST JOHN'S RIVER, FLORIDA: DATA RELATIVE TO THE COMPLETED LOCKS

Miles from Norfolk, Virginia	Location	Width of Chamber (feet)	Dimensions Greatest Length Available for full Width (feet)	Lift (feet)	Depth Miter Upper (feet)	On Sills Lower (feet)	Character of foundation	Year Opened to Navigation	Construction Cost
12.4	Albemarle &Chesapeake Canal (Great Bridge, VA)	75	600	2.7	1	1	Piles in Sand and Shells	1932	$499,913
10.7	Dismal Swamp Canal (Deep Creek, VA)	52	300	12	12	12	Natural Earth with Cutoff Walls	1940	$348,879
33.1	Dismal Swamp Canal (South Mills, NC)	52	300	12	12	13	Natural Earth with Cutoff Walls	1941	$373,226

TABLE 5E -- Cost and Financial Statement

See Section In Text		Funding	FY99	FY00	FY01	FY02	FY03
1.	**Appomattox River, VA**	Maintenance					
		Approp ($000)	300	379	572	719	951
		Cost ($000)	299	349	386	491	628
2.	**Atlantic Intracoastal Waterway Between Norfolk, VA & St. Johns River, FL**	Maintenance					
		Approp ($000)	1437	1522	1540	1723	
		Cost ($000)	1465	1520	1656	2001	
3.	**Atlantic Intracoastal Waterway At Deep Creek, VA**	New Work					
		Approp ($000)	373	379	318	375	200
		Cost ($000)	313	316	373	641	0
4.	**Atlantic Intracoastal Waterway At Great Bridge, VA**	New Work					
		Approp ($000)	4687	5072	0	8453	
		Cost ($000)	327	805	0	8689	
5.	**Back River, Poquoson, VA**	Maintenance					
		Approp ($000)	1	129	--	254	
		Cost ($000)	20	55	--	201	
6.	**Bennett's Creek, VA**	Maintenance					
		Approp ($000)	--	--	0	--	0
		Cost ($000)	--	--	70	--	89
7.	**Channel to Newport News, VA**	Maintenance					
		Approp ($000)	640	44	115	--	--
		Cost ($000)	505	44	114	--	--

TABLE 5E -- Cost and Financial Statement

See Section In Text		Funding	FY99	FY00	FY01	FY02	FY03
8.	**Chincoteague Bay, VA**	Maintenance					
		Approp ($000)	--	--	413	--	--
		Cost ($000)	--	--	210	--	30
9.	**Chincoteague Inlet, VA**	Maintenance					
		Approp ($000)	550	717	715	862	1070
		Cost ($000)	342	693	111	1540	244
10.	**Craney Island Eastward Expansion, VA**	New Work					
		Approp ($000)	210	916	1429	125	
		Cost ($000)	277	871	1057	125	
		Maintenance					
		Approp ($000)	--				
		Cost ($000)	--				
11.	**Deep Creek, Newport News, VA**	Maintenance	--	--	--	--	--
		Approp ($000)	--	--	--	--	--
		Cost ($000)					
12.	**Greenvale Creek**	Maintenance					
		Approp ($000)	--	--	--	0	151
		Cost ($000)	--	14	--	24	28
13.	**Guilford Creek, VA**	Maintenance					
		Approp ($000)	30	0	0	0	0
		Cost ($000)	7	4	4	93	93

TABLE 5E -- Cost and Financial Statement

See Section In Text	Funding	FY99	FY00	FY01	FY02	FY03
14. Hampton Roads, VA, Collection & Removal of Drift	Maintenance					
	Approp ($000)					
	Cost ($000)					
15. Hoskins Creek	Maintenance					
	Approp ($000)	--	--	--	0	45
	Cost ($000)	--	--	--	29	45
16. James River, VA	Maintenance					
	Approp ($000)	4086	4947	4144	3533	--
	Cost ($000)	4193	3546	3161	2902	3697
17. Jones Creek, VA	Maintenance					
	Approp ($000)					
	Cost ($000)					
18. Lynnhaven Inlet, VA	New Work					
	Approp ($000)	--	--	100	890	405.0
	Cost ($000)	--	--	336	921	396.3
19. Newport News Creek, VA	Maintenance					
	Approp ($000)	40				
	Cost ($000)	11				

TABLE 5E -- Cost and Financial Statement

See Section In Text	Funding	FY99	FY00	FY01	FY02	FY03
20. Norfolk Harbor & Channels, VA	New Work					
	Approp ($000)	5429	6305	5614	6182	8261
	Cost ($000)	5703	8151	7066	6752	10099
	Maintenance					
	Approp ($000)	1913				
	Cost ($000)	1917				
21. Oyster Channel, VA	Maintenance					
	Approp ($000)	40	--	--	0	0
	Cost ($000)	40	--	--	231	20
22. Pagan River, VA	Maintenance					
	Approp ($000)	50	141	140	139	--
	Cost ($000)	44	163	59	138	--
	Maintenance					
	Approp ($000)					
	Cost ($000)					
23. Rudee Inlet, VA	Maintenance					
	Approp ($000)	594	872	512	1011	980
	Cost ($000)	593	608	674	850	846
	Maintenance					
	Approp ($000)					
	Cost ($000)					

TABLE 5E -- Cost and Financial Statement

See Section In Text	Funding	FY99	FY00	FY01	FY02	FY03
24. Supervisor of Norfolk Harbor (Prevention of Obstructive & Injurious Deposits)	New Work					
	Approp ($000)					
	Cost ($000)					
25. Tylers Beach, VA	Maintenance					
	Approp ($000)	--	102	10	102	30
	Cost ($000)	--	43	8	52	18
26. Waterway on the Coast of VA	Maintenance					
	Approp ($000)	815	1149	828	742	1095
	Cost ($000)	500	486	1324	793	919
27. York River, VA	Maintenance					
	Approp ($000)	--	--	--	149	714
	Cost ($000)	--	--	--	182	1065
28. Chesapeake Bay Shoreline, Hampton, VA	New Work					
	Approp ($000)	126	269	170	125	276
	Cost ($000)	121	200	193	111	329
29. Sandbridge, VA	New Work					
	Approp ($000)	--			2851	
	Cost ($000)	--			464	

TABLE 5E -- Cost and Financial Statement

See Section In Text		Funding	FY99	FY00	FY01	FY02	FY03
30.	**Virginia Beach, VA (Hurricane Protection**	New Work					
		Approp ($000)	24042	17014		2500	
		Cost ($000)	23751	16140		8591	
31.	**Willoughby Spit, Norfolk, VA**	New Work					
		Approp ($000)	6				
		Cost ($000)	6				
32.	**Emergency Flood Control Activities**	New Work					
		Approp ($000)					
		Cost ($000)					
33.	**Gathright Dam & Lake Moomaw, VA**	New Work					
		Approp ($000)	1502	159	1314	1523	1534
		Cost ($000)	1627	1281	1481	1467	1666
34.	**Avtex, Front Royal, VA**	New Work					
		Approp ($000)		4134	5880		
		Cost ($000)		2622	814		
35.	**Chesapeake Bay Oyster Recovery**	New Work					
		Approp ($000)		0	802	1646	
		Cost ($000)		43	830	2880	

TABLE 5E -- Cost and Financial Statement

See Section In Text		Funding	FY99	FY00	FY01	FY02	FY03
36.	**CSO Lynchburg**	New Work					
		Approp ($000)	905	430		840	
		Cost ($000)	475	380		176	
37.	**CSO Richmond**	New Work					
		Approp ($000)	744	670		1471	
		Cost ($000)	74	9		510	
38.	**Dismal Swamp & Dismal Swamp Canal, VA**	New Work					
		Approp ($000)					
		Cost ($000)					
39.	**Elizabeth River Basin Environmental Restoration Phase I**	New Work					
		Approp ($000)	508	292	236	200	
		Cost ($000)	540	340	232	168	
40.	**Elizabeth River Basin Environmental Restoration Phase II**	New Work					
		Approp ($000)					
		Cost ($000)					
41.	**Lake Merriweather Calfpasture**	New Work					
		Approp ($000)	125	1	83410		
		Cost ($000)	149	1			

TABLE 5E -- Cost and Financial Statement

See Section In Text		Funding	FY99	FY00	FY01	FY02	FY03
42.	**Rappahannock (Embrey Dam)**	New Work					
		Approp ($000)	189	218	200		
		Cost ($000)	143	197	8		
43.	**Tangier Island**	New Work					
		Approp ($000)	--	629	373	75	--
		Cost ($000)	--	245	334	117	--
44.	**Flood Plain Management Services Program (FPMS) & Hurricane Evacuation ReStudy Program (HES)**	New Work					
		Approp ($000)	--	25	272	302	130
		Cost ($000)					
45.	**General Investigation Survey**	New Work					
		Approp ($000)					
		Cost ($000)					
46.	**Planning Assistance to States, Section 22**	New Work					
		Approp ($000)					
		Cost ($000)					
47.	**Work Under Continuing Authorities Program**	New Work					
		Approp ($000)	189	218	200		
		Cost ($000)	143	197	8		

TABLE 5E -- Cost and Financial Statement

See Section In Text	Funding	FY99	FY00	FY01	FY02	FY03
48. Inspection of Completed Work	New Work					
	Approp ($000)	72	57	75	19	106
	Cost ($000)	71	56	62	53	83

WILMINGTON, N.C., DISTRICT

This district comprises central and eastern North Carolina and a portion of south-central Virginia, embraced in drainage basins tributary to the Atlantic Ocean from the southern boundary of Virginia to the Shallotte River, inclusive, with exception of the Meherrin River Basin above Murfreesboro, N. C., the Chowan River Basin above the confluence of the Nottaway and Blackwater Rivers, and the Pasquotank River and its tributaries for navigation only. Also included are those portions of the Yadkin-Pee-Dee and Catawba River basins within the State of N. C. as well as a portion of the Atlantic Intracoastal Waterway from the northern boundary of North Carolina to Little River, S.C., and a portion of the waterway from Norfolk, Va., to the Sounds of North Carolina, south of the north shore of Albemarle Sound.

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Navigation

1. ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA, AND ST. JOHNS RIVER, FL. (WILMINGTON DISTRICT)

Location. The project is located on the east coast of the United States, between Norfolk, Va., and St. Johns River, Florida. The section within Wilmington District begins at the Virginia-North Carolina State line and extends generally southerly and southwestwardly to Little River, S.C., a total of 308 statute miles. (See Coast and Geodetic Survey Charts 830 to 842, inclusive.)

Previous projects. For details see Annual Reports for 1915, 1926, 1932, and 1938.

Existing project. The authorized project provides for a waterway, 12 feet deep, with widths varying from 90 feet in land cuts to 300 feet in open waters; the construction, operation and maintenance of suitable bridges; saltwater intrusion preventive measures in the vicinity of Fairfield, N.C.; a channel in Peltier Creek, 6 feet deep and 50 feet wide from the Intracoastal Waterway in Bogue Sound to and including a basin in Peltier Creek, 6 feet deep, 200 feet wide, and 600 feet long; a channel, 6 feet deep and 90 feet wide between the Intracoastal Waterway and the gorge in Bogue Inlet, then 8 feet deep and 150 feet wide across the ocean bar; a channel, 12 feet deep and 90 feet wide to a turning basin, 200 feet wide and 350 feet long, at Swansboro; a channel, 6 feet deep and 90 feet wide in New River Inlet, and a connecting channel of the same dimensions to the Intracoastal Waterway near the mouth of New River; a channel, 10 feet deep, and 90 feet wide in New River, between the Intracoastal Waterway and the Seaboard Coastline Railroad bridge at Jacksonville, N.C.; a channel through New Topsail Inlet, 8 feet deep and 150 feet wide and a channel from New Topsail Inlet to the Intracoastal Waterway by way of Old Topsail Creek, 7 feet deep and 80 feet wide; a channel, 7 feet deep and 80 feet wide, in Banks Channel, from New Topsail Inlet, paralleling the barrier beach, to the Atlantic Intracoastal Waterway; a channel, 14 feet deep and 400 feet wide, across the ocean bar at Masonboro Inlet, with suitable jetties at the entrance, thence 12 feet deep and 90 feet wide to the channel of the Intracoastal Waterway at Wrightsville Beach by way of Banks and Motte Channels; a turning basin, 15 feet deep, 300 feet wide, and 700 feet long, on the east side of Banks Channel near Masonboro Inlet, with three 15-pile dolphins therein; a channel, 8 feet deep and 150 feet wide across the ocean bar at Carolina Beach Inlet to the Atlantic Intracoastal Waterway; a channel, 6 feet deep, 80 feet wide, and 8,000 feet long, to and including a turning basin of the same depth, 130 feet wide and 180 feet long, at Carolina Beach; a yacht basin, 230 feet wide, 450 feet long, and 12 feet deep, at the town of Southport, connected to the waterway by a suitable channel of the same depth; and maintenance of the general navigation features of the North Carolina State Ports Authority Small Boat Harbor at Southport, consisting of an entrance channel, 150 feet wide and 400 feet long, an eastern harbor access channel, 70 feet wide and 430 feet long, a western harbor-access channel, 60 feet wide and 185 feet long, to a turning basin, 180 feet wide and 550 feet long, all to a depth of 6 feet. A modification providing for the replacement of five federally owned and operated highway bridges was authorized in December 1970. A modification providing for 100 percent Federal funding for Walter B. Jones (formerly Wilkerson Creek) and Joseph P. Knapp (formerly Coinjock) bridges was authorized in October 1976. A modification providing for 100 percent Federal funding at Core Creek, Gene A. Potter (formerly Hobucken), and Fairfield Bridges was authorized in November 1986. Estimated Federal cost is $70,200,000 (2000). The tidal lock at Snow's Cut was deauthorized September 23, 1986, under authority of Sec. 12, PL93-251. The 12-foot-deep channel in Peltier Creek was deauthorized by the Water Resources Development Act of 1986. The 12-foot deep channel modification to New River was deauthorized January 1, 1990, under Sec. 1002, PL99-662. The jetties at Masonboro Inlet are complete except for the training wall, which was deauthorized April 5, 1999. A Section 111 project to mitigate damages caused by the north jetty was authorized in October 1980 and was completed in April 1981. Length of channels and basins total 347.7 miles. Plane of reference is mean low water. In the waterway north of Neuse River, variations in water surface due to winds seldom exceed 2 feet above or below mean stage. Between Beaufort and the Cape Fear River, normal tidal range varies from 3.5 feet at the inlets to 1 foot at points between. Average range of tide is 4 feet on the ocean side of Bogue Inlet and 2.5 feet just inside the inlet. At New River, tidal range varies from 3.5 feet at the inlet to 1 foot at the head of the marshes and zero at Tar Landing, 31 miles above. From Cape Fear River, N. C., to Little River, S. C., mean tidal range varies between 4.7 feet in Cape Fear River and 4 feet at the intermediate inlets, and 2 feet at points midway between the inlets. On October 15, 1954 (Hurricane Hazel), the tide at Holden Beach reached an elevation of 17.6 feet. (See Table 6-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date except for the uncompleted modifications. The State of North Carolina agreed to keep the bridges toll free and upon completion of each bridge, accept maintenance, replacement, and ownership responsibilities. They

withdrew their offer to contribute 25 percent of first cost. Water Resources Acts 1976 and 1986 modified the terms of local cooperation to delete the non-Federal cost-sharing requirement for all five bridges.

Operations and results during fiscal year. **New Work**: Costs in connection with the completed Fairfield Bridge, including real estate activities, were $8,100. **Maintenance**: **Through Channel** – During intermittent periods the U.S. debris boat *Snell* conducted clearing and snagging operations and maintained dredging ranges and mooring facilities at a cost of $395,190. During intermittent periods, the contract dredges *Marion and Richmond* removed 103,848 cubic yards from the through channel and 249,302 cubic yards from inlet crossings at a cost of $1,977,095. Between March 27 and April 9, 2003, the U.S. hopper dredge *Currituck* removed as emergency dredging 11,280 cubic yards from the through channel in Bogue Sound (Tangent B, Section 1) at a cost of $146,035. Disposal area repairs and engineering and design for future year dredging for the through channel cost $527,492. Sediment sampling and analysis for Peletier Creek cost $18,580. Engineering and design for future years dredging for inlet crossings cost $63,793. Mosquito control in disposal areas cost $112,871. Real estate support for easements and audit cost $62,056. Long-term environmental dredging and monitoring studies cost $50,248. GIS development cost $5,626. Economic update and miscellaneous planning activities cost $4,979. Dredged material management plan cost $81,859. Dredged material facility surveys and maintenance cost $647,605. Condition and operations studies and project operation and management cost $454,843. Receipts in connection with non-Federal use of Federal diked disposal areas and other miscellaneous collections resulted in a negative cost adjustment of $145,173. **Bogue Inlet** – Between October 17 and November 5, 2002, the U.S. sidecasting dredge *Fry* removed 74,300 cubic yards from shoals in Bogue Inlet at a cost of $169,696. During intermittent periods, the U.S. sidecasting dredge *Merritt* removed 147,370 cubic yards from shoals in Bogue Inlet at a cost of $297,000. Condition and operation studies cost $58,469. **Carolina Beach Inlet** – Between September 25 and September 30, 2003 the U.S. hopper dredge *Currituck* cost $55,080 for projected year-end work at Carolina Beach Inlet, but instead dredged at New River Inlet. During intermittent periods the U.S. sidecasting dredge *Merritt* removed 218,326 cubic yards from shoals in Carolina Beach Inlet at a cost of $594,000. During intermittent periods, the U.S. debris boat *Snell* repaired mooring facilities at a cost of $25,950. Construction of a mooring facility for government plant and a small storage building cost $43,257. Condition and operation studies and project operation and management cost $49,727. **Masonboro Inlet** – Condition and operation studies and project operation and management cost $1,888. **New River Inlet** – During intermittent periods, the U.S. sidecasting dredge *Merritt* removed 159,170 cubic yards from shoals in New River Inlet at a cost of $405,000. Between March 20 and March 26, 2003 the U.S. hopper dredge *Currituck* removed 14,830 cubic yards from shoals in New River Inlet at a cost of $53,550. During intermittent periods, the U.S. sidecasting dredge *Fry* removed 286,620 cubic yards from shoals in New River Inlet at a cost of $886,050. During intermittent periods, the U.S. debris boat *Snell* maintained dredging ranges and mooring facilities at a cost of $27,031. Condition and operation studies cost $119,508. **New Topsail Inlet** – Between February 5 and March 9, 2003, the contract dredge *Marion* removed 148,365 cubic yards from shoals in New Topsail Inlet and Connecting Channels at a cost of $691,902. During intermittent periods the sidecasting dredge *Merritt* removed 227,145 cubic yards from shoals in New Topsail Inlet at a cost of $469,800. Between November 20, 2002 and January 15, 2003 the U.S. sidecasting dredge *Fry* removed 174,200 cubic yards from shoals in New Topsail Inlet at a cost of $510,950. Condition and operation studies and project operation and management cost $48,092.

Condition at end of fiscal year. The project was completed in September 1997 except for three tie-up dolphins at Masonboro Inlet and the replacement of Fairfield Bridge. Fairfield Bridge is the last of the AIWW bridges to be replaced and was opened to traffic on March 12, 2001. Total cost of existing project to September 30, 2003, was $317,292,257; of which $88,711,727 was for new work including $86,851 in contributed funds and $228,580,530 was for maintenance, including $667,300 in contributed funds.

2. BEAUFORT HARBOR, N.C.

Location. The project is just inside Beaufort Inlet, adjacent to Morehead City Harbor. (See Coast and Geodetic survey Chart 420.)

Previous projects. For details see Annual Reports for 1915 and 1938.

Existing project. The authorized project provides for stopping erosion at Beaufort Inlet by jetties and sand fences at Fort Macon and Shackleford points and other shore protection; channels 15 feet deep at mean low water and 100 feet wide in Bulkhead and Gallants Channels, except for a depth of 12 feet in the upper 5,000 feet of Gallants Channel; a harbor of refuge in Town Creek 12 feet deep, 400 feet wide, and 900 feet long connected to Gallants Channel by a channel 12 feet deep, 150 feet wide, and 1,400 feet long; a basin 12 feet deep, 600 feet wide in front of the town of Beaufort except for a channel 15 feet deep, 100 feet wide through the basin; a stone bulkhead from Town Marsh across

Bird Shoal to the west end of Carrot Island; a channel 14 feet deep, 70 feet wide, and 1,900 feet long from Bulkhead Channel to a turning basin 14 feet deep, 150 feet wide, and 300 feet long near the upper end of Morgan Creek; and a channel in Taylors Creek 15 feet deep, 100 feet wide, extending about 2.6 miles easterly from about opposite Marsh Street in Beaufort to Lennoxville Point at North River except for an 800-foot-long section at the east end which is 12 feet deep. Total length of channels is 7.3 miles. Average tidal range is 2.5 feet at Beaufort and 3.5 feet at the inlet. (See Table 6-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. There are fifty waterfront facilities with a total frontage of 2,000 feet. These facilities are adequate for present commerce.

Operations and results during fiscal year. Maintenance: Engineering and design and surveys for future year dredging of Taylors Creek and Bulkhead Channel cost $28,411. Project condition surveys cost $21,483.

Condition at end of fiscal year. The project was completed in October 1965 except for the Morgan Creek modification which was completed November 12, 1983. (For further details see Annual Report for 1962.) Costs under existing project to September 30, 2003, were $827,040 for new work, including $34,000 contributed funds and $4,971,113 for maintenance, including $326,225 contributed funds, a total of $5,798,153.

3. CAPE FEAR RIVER, N. C. ABOVE WILMINGTON

Location. The river is formed by confluence of the Deep and Haw Rivers at Moncure, Chatham County, N.C., and empties into the Atlantic Ocean at Cape Fear, near the southern extremity of the State. (See Coast and Geodetic Survey Chart 426.)

Previous project. For details see Annual Reports for 1915 and 1938.

Existing project. The authorized project provides for a channel 25 feet deep and 200 feet wide from Wilmington to a turning basin 400 feet wide and 550 feet long at Navassa (2.9 miles); a channel 12 feet deep and 140 feet wide from Navassa to mile board 30 at Acme, with five channel cutoffs, 12 feet deep and 150 feet wide to eliminate sharp bends; a channel 8 feet deep from mile board 30 to Fayetteville by constructing three locks and dams and by dredging river shoals; and recreational facilities at the locks and dams. Total length of the project channels is 113.9 miles. The project was authorized by River and Harbor Acts of June 25, 1910; June 26, 1934; August 30, 1935; August 26, 1937; October 27, 1965; and Section 4, Flood Control Act of 1944. (For further details see Annual Reports for 1962 and 1970.)

Local cooperation. Fully complied with.

Terminal facilities. There are twelve-waterfront facilities on the river, with a total frontage of 1,190 feet.

Operations and results during fiscal year. Maintenance: During intermittent periods, the U.S. debris boat *Snell* conducted clearing and snagging operations at a cost of $60,550. A National Register of Historic Places Evaluation cost $8,435. Costs in connection with replacement of flush toilet buildings at Lock and Dam No.1 and William O. Huske Lock and Dam were $189,101. At the three locks and dams costs in connection with replacement of boat ramps were $154,857 and costs in connection with construction of picnic shelters were $55,835. Long term environmental studies and monitoring cost $3,189. Periodic inspections cost $7,120. Condition and operations studies cost $1,584. Operation and maintenance of the three locks and dams cost $460,530.

Condition at end of fiscal year. The project was completed in June 1970. Total cost of existing project to September 30, 2003, was $29,481,407 of which $3,610,454 (including $1,226,385 public works) was for new work and $25,870,953 was for maintenance.

4. LOCKWOODS FOLLY RIVER, N. C.

Location. The project is located on the south coast of North Carolina about 12 miles west of Cape Fear River. (See Coast and Geodetic Survey Chart 1236 and Geological Survey Map of North Carolina.)

Existing project. The authorized project provides for a channel 100 feet wide and 6 feet deep at low water from the ocean to the bridge at Supply 12.5 miles above, to be obtained by dredging through oyster rocks and mudflats. The completed river portion of the project above the waterway was reclassified to the active category in 1971. Lunar tidal ranges in Lockwoods Folly River are 4.5 feet at the inlet and 2 feet at the head of navigation at Supply. The existing project was authorized by the 1890 River and Harbor Act. (See Annual Report for 1887, page 1099.) A modification to enlarge the channel from 6 to 12 feet deep and from 100 to 150 feet wide across the ocean bar for a distance of 4,700 feet was approved by the Chief of Engineers on June 3, 1980, under Section 107 of the 1960 River and Harbor Act. During dredging operations it became apparent that establishment of the 12-foot project would not be possible with currently available equipment. Therefore, the Chief of Engineers, on December 20, 1983, approved the District's recommendation that further construction activity for the Lockwoods Folly

Inlet project be suspended until suitable equipment becomes available and that the project be maintained at an 8-foot project depth in the interim.

Local cooperation. For the new modification local interests must: (a) pay, contribute in kind, or repay with interest, one-half of the first costs of construction allocated to recreational boating; (b) hold and save the United States free from damages resulting from changes in ground water levels, saltwater intrusion, or wave action due to the construction works, except damages due to the fault or negligence of the United States or its contractor; (c) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction and maintenance of the project and for aids to navigation upon request of the Chief of Engineers, and (d) provide depths in berthing areas commensurate with project depths and provide service facilities.

Terminal facilities. Thirty-one piers and wharves on the Atlantic Intracoastal Waterway at Holden Beach, about 1.25 miles west of Lockwoods Folly Inlet, with a total frontage of about 1,980 feet available. At Dixons Landing, about 2 miles upstream of the inlet, there are five wharves with a total frontage of 240 feet. Numerous natural landings are used for loading and unloading small boats. Berthing space in the vicinity of Lockwoods Folly Inlet totals about 2,220 feet. Facilities are considered adequate for present commerce.

Operations and results during fiscal year. Maintenance: On January 21, 2003, the U.S. hopper dredge *Currituck* removed 820 cubic yards from shoals in Lockwoods Folly Inlet at a cost of $7,650. Between April 23 and May 7, 2003, the U.S. sidecasting dredge *Fry* removed 70,090 cubic yards from shoals in Lockwoods Folly Inlet at a cost of $176,000. During intermittent periods, the U.S. sidecasting dredge *Merritt* removed 248,745 cubic yards from shoals in Lockwoods Folly Inlet at a cost of $476,100. Between December 7, 2002 and January 4, 2003, the contract dredge *Marion* removed 27,994 cubic yards from shoals in Lockwoods Folly River at a cost $409,600. Condition and operation studies and project operation and management cost $69,527.

Condition at end of fiscal year. The active portion of the project was completed in June 1965 except for the latest modification. Work was initiated on the latest modification on September 23, 1982, with a depth of 8 feet being reached in October 1982. The project will be maintained at the 8-foot depth until suitable equipment for deepening to 12 feet becomes available.

5. MANTEO (SHALLOWBAG) BAY, N. C.

Location. The project is located on the northeastern side of Roanoke Island, North Carolina. (See Coast and Geodetic Survey Chart 1229.)

Existing project. The authorized project provides for a channel 14 feet deep and 400 feet wide from the Atlantic Ocean through Oregon Inlet with connecting 12-foot channels, 100 feet wide, to Pamlico Sound, Manteo, and Wanchese; and a channel 6 feet deep and 100 feet wide connecting the Manteo-Oregon Inlet Channel with Albemarle Sound. Length of channels is 25.4 miles. The project modification authorized in 1970 provides for stabilization of Oregon Inlet with a dual rubble-mound jetty system, including means for sand transfer to the down drift beach; a channel, 20 feet deep and 400 feet wide, through the ocean bar at Oregon Inlet; a channel, 14 feet deep and 120 feet wide, from the gorge in Oregon Inlet to and through Roanoke Sound to and including a 15-acre basin of the same depth at Wanchese; and a channel 10 feet deep and 100 feet wide from the 12-foot-deep channel in Manteo (Shallowbag) Bay through Roanoke and Albemarle Sounds to deep water near the northern end of Croatan Sound. In FY 2003, after years of controversy, the Oregon Inlet stabilization project was referred to the President's Council on Environmental Quality, which directed the Corps of Engineers to a) develop alternative approaches for improving navigation; b) implement the channel widener project; c) survey navigation channels more frequently and make the data available directly to the public and through NOAA's Electronic Navigational Charts. The Corps of Engineers agreed to cease work and funding for jetties at Oregon Inlet. The unconstructed portion of the 1970 project was reclassified as deferred September 23, 2003. The State of N.C. has constructed the Wanchese Harbor portion and was reimbursed under Sec. 215, PL 90-483. The project was authorized by River and Harbor Acts of June 25, 1910; October 17, 1940; May 17, 1950; and December 31, 1970; and under Section 107 of the 1960 River and Harbor Act, as amended.

Local cooperation. Fully complied with.

Terminal facilities. The project is served by 33 waterfront facilities with a total frontage of 3,320 feet. Additional wharves and facilities will be provided with the enlarged basin at Wanchese.

Operations and results during fiscal year. New Work: Work continued on the economic update, GDM supplement, EIS supplement, and response to CEQ referral, at a cost of $23,464. Maintenance: Between October 1, 2002 and January 22, 2003, the contract dredge *Lyndy1* dredged 180,432 cubic yards from shoals in Old House Channel and Channel to Wanchese at a cost of $560,492. Between October 1 and October 21, 2002, the contract dredge *Texas* removed 290,625 cubic yards from shoals in the ocean bar and vicinity of the bridge at a cost of $1,907,838. Between August 21, and September 30, 2003, the contract dredge *Beachbuilder* removed 733,112 cubic yards from shoals in the ocean

bar and vicinity of the bridge at a cost of $3,976,070. Between August 22 and September 30, 2003, the contract dredge *Atchafalya* removed 50,387 cubic yards from shoals in the ocean bar and vicinity of the bridge at a cost of $397,788. Between January 16 and February 19, 2003, the U.S. sidecasting dredge *Fry* removed 64,580 cubic yards from Oregon Inlet at a cost of $313,500. Between March 7 and March 25, 2003 and September 27 and September 29, 2003, the U.S. sidecasting dredge *Merritt* removed 62,370 cubic yards from shoals in Oregon Inlet at a cost of $171,000. During intermittent periods the U.S. debris boat *Snell* repaired the dock at Manteo (Shallowbag) Bay at a cost of $123,819 and conducted clearing and snagging operations and maintained dredging ranges and mooring facilities at a cost of $22,923. Additional cost in connection with prior year dredging of Oregon Inlet was $1,021,063. Engineering and design in connection with future years dredging of Old House Channel and Channel to Wanchese cost $68,254. Project monitoring cost $18,353. The National Ocean Survey tidal datum determination cost $323. Environmental and sea turtle monitoring cost $926. Condition and operation studies and project operation and management cost $133,178. Island H disposal area repairs cost $164,068 in contributed funds. Shoreline monitoring at Oregon Inlet cost $800 in contributed funds.

Condition at end of fiscal year. The project is complete except for the latest modification. Environmental mitigation for the constructed 15 acre basin at Wanchese remains to be implemented. (For further detail, see Annual Report of 1962.)

6. MOREHEAD CITY HARBOR, N. C.

Location. The project is located on the northern shore of Bogue Sound, adjacent to Beaufort Inlet. (See Coast and Geodetic Survey Chart 420.)

Previous project. For details see page 470 of Annual Report for 1935.

Existing project. A channel 47 feet deep and 450 feet wide from deep water in the Atlantic Ocean through the ocean bar at Beaufort Inlet with three wideners; a cutoff channel 400 feet wide; and a depth of 45 feet in the east leg of the basin, including a 1,350 foot diameter turning area; a channel 12 feet deep, 100 feet wide from the turning basin to Sixth Street, Morehead City, then 12 feet deep, 200 to 400 feet wide to Tenth Street; then 6 feet deep, 75 feet wide, to Bogue Sound. Project also includes assumption of maintenance in the northwest leg and the east leg extension. The Corps of Engineers also assumed maintenance of the West Turning Basin as part of the Morehead City Harbor Project, in accordance with Section 509(a)(17) of WRDA 1996 and ASA (CW) approval on September 20, 2002, and as constructed by the State of North Carolina. Jetties at Beaufort Inlet were reclassified to the "active" category on March 8, 1972. The jetties were deauthorized by the Water Resources Development Act of 1986. The project was authorized by the 1958 River and Harbor Act (S.D. 54, 84th Cong., 1st sess.), the River and Harbor Act of December 31, 1970, the Water Resources Development Act of 1992, and Section 519(a)(17) of the Water Resources Development Act of 1996. (For further details see Annual Report for 1962.)

Local cooperation. Fully complied with to date.

Terminal facilities. Twenty-six waterfront facilities serve the port, with a total frontage of 1,250 feet. Marine terminals provide 5,300 feet of berthing space, with a depth alongside of 35 feet, and facilities for transfer of cargoes between rail and water carriers. Improvements to facilities were completed in 1969. (For further details see Port Series No. 12, revised 1987, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Between January 9 and February 14, 2003 the contract dredges Manhattan Island and Padre Island removed 886,136 cubic yards from shoals in the ocean bar at a cost of $2,097,501. Cost in connection with prior year dredging of the ocean bar was $3,582 and of the inner harbor was $3,655. During intermittent periods, the U.S. debris boat *Snell* repaired the dock at Morehead City Harbor at a cost of $53,338 and conducted clearing and snagging operations and maintained dredging ranges and mooring facilities at a cost of $28,395. Engineering and Design in connection with future pump out of Brandt Island cost $117,064, in connection with future dredging of the ocean bar cost $128,620, in connection with the future dredging of the inner harbor cost $145,813, and in connection with the MCH Section 933 project cost $119,508. An evaluation and report for assumption of maintenance of the West Turning Basin Expansion cost $421. An evaluation and report of a Morehead City Harbor Section 933 project cost $306,335. Ocean dumping monitoring cost $4,460. Cost adjustment in connection with the national ocean survey tidal datum resulted in a negative cost of $3,012. The sea turtle environmental study cost $947. Condition and operation studies and project operation and management cost $184,623

Condition at end of fiscal year. The project is complete with the latest modification being physically complete in April 1994. (For further details, see Annual Report of 1962.) Total cost of the existing project to September 30, 2003, was $111,179,833 of which $15,892,219 was for new work, including $2,731,996 contributed funds (including $553,477 public works funds) and $95,003,057 for maintenance, including $3,307,628 contributed funds.

7. PAMLICO AND TAR RIVERS, N.C.

Location. The two names apply to the same river, known as the Tar above and as the Pamlico below Washington, N.C. This stream rises in Person County, flows southeasterly 180 miles to Washington, thence 38 miles to Pamlico Sound. (See Coast and Geodetic Survey Chart 537.)

Previous project. For details see page 502 of Annual Report for 1938.

Existing project. A channel 12 feet deep at mean low water and 200 feet wide from 12-foot contour in the river below Washington to Atlantic Coastline Railroad bridge at Washington; thence 12 fee deep and 100 feet wide to a turning basin of same depth, 200 feet wide, 300 feet long in Hardee Creek, 1,500 feet above its mouth; thence 6 feet deep, 75 feet wide to Greenville; thence 20 inches deep, 60 feet wide to Tarboro; and thence to clear the natural channel to Little Falls. Project was authorized by River and Harbor Acts of August 14, 1876; March 3, 1879; August 11, 1888; March 2, 1907; July 25, 1912; July 3, 1930; and August 26, 1937. (For Further details see Annual Report for 1962.)

Local cooperation. Fully complied with.

Terminal facilities. There are 54 wharves on the portion of this river under improvement, of which 34 are along the waterfront at Washington, 19 between Washington and the mouth, and only 1 in useable condition above Washington. They have a frontage of 3,570 feet. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Environmental clearances cost $3,034.

Condition at end of fiscal year. Project is complete. (For details see Annual Report for 1962.)

8. ROANOKE RIVER, N.C.

Location. Rises in Blue Ridge Mountains, west of Roanoke, Va., flows southeasterly about 398 miles, and empties into westerly end of Albemarle Sound, N.C. (See Coast and Geodetic Survey Chart 1228 and Post Route Map of North Carolina.)

Existing project. A channel 12 feet deep and 150 feet wide from Albemarle Sound to 1 mile above Plymouth, N.C.; thence a channel 10 feet deep and 100 feet wide to Hamilton; and thence a channel 8 feet deep and 80 feet wide to Palmyra Landing. Project authorized by River and Harbor Acts of March 3, 1871; July 3, 1930; and June 20, 1938. For further details see Annual Report for 1962.

Local cooperation. Fully complied with.

Terminal facilities. Thirty-two waterfront facilities serve the waterway. Facilities appear adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Between February 24 and March 5, 2003, the debris boat *Snell* snagged and cleared at a cost of $64,348. Environmental clearances cost $3,225.

Condition at end of fiscal year. Project is complete.

9. ROLLINSON CHANNEL, N. C.

Location. The project is located about 3.5 miles northeast of Hatteras Inlet. (See Coast and Geodetic Survey Chart 1232.).

Existing project. The authorized project provides for a channel 12 feet deep, 100 feet wide, and about 5.1 miles long from deep water in Pamlico Sound to and including a basin of the same depth, 80 to 150 feet wide, and 1,450 feet long at Hatteras; a rubble-mound breakwater on each side of the channel at the entrance to the basin; and a channel 10 feet deep and 100 feet wide from that depth in Hatteras Inlet gorge to Rollinson Channel, in the vicinity of the basin at Hatteras. The project was authorized by the River and Harbor Acts of August 30, 1935; March 2, 1945; September 3, 1954; and October 23, 1962. (For further details see Annual Report for 1961.)

Local cooperation. Complied with to date.

Terminal facilities. Six waterfront facilities serve the channel, with a total frontage of 926 feet. Existing facilities are adequate for present commerce.

Operations and results during fiscal year. Maintenance: Cost in connection with prior year contract dredging was $3,394. Between September 22 and September 25, 2003, the debris boat *Snell* repaired breakwaters at a cost of $27,680 and conducted clearing and snagging operations at a cost of $25,950. Project condition surveys cost $33,634.

Condition at end of fiscal year. The project was completed August 22, 1966. (For further details see Annual Report for 1961.)

10. SILVER LAKE HARBOR, N. C.

Location. The project is located at the southwest end of Ocracoke Island, a portion of the Outer Banks on the southeast coast of North Carolina, separating Pamlico Sound from the Atlantic Ocean. (See Coast and Geodetic Survey Chart No. 1232.)

Existing project. The authorized project provides for basin depths of 12 feet in Silver Lake Harbor; an entrance channel 12 feet deep and 60 feet wide, from

the basin to Teaches Hole Channel; a channel, 12 feet deep and 150 feet wide, from the entrance channel through Big Foot Slough Bar to the 12-foot contour in Pamlico Sound; a channel, 12 feet deep and 150 feet wide, from the entrance channel through Teaches Hole Channel to the gorge in Ocracoke Inlet, a channel, 12 feet deep and 150 feet wide, across Bluff Shoal; and for rubble-mound training walls on the north and south sides of the entrance channel, 300 feet and 400 feet long, respectively. Mean tidal ranges are 1.9 feet in the throat of Ocracoke Inlet and 1 foot at Ocracoke. Variations in the water surface of Pamlico Sound are generally due to winds and seldom exceed 1 or 2 feet above or below mean stage. Severe storms have raised the water surface as much as 7 feet above normal water level at Ocracoke. (See Table 6-B for Authorizing Legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Twelve waterfront facilities serve the harbor. These facilities are adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Between December 9, 2002 and January 6, 2003, the U.S. sidecasting dredge *Merritt* removed 67,121 cubic yards from shoals in the channel at a cost of $225,900. During intermittent periods the U.S. debris boat *Snell* conducted clearing and snagging operations and maintained dredging ranges and mooring facilities at a cost of $60,550. Cost in connection with prior year dredging to realign Big Foot Slough was $17,508. Environmental clearances cost $1,879. Condition and operations studies cost $3,763. Project condition surveys cost $10,363.

Condition at end of fiscal year. The project was completed July 28, 1970. (For further details see Annual Report for 1961.)

11. STUMPY POINT BAY, N.C.

Location. On southeastern side of the mainland, Dare County, N.C. (See Coast and Geodetic Survey Chart 1229.)

Existing project. A channel 75 feet wide and 10 feet deep from that depth in Pamlico Sound to a basin in the harbor at Lake Worth, 75 to 100 feet wide, 550 feet long and 10 feet deep, plus an irregularly shaped area providing access to the public wharf, together with protective breakwaters at entrance to the harbor. Project was authorized by 1948 River and Harbor Act and under Section 107, 1960 River and Harbor Act.

Local cooperation. Fully complied with.

Terminal facilities. Bulkheads in existing basin provide about 550 linear feet of berthing space, and a wholesale fish house provides about 250 feet. Part of the space along bulkheads is publicly owned. Facilities are considered adequate for existing commerce, but any appreciable increase will require additional facilities.

Operations and results during fiscal year. Maintenance: Contributed funds cost in connection with prior year repair of disposal area dikes was $1,234.

Condition at end of fiscal year. The project was completed on September 20, 1967. (For further details, see Annual Report for 1966.).

12. WILMINGTON HARBOR, N. C.

Location. The project is located on the Cape Fear River, on southeast coast of North Carolina, between the Atlantic Ocean and Wilmington, North Carolina. (See Coast and Geodetic Survey Chart No. 426.)

Previous projects. For details, see page 1804 of Annual Report for 1915 and page 533 of Annual Report for 1938.

Existing project. The authorized and constructed project provides for a channel 40 feet deep and 500 feet wide from the Atlantic Ocean through the ocean bar and entrance channels to Southport, thence 38 feet deep and 400 feet wide to the upper end of the anchorage basin (foot of Castle Street) at Wilmington, thence 32 feet deep and 400 feet wide, to Hilton Bridge over Northeast Cape Fear River; a 38-foot deep anchorage basin at Wilmington; a 32-foot-deep turning basin opposite the principal terminals; a connecting channel 12 feet deep and 100 feet wide to the AIWW, about 3 miles long, in Cape Fear River; and a channel 25 feet deep and 200 feet wide from Hilton Bridge over Northeast Cape Fear River to a point 1.66 miles above, including a turning basin of the same depth, 700 feet wide and 500 feet long, at a point 1.25 miles above the bridge. The project was authorized by River and Harbor Acts of July 3, 1930; March 2, 1945; May 17, 1950; October 23, 1962; and March 10, 1964; and under the continuing authority of Section 107 of the 1960 River and Harbor Act. Three modifications to the project were authorized by the Water Resources Development Acts of November 17, 1986 (PL 99-662) and October 12, 1996 (PL 104-303). The Energy and Water Development Appropriations Act, 1998, subsequently combined these three modifications into one project modification. The project consists of two separable elements, the portion for deepening of the existing project and the portion for raising the dikes on Eagle Island dredged material disposal facility (DMDF) for maintenance of the existing 38 foot project until the deepening is completed. The plan of improvement consists of deepening the ocean bar and entrance channels from the authorized depth of 40 feet to 44 feet; deepening the authorized 38-foot project to 42 feet up to and including the anchorage basin immediately upriver from the State

Ports Authority dock, and extending the anchorage basin northward by 300 feet; widening the existing 400-foot wide channel to 600 feet over a total length of 6.2 miles including Lower and Upper Midnight and Lower Lilliput reaches; widen five turns and bends by 100 to 200 feet providing a total average channel width of 500 to 675 feet; widening the Fourth East Jetty Channel to 500 feet over a total length of 1.5 miles; deepening the 32-foot channel between Castle Street and the Hilton Railroad Bridge, the 32-foot turning basin just above the mouth of the Northeast Cape Fear river on the west side, and the 25-foot channel from the Hilton Railroad Bridge to 750 feet upstream all to a depth of 38 feet; deepening the 25-foot channel from 750 feet upstream of the Hilton Railroad Bridge to the turning basin near the upstream limits of the project to 34 feet, along with widening of the channel from 200 to 250 feet; and widening the turning basin from 700 to 800 feet; mitigation to include acquiring, by fee title, 30 acres of upland and construction of an embayment and acquisition of about 500 acres of existing marsh and upland areas for preservation of habitat to offset losses of wetlands and primary nursery areas. The plan of improvement for the dredged material disposal facility consists of incrementally raising the dikes of three cells on Eagle Island dredged material disposal facility from their current elevations to an ultimate elevation of 40 feet. The environmental enhancement portion of the project is unprogrammed. The estimated Federal cost is $273,000,000 (2003) for the deepening project separable element and $35,000,000 (2003) for the dredged material disposal facility separable element. (For further details of authorization, see 1962 Annual Report.)

Local cooperation. Fully complied with to date except for latest modification. Cost sharing and financing are in accordance with concepts reflected in the Water Resources Development Act of 1986. For the deepening project separable element the non-Federal sponsor must (1) provide all lands, easements, rights-of-way, and dredged material disposal area lands presently estimated at $2,031,000, and bear all operation and maintenance costs presently estimated at $6,000 annually; (2) modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project, presently estimated at $21,522,000; (3) pay 25 percent of the costs allocated to deep draft navigation during construction presently estimated at $86,969,000 4) pay 35 percent of costs allocated to the Section 933 portion during construction, currently estimated at $5,380,000 and reimburse an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations (except utility relocations), and dredged material disposal areas, presently estimated at $33,000,000: and (4) provide and maintain, at its own expense, the local service facilities necessary to realize the benefits of the general navigation features, presently estimated at $23,098,000.

For the dredged material disposal facility separable element the non-Federal sponsor must (1) pay 25 percent of the costs allocated to deep draft navigation during construction, presently estimated at $12,000,000; and (2) reimburse an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction, presently estimated at $4,700,000.

Terminal facilities. Forty-three principal wharves, piers, and docks at port of Wilmington, with a berthing space of about 20,000 linear feet serve the harbor. These facilities handle general cargo and petroleum products. (For further details, see Port Series No. 12, revised 1987, Corps of Engineers.)

Operations and results during fiscal year. New Work: Engineering and design and construction management in connection with the harbor deepening project cost $4,858,511. During intermittent periods, the contract dredges *California, Texas,* and *Dredge 54* removed 6,319,344 cubic yards for the Anchorage Basin/Passing Lane contract at a Federal cost of $32,515,238 and a contributed funds cost of $16,494,105. Cost in connection with prior year dredging for the Ocean Bar II contract (Inner Bar-New Channel) was $1,871,325 Federal cost and $623,528 contributed funds cost. Costs in connection with prior year dredging for the Wilmington Harbor Section 933 project for the Brunswick County Beaches Consortium were $484,246 Federal and $260,943 contributed funds. Disposal area construction in connection with the harbor deepening project resulted in a Federal cost of $1,455,799 and a contributed funds cost of $240,001. Construction of the confined disposal facility element – W.H. 96 Act – to provide maintenance capacity for the existing 38 foot project continued at a cost of $795,857. **Maintenance**: During intermittent periods the contract dredges *California, Dredge 54* and *Clarendon* removed 1,293,556 cubic yards from shoals in the anchorage basin/passing lane at a cost of $3,586,106. Cost in connection with prior year dredging from Snows Marsh to Baldhead Shoal Channel was $52,192. Cost in connection with prior year dredging by the U.S. hopper dredge *McFarland* was $23. During intermittent periods the U.S. debris boat *Snell* conducted clearing and snagging operations and maintained dredging ranges and mooring facilities at a cost of $148,784. Real estate studies cost $7,033. Sea turtle research project cost $1,223. ODMDS/ocean dumping monitoring cost $4,884. Mosquito control in disposal areas cost $128,255. Repair of Disposal Areas 4 and 10

cost $972,368 in contributed funds. Engineering and design for repairs to disposal Islands 8 and 10 cost $34,885 in contributed funds. Condition and operation studies and project operation and management cost $454,712.

Condition at end of fiscal year. The active portion of the project was completed August 1997 except for the latest modification. (For further details, see Annual Report for 1962) Total cost of existing project to September 30, 2003 was $438,137,043 of which $283,988,994 was for new work, including $72,788,906 contributed funds and $154,148,049 was for maintenance, including $12,650,054 contributed funds. The remaining uncompleted portion of the work authorized under the River and Harbor Act of March 2, 1945, was deauthorized in accordance with Section 1001(b) (1), PL 99-662. A new construction start for the latest modification was received in FY98, with the first disposal area construction contract awarded May 1999 and completed October 1999 and the mitigation contract awarded August 1999 and completed November 2000 and the first deepening contract awarded August 2000. The deepening project is scheduled for completion in March 2008.

Flood Control

13. ADKIN BRANCH, KINSTON, N.C.

Location. The project area is along about 2650 meters (8700 feet) of Adkin Branch from Lincoln Street upstream to NC Highway 11, in the City of Kinston, Lenoir County, in eastern North Carolina. (See USGS quadrangle sheet, Kinston, N.C.)

Existing project. Provides for channel improvement along approximately 2650 meters (8700 feet) of Adkin Branch, between Lincoln Street and Greenville Highway, to include deepening and widening to a bottom width of 8 meters (26 feet). The project also includes grading and grassing of exposed slopes to reduce siltation, use of stone bank protection in selected areas, and planting of native trees and shrubs where practicable. Approved estimated Federal implementation cost for construction is $2,057,000 (1999). The project was approved by the Division Commander on July 14, 1999, under the continuing authority of Section 205 of the Flood Control Act of 1948, as amended.

Local Cooperation. Local interests must provide all lands, easements, and rights-of-way, including suitable borrow and disposal areas for construction and subsequent maintenance and inspection of the project; accomplish without cost to the United States all relocations and alterations of buildings, transportation facilities, storm drains, utilities and other structures and improvements made necessary by the construction; provide, during the period of construction, an amount equal to not less than 25, but no greater than 50 percent, of total project implementation costs, estimated at $1,543,000, at least 5 percent of which will be cash; hold and save the United States free from damages due to the construction and subsequent maintenance, except damages due to the fault or negligence of the United States or its contractors; maintain and operate.

Operations and results during fiscal year. New Work: Coordination with the Sponsor on project termination and close out cost $1,739.

Condition at end of fiscal year. The sponsor confirmed in the summer of 2002 that a State funded project was being built that would provide significant ecosystem restoration benefits (mitigation credits for NCDOT) and, along with FEMA buyouts, would provide the needed flood damage reduction along Adkin Branch. The project will be terminated. Withdrawal of project approval and project close out are continuing. This project does not include Federal funds of $219,477 and Federal costs of $219,477 for an earlier project that was deauthorized September 8, 1981.

14. CAPE FEAR RIVER BASIN, N. C.

Location. Work covered by this project consists of a series of dams and reservoirs on tributaries of the Cape Fear River in North Carolina within a radius of 100 miles from Raleigh, North Carolina. (See Geological Survey Map of North Carolina.)

Existing project. Public Law 88-253, approved December 30, 1963, authorized three principal dams and reservoirs and a series of smaller reservoirs on tributaries of the Cape Fear River in accordance with the comprehensive plans in House Document 508, 87th Congress, 2d session. The act also provides that the appropriate agencies of the Departments of the Army and Agriculture shall conduct joint investigations and surveys and prepare a report on the upper tributaries of the Cape Fear River in the interest of watershed protection and flood prevention, and the conservation, development, utilization, and disposal of water. The report was prepared in compliance with provisions of Public Law 87-639. The study was unfavorable and has been submitted to Congress. No further action will be taken. B. Everett Jordan Dam and Lake, Randleman Lake, and Howards Mill Lake were included in the comprehensive plan and were authorized for construction in accordance with the above authorization. Howards Mill Lake was deauthorized in July 1995 due

to the current lack of economic justification. Randleman Lake was reclassified to the "deferred" category in April 1992, due to the current lack of economic justification, and was deauthorized in April 2002. See Table 6-H on Dams and Reservoirs. Estimates of cost as given are based on 1960 price levels, except for B. Everett Jordan Dam and Lake which was revised in 1994 and Randleman Lake, which was revised in 1990.

Local cooperation. Requirements are given in the individual project reports.

14A. B. EVERETT JORDAN DAM AND LAKE, N. C.

Location. The project is located on the Haw River, N.C., 4.3 miles above its mouth, and 2.5 miles north of Moncure, N. C.

Existing project. The project provides for an earth dam 1,330 feet long with a maximum height of 112 feet above the streambed, an uncontrolled, unpaved chute spillway, and a controlled 19-foot diameter outlet structure. Some saddle dikes are required beyond the spillway. The reservoir has a gross storage capacity of 753,500 acre-feet, of which 538,400 acre-feet is for flood control and a conservation pool of 215,100 acre-feet for water-quality control, water supply, and sedimentation. The reservoir will be operated as a unit of a coordinated system for control of floods in the Cape Fear River Basin and for water supply, water-quality control, and other purposes. Estimated Federal cost for new work is $147,600,000 (1994), consisting of $89,186,000 for construction, and $58,414,000 for lands and damages, including highway, railroad, and utility relocations. The existing project was authorized by Public Law 88-253 approved December 30, 1963 (H.D.508, 87th Cong., 2d Session).

Local cooperation. Local interests must protect downstream channels from encroachments and obstructions which would adversely affect operation of the project; reimburse the Federal Government for all costs allocated to municipal and industrial water supply, presently estimated at $3,700,000 and bear all annual costs for operation, maintenance, and major replacements allocated to municipal and industrial water supply, an amount presently estimated at $46,000 annually; and contribute toward the cost of the ranger security buildings, an amount presently estimated at $44,000. A contract between the State of N. C. and the United States for water supply storage space was executed by ASA (CW) on April 10, 1988. In addition, the State of N. C. has leased the project for public park, recreational, fish, wildlife, and other natural resource management purposes and the estimated cost to the State for O&M under this lease is $806,000 annually.

Operations and results during fiscal year. **Maintenance**: Maintenance: Periodic inspections cost $15,370. Construction of the management center addition cost $895,801. Engineering and design for the rip rap/slope protection failure cost 16,508. Security activities cost $10,876. Seismic reevaluation of the dam cost $18,947. Normal operation and maintenance cost $1,068,244. Receipts in connection with real estate administrative fees and other miscellaneous collections resulted in a negative cost adjustment of $3,409.

Condition at end of fiscal year. All facilities are complete. Impoundment was completed in February 1982, with dedication on May 1, 1982. The project was completed in June 1999. The real estate audit was completed March 2001. The boater use study was completed March 2004. The master plan update is scheduled to be completed September 2005.

15. CLINTON WASTEWATER TREATMENT PLANT, CLINTON, N.C.

Location. The project is located at the confluence of Dollar Branch and Williams Old Mill Branch near the City of Clinton, about 60 miles south of Raleigh, North Carolina.

Existing Project. The project consists of construction of a dike approximately 2,200 feet long around the Clinton Wastewater Treatment Plant, with sumps and pumps to provide interior drainage. Loss of 1.8 acres of wetlands due to construction will be mitigated by purchase of a 4-acre mitigation site and by the Sponsor placing a restrictive covenant to preserve 6 acres of land already owned. The project provides protection from a 100-year flood event. Approved estimated Federal cost for construction implementation is $591,000 (1998). The project was approved by the Division Commander on April 7, 1998, under the continuing authority of Section 205 of the Flood Control Act of 1948, as amended.

Local cooperation. Local interests must provide all lands, easements and rights-of-way, including suitable borrow and disposal areas necessary for construction and subsequent maintenance and inspection of the project; accomplish without cost to the United States all relocation and alterations of buildings, transportation facilities, storm drains, utilities and other structures and improvements made necessary by the construction; provide, during the period of construction, an amount equal to not less than 25 percent, but no greater than 50 percent, of total project costs, estimated at $197,000, at least 5 percent of which will be cash; hold and save the United States free from damages due to the construction and subsequent maintenance, except damages due to the fault or negligence of the United States or its contractors; maintain and operate the project after

completion without cost to the United States; assume full responsibility for all project costs in excess of the Federal cost limitation of $5,000,000 and assume financial responsibility for cleanup of hazardous and toxic waste, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act, which is necessitated by the project. Such costs will not be considered part of the total project costs, nor will the sponsor receive credit for such costs it incurs.

Operations and results during fiscal year. New Work: Coordination with the Sponsor on mitigation lands and project close out continued at a Federal cost of $5,064.

Condition at end of fiscal year. Real estate acquisition by the Sponsor is complete, but issues remain about the completion of and credit for appropriate mitigation lands. The construction contract was awarded July 13, 1999 and was substantially complete in June 2000. The project was turned over to the Sponsor in October 2000. The sponsor has completed the required flood plain management plan at their expense as a non-project cost. Coordination continues with the Sponsor on mitigation lands and LERRD's credits.

16. MORAVIAN CREEK, WILKESBORO, N.C.

Location. The project is located along 440 meters of Moravian Creek in the Town of Wilkesboro, Wilkes County, in western North Carolina.

Existing Project. The project consists of a concrete flood barrier approximately 650 feet long and up to 6 feet high, bank protection, clearing and snagging of the stream, grading and grassing of banks, and planting of native trees and shrubs. The project provides protection from a 15-year flood event of commercial structures. During design a second concrete barrier approximately 310 feet long and 6 to 18 inches high was determined necessary to provide the 15-year protection. Approved estimated Federal cost for construction implementation is $696,000 (2000). The project was approved by the Division Commander on September 30, 1998, under the continuing authority of Section 205 of the Flood Control Act of 1948, as amended.

Local cooperation. Local interest must provide all lands, easements and rights-of-way, including suitable borrow and disposal areas necessary for construction and subsequent maintenance and inspection of the project; accomplish without cost to the United States all relocation and alterations of buildings, transportation facilities, storm drains, utilities and other structures and improvements made necessary by the construction; provide, during the period of construction, and amount equal to not less than 25 percent, but not greater than 50 percent, of total project costs, estimated at $232,000, at least 5 percent of which will be cash; hold and save the United States free from damages due to the construction and subsequent maintenance, except damages due to the fault or negligence of the United States or its contractors; maintain and operate.

Operations and results during fiscal year. New Work: Coordination with the sponsor and project close out continued at a Federal cost of $20,479 and a contributed funds cost of $138.

Condition at end of fiscal year. Construction was substantially completed December 2001. LERRD's acquisition was completed and credit amounts certified in September 2003.

17. NEUSE RIVER BASIN, N. C.

Location. Works covered by this project consist of a series of dams and reservoirs in the Neuse River Basin in North Carolina within a radius of 50 miles from Raleigh, North Carolina. (See Geological Survey Map of North Carolina.)

Existing project. The Flood Control Act of 1965 authorized construction of the Falls project as the key project in the recommended general plan of development of the Neuse River Basin. The plan will serve as a guide for immediate and future development of the basin's water resources as set forth in House Document 175, 89th Congress, 1st Session. A list of projects included in the general plan of development follows. (See Table 6-J on Dams and Reservoirs.) Estimated costs as given are based on 1963 price levels, except for Falls Lake, which was revised in 1989.

17A. FALLS LAKE, N. C.

Location. The project is on the Neuse River about 10 miles north of the city of Raleigh, North Carolina.

Existing project. The authorized project provides for an earth dam 1,915 feet long with a maximum height of 95 feet above streambed. The dam has a 30-foot top width. An uncontrolled chute spillway, 100 feet wide, is located in the east abutment. The reservoir has a gross storage capacity of 374,450 acre-feet, of which 243,050 acre-feet is for flood control, 45,000 acre-feet for water supply for the city of Raleigh, 61,330 acre-feet for water quality control, and 25,070 acre-feet for sediment storage. The reservoir will be operated as the initial unit of a coordinated system for control of floods in the Neuse River Basin for water supply, water quality control, recreation, and other purposes. Estimated cost of new work is $183,000,000 (1996) consisting of $91,334,000 for construction and $91,666,000 for lands and damages, including highway, railroad, and utility relocations. The project was authorized by the 1965 Flood Control Act (H.D. 175, 89th Cong., 1st sess.).

Local cooperation. Local interests must prevent encroachment on downstream channels that would interfere with the operation of the reservoir; pay the United States in accordance with the Water Supply Act of 1958, as amended, the entire amount of construction cost allocated to water supply, presently estimated at $13,637,000 and entire amount of operation, maintenance, and replacement costs allocated to water supply, presently estimated at $116,000 annually, the final amounts to be determined after actual costs are known; administer project land and water areas for recreation and fish and wildlife enhancement; pay, contribute in kind, or repay (which may be through user fees), with interest, one-half of the separable cost of the project allocated to recreation and one-fourth of the separable cost allocated to fish and wildlife enhancement, the amount involved currently being estimated at $21,595,000, and bear all costs of operation, maintenance, and replacement of recreation and fish and wildlife lands and facilities, the amount involved currently being estimated at $1,544,000 on an average annual basis. Formal assurances have been received. The N.C. Department of Natural and Economic Resources has been authorized by an act of legislation to assure payment of all non-Federal costs allocable to water supply in all Federal projects as required by law. The State will require repayment of water supply costs by the users. A contract between the city of Raleigh and the United States for water-supply storage space was approved by the Secretary of the Army on September 11, 1972. A contract agreement for cost sharing of recreational lands and facilities in accordance with PL 89-72 was approved by the Secretary of the Army on September 11, 1972. A contract agreement in accordance with Section 221 of PL 91-611 was executed on October 10, 1972.

Operations and results during fiscal year. **New Work**: Holly Point Recreation Area improvements cost $65,610. Real estate activities cost $361. The master plan update cost $5,100. Total Federal expenditures were $71,381, including the above items. **Maintenance**: Periodic inspections cost $19,045. Acquisition of access road tract 728 cost $373. Security activities cost $10,316. GIS development cost $3,083. Seismic reevaluation of the dam cost $18,852. Normal operation and maintenance cost $1,162,966. Receipts in connection with miscellaneous collections resulted in a negative cost of $4,550.

Condition at end of fiscal year. Reservoir filling was completed on December 7, 1983. Dedication ceremonies were held on April 30, 1983. The real estate audit was completed January 2000. The project was completed March 2000. The boater use study was completed March 2004. The master plan update is scheduled for completion in September 2005.

18. ROANOKE RIVER UPPER BASIN, VIRGINIA, HEADWATERS AREA

Location. The project is located on the Roanoke River in the City of Roanoke, Va. (See USGS quadrangle sheet, Roanoke, Va.)

Existing project. The authorized plan includes about 6.2 miles of channel widening along the 10-mile project reach through the City of Roanoke, Va. Channel widening will be accomplished with the construction of a benched channel above the elevation of the average stream flow. Other flood damage reduction features include flood proofing at two locations, training walls to prevent floodwater intrusion into low areas along the river (total length 6,120 feet), replacement of two low-level bridges that constrict stream flows, and a flood warning system. Recreation facilities consist of a 5-mile recreation trail along the project reach and access and parking areas. Approved estimated Federal cost for new work is $45,800,000 (2003). The project was authorized by the Water Resources Development Act of 1986 (H.R. 6, PL99-662).

Local cooperation. Local interests must provide all lands, easements, and rights-of-way including spoil disposal areas presently estimated at $5,861,000; modify or relocate buildings, utilities, roads and other facilities except railroad bridges, where necessary for construction of the project presently estimated at $4,932,000; pay 25 percent of the cost of the flood warning system (partially offset by a credit for lands, easements, rights-of-way, and relocations) presently estimated at $10,000; pay 5 percent of the total cost allocated to flood control in cash in addition to all lands, easements, rights-of-way and relocations presently estimated at $2,4398000, and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $101,000, annually; pay one-half of the separable cost allocated to recreation presently estimated at $5,713,000, (partially offset by a credit for land, easements, rights-of-way and relocations) and bear all costs of operation, maintenance and replacement of recreation facilities presently estimated at $9,000, annually; pay 25 percent of the cost of non-structural flood proofing (partially offset by a credit for lands, easements, rights-of-way and relocations) presently estimated at $367,000; and pay 25 percent of cultural resources recovery that exceeds 1 percent of the total project cost, currently estimated at $219,000. Fully complied with to date.

Operations and results during fiscal year. New work: Engineering and design continued at a cost of $1,953,924.

Condition at end of fiscal year. The contract for the flood warning system was completed in January 1991. The contract for the sewage treatment plant flood proofing was awarded in August 1991 and completed in February 1993. Two hazardous material sites have been cleaned by the owners. Sponsor initiated land acquisition for channel improvement in FY98. Project completion is scheduled for September 2010.

19. YADKIN RIVER BASIN, N. C. AND S.C.

Location. The river rises on the eastern slope of the Blue Ridge Mountains in western North Carolina, flows generally easterly about 100 miles to the vicinity of Donnaha, North Carolina, thence southeasterly 104 miles to its confluence with Uwharrie River near Badin, North Carolina, where its name changes to Great Pee Dee River. (See U.S. Geological Survey map of North Carolina.)

Existing project. The Flood Control Act of July 24, 1946, authorized construction of four flood control dams in the Upper Yadkin River Basin, two on the Yadkin River above Wilkesboro, North Carolina, and two on Reddies River, a tributary stream. Studies made subsequent to authorization established the economic advantage of providing needed flood-control storage in only two reservoirs. W. Kerr Scott Dam and Reservoir was constructed in 1962 on the Yadkin River and was transferred to the Wilmington District from Charleston in Fiscal Year 1980. Reddies River Lake and Roaring River Lake were deauthorized in April 2002. (See Table 6-H on Dams and Reservoirs.)

19A. W. KERR SCOTT DAM AND RESERVOIR, N. C.

Location. W. Kerr Scott Dam and Reservoir is on Yadkin River, North Carolina, about 6 miles upstream from Wilkesboro. At full flood-control pool elevation (1,075 feet mean sea level), the reservoir extends 15.7 miles upstream to the Wilkes-Caldwell County line.

Existing project. The project consists of a rolled earth-fill dam 1,740 feet long, with top of dam at elevation 1,107.5 feet mean sea level or about 148 feet above streambed elevation; a spillway near the north abutment of the dam in a rock cut with crest elevation 1,075; and outlet works consisting of an intake structure, control tower, and a circular concrete conduit 12.25 feet in diameter through the base of the dam near the south abutment. The reservoir has a gross capacity of 153,000 acre-feet of which 112,000 acre-feet are reserved for flood control, 33,000 acre-feet will be used as required for water supply, and 8,000 acre-feet being contained in the minimum pool. Estimated cost is $9,110,000 (1983) for new work. The existing project was authorized by the 1946 Flood Control Act.

Local cooperation. Requirements fully satisfied. For details, see page 413 of Annual Report for 1963.

Operations and results during fiscal year. Maintenance: Periodic inspections cost $13,707. Normal operation and maintenance cost $2,878,996. Miscellaneous collections for timber sales resulted in a negative cost adjustment of $500.

Condition at end of fiscal year. The project was commenced in August 1960 and placed in operation for flood control and water storage purposes in August 1962.

20. INSPECTION OF COMPLETED SHORELINE PROTECTION AND FLOOD CONTROL PROJECTS

To determine the extent of compliance with approved regulations for maintenance and operation, review and inspections were made for the following projects during Fiscal Year 2003: Ararat River, Surry County, N.C.; Battery Island Bird Habitat Preservation, N.C. (CAP Sec 204); Ellis Swamp, N.C.; Filberts Creek, N.C.; Gardners Creek, N.C.; Genoa Sewer Facility, Wayne County, N.C. (CAP Sec 14); Joyce Creek, N.C.; King (Water Plant), N.C. (CAP Sec 14); Lick Run, VA; Leith Creek, Laurinburg, N.C.; Little Rockfish Creek, Hope Mills, N.C. (CAP Sec 14); Neuse River, Oriental, NC (Hodges Street Bulkhead); New River, N.C.; Pantego Creek and Cucklers Creek, N.C.; Tar River, Princeville, N.C.; South Mayo River, Stuart, VA.; Swift Creek, Pitt and Craven Counties, N.C.; BCB, Ocean Isle Beach, Brunswick County, N.C.; Carolina Beach and Vicinity, N.C.; Carolina Beach Area South, N.C. (Kure Beach); and Wrightsville Beach, N.C.. Responsible local officials were advised of inadequacies in maintenance and operation on local flood protection works, where appropriate. Genoa Sewer Facility was reclassified to inactive status making it ineligible for P.L. 84-99 rehabilitation assistance. Technical assistance was provided to communities trying to bring inactive projects for White Oak Dike, New River, and Simmons Bay Creek up to an acceptable level. Cost for the period was $27,747. Total cost to September 30, 2003, was $593,498, charged to operations.

21. FLOOD CONTROLWORKS UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization). (See Table 6-K.)

Emergency flood control activities and hurricane flood and shore-protection activities at Federally authorized projects (Public Law 99, 84th Congress, and antecedent legislation).

The Catastrophic Disaster Preparedness Program cost $26,465. The Anti-terrorism/Force Protection Program cost $143,388. The Disaster Preparedness Program cost $295,167.

Non-reimbursable costs for Emergency Operations were $29,228 for EOC Activation and PDA Team deployment for Hurricane Isabel and for the Advance Contracting Initiative.

Non-reimbursable costs for the Rehabilitation and Inspection Program in connection with Deep Creek Dike at Speed, N.C. were $10,508.

Shoreline Protection

22. BRUNSWICK COUNTY BEACHES, N.C. (CAPE FEAR TO NORTH CAROLINA-SOUTH CAROLINA STATE LINE)

Location. The project is in Brunswick County, on the south Atlantic coast of North Carolina, between the mouth of the Cape Fear River and the North Carolina-South Carolina State Line. (See Coast and Geodetic Survey Charts 1236 and 1237.)

Existing Project. The project was authorized by the 1966 Flood Control Act (H.D. 511, 89th Congress, 2d session). The project was rejected by a public referendum in 1974 and was reclassified inactive in February 1976. The project was reclassified to active in 1985 due to renewed local interest caused by continuing erosion and repeated storm damage, with the exception of Sunset Beach, which remains inactive. The General Reevaluation Report for Ocean Isle Beach was approved May 15, 1998. The authorized project for the Ocean Isle Beach portion provides a continuous vegetated dune and berm stabilized by periodic re-nourishment. The dune crown width is 25 feet at elevation 9.5 feet NGVD fronted by a berm 50 feet wide at 7 feet NGVD for a distance of 5,150 feet, then a berm with crown width of 50 feet at 7 feet NGVD for a distance of 2,600 feet, then a berm with crown width of 25 feet at 7 feet NGVD for a distance of 2,400 feet. Transitions will be 4,200 feet on the eastern end and 2,800 feet on the western end. Total length of beach segment including transitions is 17,150 feet. A General Reevaluation is underway for the Oak Island (formerly Long Beach and Yaupon Beach), Caswell Beach, and Holden Beach portion. Sunset Beach remains inactive. The estimated Federal cost is $74,791,000 (2003) for the Ocean Isle beach portion and $5,909,000 (2003) for the Oak Island, Caswell Beach, and Holden Beach portion.

Local Cooperation The PCA executed January 9, 2001, for the Ocean Isle Beach portion provides that the non-Federal sponsor shall: (a) provide all lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas; (b) perform required relocations; (c) during initial construction, contribute 35 percent of construction costs assigned to hurricane and storm damage reduction, with credit allowed for (a) and (b), currently estimated at $3,157,000; (d) during periodic re-nourishment, contribute 35 percent of construction costs assigned to hurricane and storm damage reduction, with credit allowed for (a) and (b), currently estimated at $37,052,000; (e)participate in and comply with applicable Federal floodplain management and flood insurance programs; (f)not less than once a year inform affected interests of the extent of protection afforded by the project; (g)enforce floodplain regulations; (h)provide and maintain public ownership, during the economic life of the project, of an adequate width of beach for public use, with acceptable beach access, parking areas, and other facilities necessary for realization of the benefits upon which Government participation is based; (i)adopt and enforce ordinances to provide for preservation of the project and its protective vegetation; (j)control water pollution to the extent necessary to safeguard the health of bathers; and (k)operate, maintain, repair, and rehabilitate the project. The nonfederal sponsor share of total project costs for the Oak Island, Caswell Beach, and Holden Beach portion is currently estimated to be $91,000.

Operations and results during fiscal year. New Work: The General Reevaluation for the Oak Island, Caswell Beach, and Holden Beach portion continued at a cost of $651,188. Prior year initial construction of the Ocean Isle Beach portion resulted in a Federal cost of $17,724 and a contributed funds cost of $12,457. Engineering and design in connection with a future year renourishment cycle cost $132,403.

Condition at end of fiscal year. For the Ocean Isle Beach portion, a new construction start was approved in FY 2000, the PCA was executed January 9, 2001, the construction contract was awarded February 26, 2001, and initial project construction was substantially complete and the project was operational May 15, 2001. The General Reevaluation is continuing for the Oak Island, Caswell Beach, and Holden Beach portion. Sunset Beach remains inactive.

23. CAROLINA BEACH AND VICINITY, N.C.

Location. The project is in New Hanover County, about 15 miles southeast of Wilmington, N. C., on the peninsula which separates lower Cape Fear River from the Atlantic Ocean. (See Coast and Geodetic Survey Map 834.)

Existing project. The authorized project consists of two separable elements, the Carolina Beach Portion and the Area South of Carolina Beach and extends about

32,000 feet from the northern limits of Carolina Beach to the southern limits of Kure Beach. Federal participation in the cost of periodic beach nourishment will be for a period not to exceed 50 years from the year of initial placement. The project provides for construction of a dune with a crown width of 25 feet at elevation 13.5 feet National geodetic vertical datum (NGVD), a berm with a crown width of 50 feet at elevation 10.5 feet NGVD for Carolina Beach and 9 feet NGVD for the Area South, and for Carolina Beach a rock revetment at elevation 10.5 feet NGVD along the northern 2,050 feet fronted by a 130-foot wide berm at elevation 6.5 feet NGVD. The Area South of Carolina Beach was reclassified to the active category, June 1985. The estimated Federal cost for the Carolina Beach Portion is $27,300,000 (2003) and for the Area South is $89,700,000 (2003). The project was authorized by the 1962 Flood Control Act (H.D.418, 87th Cong. 2d sess.). The Water Resources Development Act of 1986 authorized Federal participation in future nourishment for 50 years.

Local cooperation. For the **Carolina Beach portion**, as originally authorized and constructed, local interests must (a) provide lands, easements, and rights-of-way for construction; (b) make required relocations and alterations of streets, utilities, or structures; (c) contribute 37.9 percent of the total first cost, with credit allowed for (a) and (b); (d) hold the United States free from damages; (e) maintain all works and undertake periodic beach nourishment after completion, with specified Federal contributions for 10 years after completion; and (f) additional provisions in the agreement executed August 17, 1981. Subsequently, WRDA 86 extended Federal participation to 50 years from initial construction (1964-2014). A PCA was executed July 29, 1994 that addressed periodic nourishment through the project life and provided that local interests shall (a) provide all lands, easements, relocations, rights-of-way, and suitable borrow and dredged or excavated material disposal areas (b) pay 35 percent of the total costs of each periodic nourishment assigned to hurricane and storm damage reduction; with credit for (a) above; and (c) operate, maintain, repair, replace, and rehabilitate hurricane and storm damage reduction facilities. For the **Area South portion**, local interests must: (a) provide lands, easements, relocations, rights-of-way, including suitable borrow and dredged or excavated material disposal areas; (b) pay 35 percent of the total costs of initial construction and of each periodic nourishment assigned to hurricane and storm damage reduction with credit for (a) above; and (c) bear all costs of operation, maintenance and replacement of hurricane and storm damage reduction facilities; and additional provisions in the PCA executed September 26, 1995.

Operations and results during fiscal year. New Work: Prior year initial construction of the Area South portion resulted in a Federal cost of $6,007. Engineering and design for a future year renourishment cycle for the Carolina Beach portion cost $76,238 and for the Carolina Beach Area South portion cost $58,758

Condition at end of fiscal year. Initial project construction for the Carolina Beach portion was completed August 12, 1982, except for grassing which was completed in September 1983. The latest increment of periodic nourishment for the Carolina Beach portion was completed in April 2001 with the next increment scheduled for FY 2004 or FY 2005. The contract for the initial construction of the Area South portion was awarded August 1996 with dredging completed in January 1998, and final contract completion in December 1999. The contract for the first increment of periodic nourishment for Area South was awarded in January 2001 and completed in June 2001, with the next increment scheduled for FY 2004 or FY 2005.

24. DARE COUNTY BEACHES, N.C. (BODIE ISLAND PORTION)

Location. The project is in Dare County on the north coast of North Carolina, about 40 miles south of the North Carolina-Virginia state line. (USGS quadrangle sheets Kitty Hawk, Manteo, and Roanoke Island NE)

Existing Project. The project was authorized by the Water Resource Development Act of 2000. (Chief of Engineers Report dated December 29, 2000) The authorized project consists of a 25 foot wide dune at elevation 13 feet National Geodetic Vertical Datum (NGVD) and a 50 foot wide berm to be constructed at elevation 7 feet NGVD along two separate stretches of shoreline starting at Kitty Hawk and ending at Nags Head. Total length is about 14.1 miles. The estimated Federal cost is $830,000,000 (2003)

Local Cooperation The PCA has not been executed, but in accordance with changed cost sharing and financing requirements, the non-Federal sponsor must provide: a) all lands, easements and rights-of-way, including suitable borrow and spoil disposal areas, presently estimated at $6,156,000; b) required relocations; c) 35 percent of the initial construction cost allocated to hurricane and storm damage reduction, with credit for a) and b) above, presently estimated at $28,844,000, and d) 50 percent of periodic re-nourishment costs allocated to hurricane and storm damage reduction, presently estimated at $765,000,000 and e) bear all costs of operation, maintenance, repair, rehabilitation, and replacement of hurricane and storm damage reduction facilities, currently estimated at $100,000.

Operations and results during fiscal year. New Work: Engineering and design was initiated at a Federal cost of $6,125.

Condition at end of fiscal year. A new construction start was approved in FY 2003. The PCA is scheduled to be executed in May 2005.

25. WEST ONSLOW BEACH AND NEW RIVER INLET, NC

Location. The project is in the Town of Topsail Beach at the southern end of Topsail Island in Pender County on the central North Carolina coast. Topsail Island is a barrier island located approximately 40 miles northeast of Wilmington, North Carolina. (See USGS quadrangle sheets Hampstead and Holly Ridge)

Existing Project. The project was authorized by Title I, Section 101 (15) of the Water Resources Development Act of 1992. (H.D. 102-393, 102nd Congress, 2d session). Funds to initiate preconstruction engineering and design were appropriated in FY 1990. The project received a new construction start for FY 1994; however, no Construction, General appropriation funds were expended. The project cooperation agreement was not executed due to the Sponsor's inability to fund their share of the project cost. The project was placed in inactive status in July 1994 due to lack of local support. The Town of Topsail Beach has experienced severe beach erosion, heavy property damage, and damage to or destruction of the primary dune system as a result of storm surges from hurricanes in 1996 and 1999 and northeasters over recent years. Local interests are now able to and would support the project. In FY 2001, a design agreement was executed and a general reevaluation was initiated to redefine the project scope. The authorized project consists of a sand dune constructed to an elevation of 13 feet above mean sea level (MSL) fronted by a storm berm constructed to an elevation of 9 feet above mean sea level and a beach (natural) berm constructed to an elevation of 7 feet above MSL along 9,500 feet of shoreline; two transition sections constructed to elevation 7 feet above MSL along 2400 feet on the southern end and along 6860 feet on the northern end; and renourishment of the project at approximately two year intervals. The borrow area, located in Banks Channel, will be dredged to a depth of 20 feet below mean low water. The estimated Federal cost for new work is $107,000,000 (2003).

Local Cooperation The authorizing document provides that the non-Federal sponsor shall (a) provide all lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas; (b) perform required relocations; (c) during initial construction, contribute 35 percent of construction costs assigned to hurricane and storm damage reduction, with credit allowed for (a) and (b), currently estimated at $8,600,000; (d) during periodic re-nourishment, contribute 50 percent of construction costs assigned to hurricane and storm damage reduction, with credit allowed for (a) and (b), currently estimated at $91,400,000; (e) hold and save the Government free from damages; (f) comply with the Uniform Relocations Assistance and Real Property Acquisition Act of 1970; (g) publicize flood plain information for the area; (h) provide and maintain public ownership and use, during the economic life of the project, of an adequate width of beach for public use, with acceptable beach access, parking areas, and other facilities necessary for realization of the benefits upon which Government participation is based; (i) at least once a year inform affected interests of the limitations of the protection provided by the project; (j) adopt and enforce regulations to prevent encroachment and preserve the project.; and (k) operate, maintain, repair, and rehabilitate the project.

Operations and results during fiscal year. New Work: The General Reevaluation Report was continued at a Federal cost of $671,280 and a contributed funds cost of $226,439.

Condition at end of fiscal year. In FY 2001, a design agreement was executed and a General Revaluation Report was initiated to redefine the project scope. Execution of the PCA is scheduled for FY 2006.

26. WRIGHTSVILLE BEACH, N. C.

Location. A small island 10 miles east of Wilmington, N. C. (See Coast and Geodetic Survey Map p.834)

Existing project. Construct a dune with a base bordering at or near the building line, with a crown width of 25 feet at elevation 15 feet above mean low water, together with integral construction of a beach berm with a crown width of 50 feet at elevation 12, extending about 14,000 feet from Moores Inlet on the north to Masonboro Inlet on the south. Existing project was authorized by 1962 Flood Control Act (H.D. 511, 87th Cong., 2d sess.). The Water Resources Development Act of 1986 authorized Federal participation in future nourishment for the life of the project. The estimated Federal cost for new work is $24,100,000 (2003).

Local cooperation. Fully complied with to date.

Operations and results during fiscal year. New Work: No work was accomplished, but $9,000 of Federal funds were reprogrammed out of this project.

Condition at end of fiscal year. All work under the initial authorization has been completed. Initial construction was completed May 1970. Under WRDA 86, the third renourishment was completed in May

1998. The latest periodic renourishment was completed in FY2002, with the next cycle scheduled for FY2006.

Multi-Purpose Projects, Including Power

27. ROANOKE RIVER BASIN, VA. AND N.C.

Location. The project is on the Roanoke River and its tributaries in Virginia and North Carolina within a radius of 100 miles from Danville, Virginia.

Existing project. The Flood Control Act of 1944 approved a general plan for the comprehensive development of the Roanoke River Basin for flood control and other purposes, and authorized construction of John H. Kerr and Philpott Reservoirs. (See Table 6-H for a list of dams and reservoirs included in the comprehensive plan.)

Local cooperation. None required. John H. Kerr and Philpott Reservoirs are the only projects in the comprehensive plan that have been authorized for construction. (See Table 6-H on Dams and Reservoirs.)

27A. JOHN H. KERR DAM AND RESERVOIR, VA. AND NC

Location. The project is on Roanoke River, about 178.7 river miles above its mouth, in Mecklenburg County, Virginia, and 20.3 miles downstream from Clarksville, Virginia. The reservoir extends upstream on Roanoke River 56 miles and on Dan River 34 miles.

Existing project. The authorized project provides for a concrete gravity dam with wing and saddle dikes on the right and left banks, with a total length of about 22,285 feet. The reservoir is operated as a unit of a coordinated system of reservoirs in the Roanoke River Basin for control of floods, generation of hydroelectric power, regulation of low-water flow, and for other purposes. The power installation is 204,000 kilowatts. (For further details see Annual Report for 1962.) The existing project was authorized by the 1944 Flood Control Act.

Local cooperation. None required.

Operations and results during fiscal year. New Work: Major rehabilitation of power facilities cost $4,998,090, including engineering and design and construction management costs of $860,213 and contract earnings of $1,356,552 for the Switchyard Installation Contract, $641,722 for the Exciters Supply Contract, $1,316,162 for the Transformers Supply Contract, and $815,424 for the Generator Rewind and Turbine Replacement Contract and in-house and contract costs of $4,200 for resident office permanent improvements, and $3,817 for distributions. **Maintenance**: Belle Vista archaeological activities cost $9,010. The Island Creek pumping plant rehabilitation and replacement cost $359,628. The Tungsten Queen Mine Site law suit cost $203. GIS development cost $4,763. Periodic inspections cost $104,035. Mitigation of flood damages at Buggs Island and Cedar Grove archaeological activities cost $12,864. The Occoneechee Wildlife Management Area archaeology study cost $76,340. Security activities cost $52,288. Normal operation and maintenance cost $10,008,720. Receipts in connection with collections for timber sales, disposals, damages, real estate administrative fees, and other miscellaneous collections resulted in a negative cost adjustment of $18,300.

Condition at end of fiscal year. Project is complete except for additional recreational facilities. Production of power and protection from floods are provided by project. Major rehabilitation of power facilities, with a new construction start in FY 2000, is continuing.

27B. PHILPOTT LAKE, VA.

Location. The project is located on Smith River, Virginia, 44.3 miles above its junction with Dan River, and 35 miles upstream from Virginia-North Carolina State line in Franklin and Henry Counties.

Existing project. The authorized project provides for a concrete gravity dam 892 feet long and with a maximum height of 220 feet. Reservoir is operated as a unit of a coordinated reservoir system for flood control in the Roanoke River Basin, generation of hydroelectric power, regulation of low-water flow, and for other purposes. The powerhouse has a total installation of 14,000 kilowatts. (For further details see Annual Report for 1962). Existing project was authorized by 1944 Flood Control Act.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Recreation modernization at the Goose Point Recreation Site cost $286,824. Periodic inspections cost $12,781. The 50th Anniversary celebration cost $91,659. Normal operation and maintenance cost $2,776,864.

Condition at end of fiscal year. The project is complete except for additional recreational facilities, and is providing power and flood protection.

28. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

All Wilmington District reservoir projects were impacted by the severe drought that continued into and ended during Fiscal Year 2003. As a result of this unprecedented drought, there were deviations from approved operation plans at all district projects. The

well-documented drought in the southeastern United States resulted in all Wilmington District projects except W. Kerr Scott below guide curve at the beginning of the fiscal year.

B. Everett Jordan Dam and Lake, located in the Cape Fear River Basin, North Carolina, located in the Cape Fear River Basin, North Carolina, began Fiscal Year 2003 at elevation 213.98 feet, m.s.l., or 2.02 feet below guide curve. Well below normal inflow and rainfall amounts over the past four years caused drought conditions to linger resulting in the minimum elevation for the fiscal year of 213.74 feet, m.s.l. or 2.26 feet below guide curve on October 9, 2002. A rainfall event on the 10th and 11th of October 2002 left over 4 inches of precipitation at the dam. This resulted in the lake rising to elevation 222.59 feet, m.s.l. in late October. Several rainfall events occurred through November and December 2002 that produced greater than average inflows and kept the lake above guide curve. January 2003 saw a return to below average rainfall and brought the lake to just below guide curve for most of the month. From February through April, several rainfall events brought the lake level back to and then well above guide curve. During April, 6.63 inches of rain fell and produced a new record lake level of 233.82 feet, m.s.l. or 17.82 feet above guide curve. The lake level returned to near normal by the end of April. For the remainder of the fiscal year, several minor rainfall events kept the lake near or slightly above guide curve ending the fiscal year at elevation 216.37 feet, m.s.l. Maximum flood pool storage utilized during the fiscal year was 66.3 percent, and the conservation pool storage remaining at the minimum elevation was 79 percent. Flood damages prevented during Fiscal Year 2003 were $37,418,790, making the cumulative total $246,135,440 since inception of the project in 1981. Total cost of functional operation for the period was $139,180.

Falls Lake, located in the Neuse River Basin, North Carolina, began Fiscal Year 2003 at elevation 244.68 feet, m.s.l., or 6.82 feet below guide curve of 251.5 feet, m.s.l. Well below average rainfall amounts at the beginning of October drew Falls Lake level down from 244.68 to 244.09 feet, m.s.l., the annual minimum elevation for the fiscal year. During this time period, outflows were held at 95 cfs, or 5 cfs lower than the 100 cfs required minimum flow as measured below the dam. This operational flow was the target flow, regardless of the flow at Clayton, as approved by the North Carolina Department of Water Quality to conserve the remaining storage in the lake. Starting on the 10th of October the beginning of the El Nino of 2002-2003 began. Within one week, total precipitation measured over 6.25 inches at the dam and Falls Lake level rose from 244.09 to 252.70 feet, m.s.l. or 8.61 feet. For the remainder of the calendar year the rainfall pattern over the Neuse Basin occurred from once per week to every other week. In mid December, a rainfall event of over 2.5 inches quickly raised Falls Lake to 255.42 feet, m.s.l. or 3.92 feet above guide curve. Just after this event the El Nino was said to be in a 'lull' period, from mid- December to the end of January 2003, a period when inflow and rainfall events tapered off. For this same period, Falls Lake level was above or near guide curve. Two small rainfall events, one the last few days of January and the next at the end of the first week in February, was a precursor for the re-intensified El Nino. Rainfall events occurred very frequently and at times in heavy amounts from the start of February to mid-April. On April 13, 2003, Falls Lake project rose to 262.97 feet, m.s.l., or 11.47 feet above guide curve. This lake elevation marked the third highest since impoundment and was just 0.83 feet below the emergency spillway crest. With the lake level extremely high, the desire to strike a balance of upstream and downstream concerns resulted in the decision to revert back to the water control plan for flood operations. While it was unpopular to the immediate downstream interests, a concerted effort with local, state and federal agencies was made so as not to cause major flooding along the Neuse River. The discharges from Falls Lake were increased to an authorized operational discharge of 6,000 cfs, which did not enter living areas of homes immediately downstream. The El-Nino weather pattern persisted, but to a much lesser degree. On May 27, an accumulated rainfall totaled 3.2 inches and again Falls Lake level rose rapidly to 256.25 feet, m.s.l, or 4.75 feet above guide curve. As a result, the Falls Lake operation was in accordance with the water control plan, which was to release near 4,500 cfs and not the previous maximum limit of 3,500 cfs. The decision to operate in accordance to the approved water control plan was beneficial to the basin as a whole. The maximum flood pool storage utilized during the year was 82.8 percent, and the minimum conservation pool storage remaining was 32.3 percent at the minimum elevation. Flood damages prevented during Fiscal Year 2003 were $32,814,200 for a cumulative total of $576,832,200 since inception of the project in 1983. Total cost of functional operation for the period was $150,507.

John H. Kerr Dam and Reservoir, located in the Roanoke River Basin, Virginia and North Carolina, began Fiscal Year 2003 at elevation 292.38 feet, mean sea level (m.s.l.), or 7.12 feet below guide curve. The reservoir level continued to drop resulting in the minimum elevation for the fiscal year on October 10, 2002 at 291.24 feet, m.s.l. or 7.59 feet below guide curve. Rainfall and inflows in excess of normal during October through December ended the drought trends and caused the reservoir level to rise above guide curve in early November. Three separate elevation peaks above 300 feet, m.s.l. occurred during November and

December. January was the only month during the fiscal year with measured rainfall and inflow amounts below normal. The reservoir level returned to near guide curve elevation by the end of January. Flood peaks occurred in excess of elevation 307 and 313 feet, m.s.l. in March. The annual maximum elevation of 317.24 feet, m.s.l. occurred on April 14, 2003 at 15.31 feet above guide curve. The reservoir level briefly returned to near guide curve during mid-May only to peak above elevation 315 feet, m.s.l. by the third week of June. The reservoir level then bounced between near guide curve and elevation 305 feet, m.s.l. through the remainder of the year. John H. Kerr reservoir level ended the fiscal year at elevation 305.28 feet, m.s.l. or 5.78 feet above guide curve. Flood operations during the spring were responsible for releases in excess of those desirable for successful striped bass fish spawning in the lower Roanoke River. The contractual power pool storage was completely exhausted once the reservoir level dropped below elevation 293 feet, m.s.l. The maximum flood pool storage utilized during the fiscal year was 71.87 percent. Gross generation for the fiscal year amounted to 864,599,800 kilowatt-hours or 50 percent above normal and net marketed power revenue was $8,514,790, making the cumulative total $218,987,607 since inception of the project in 1952. Flood damages prevented during Fiscal Year 2003 were estimated at $28,545,100 increasing the cumulative total since 1952 to $419,397,930. Total cost of functional operation for the period was $389,278.

Philpott Lake, located on the Smith River in the Dan River Basin, Virginia, began Fiscal Year 2003 at elevation 963.71 feet, m.s.l. or 7.79 feet below guide curve. The lake level continued to drop resulting in the minimum elevation for the fiscal year on October 15, 2002 at 963.37 feet, m.s.l. or 8.13 feet below guide curve. Observed rainfall, October through December, averaged above normal and inflows averaged near normal. The level of Philpott Lake continued on a steady rise to exceed the guide curve elevation of 971.5 feet, m.s.l. in late December. The lake level remained above guide curve throughout the month of January and only briefly dipped below it again in early to mid-February. This was the last time the lake level dropped below guide curve for the remainder of the fiscal year. As a result of above normal computed inflows from February through September the lake level had three monthly peaks in excess of elevation 977 feet, m.s.l., two above 976 feet, m.s.l. and two above 975 feet, m.s.l. The maximum elevation at Philpott Lake during Fiscal Year 2003 occurred on April 11 at 977.81 feet, m.s.l. or 4.31 feet above guide curve. The level of Philpott Lake ended the fiscal year at elevation 972.49 feet, m.s.l. or 0.99 feet above guide curve. The contractual power pool storage remaining at the lowest elevation during the year was 50 percent. Gross generation for the fiscal year amounted to 37,981,017 kilowatt-hours or 47 percent above normal and net marketed power revenue was $2,718,102, making the cumulative total $33,188,389 since inception of the project in 1952. Estimated flood damages prevented during Fiscal Year 2003 was $157,941,000 raising the cumulative total to $504,146,000. Total cost of functional operation for the period was $152,542.

W. Kerr Scott Dam and Reservoir, located in the Yadkin-Pee Dee River Basin, North Carolina began Fiscal Year 2003 at elevation 1032.07 feet, m.s.l., or 2.07 feet above guide curve elevation of 1030.00 feet, m.s.l. The watershed above W. Kerr Scott Reservoir received above average rainfall during the first three months of Fiscal Year 2003. This period of above average rainfall aided in bringing the upper Yadkin River out of the extreme drought conditions it had experienced over the previous several years. The reservoir level rose above guide curve several times in this three month period in response to the frequent rainfall events. Rainfall amounts were below normal in January and most of February. From the end of February through April, W. Kerr Scott Reservoir experienced several rainfall events that kept the level above guide curve for most of this time. The largest of these events brought over five inches of rain to the watershed above W. Kerr Scott Reservoir. The resulting inflows were 172% of normal. The reservoir reached elevation 1042.02 feet, m.s.l., the maximum level for Fiscal Year 2003, in response to this event. Frequent, almost weekly, rainfall events throughout the remainder of the fiscal year kept inflows well above period of record averages. Inflows calculated for June, July and August were 295%, 244%, and 235% above the period of record inflows, respectively. September brought below average rainfall to the lake, but inflows remained above average, due to saturated conditions. W. Kerr Scott Reservoir ended Fiscal Year 2003 at elevation 1029.92 feet, m.s.l., 0.08 feet below guide curve. Maximum flood pool storage utilized during the fiscal year was 18.04 percent, and the conservation pool storage remaining was 99 percent at the minimum elevation. Flood damages prevented during Fiscal Year 2003 totaled $2,865,000, making the total damages prevented since inception of the project $166,874,800. Total cost of functional operation for the period was $131,700.

Miscellaneous

29. LITTLE SUGAR CREEK HABITAT RESTORATION, N.C. (CAP Section 1135)

Location. This project is located on Little Sugar Creek between Archdale Drive and Brandywine Road in

Charlotte, North Carolina. (See USGS quadrangle sheets, Charlotte East and Weddington, N.C.)

Existing project. This project modification for improvement of the environment modifies the Little Sugar Creek CAP Section 205 flood control project and includes: placement of fishery enhancement structures in the area of the flood control project, to include rock vanes that project into the stream and boulder clusters; stream bank stabilization on Little Sugar Creek upstream to Brandywine Road to reduce sedimentation that would cover the fish structures; and tree plantings in riparian areas to provide stream shading and aesthetic enhancement. The approved estimated cost for construction implementation is $4,000,000 (2000), consisting of $3,000,000 Federal and $1,000,000 non-Federal. The project was approved by the Division Commander on April 21, 2000 under the continuing authority of Section 1135, Water Resources Development Act of 1986, as amended.

Local Cooperation. The sponsor shall contribute 25 percent of project costs, which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The sponsor shall also contribute sufficient additional funds to keep the Federal cost from exceeding the per project limit of $5,000,000. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; work-in-kind credit for public involvement and 3 years of monitoring of fish and benthic organism populations, to be provided by the sponsor; credit for participation on the Project Coordination Team; and cash.

Operations and results during fiscal year. New Work: Design continued at a cost of $35,839.

Condition at end of fiscal year. Design is underway. The draft PCA is with the sponsor for review. In October 2003, the sponsor requested that the Corps of Engineers terminate work on this project.

30. SEA TURTLE HABITAT RESTORATION, OAK ISLAND, N.C. (CAP Section 1135)

Location. This project is located on the oceanfront of the Town of Oak Island (formerly Long Beach), south of the Atlantic Intracoastal Waterway in Brunswick County, North Carolina. (See USGS quadrangle sheet, Southport, N.C.)

Existing project. This project modification for improvement of the environment modifies the Atlantic Intracoastal Waterway Between Norfolk, Virginia and the St. Johns River, Florida. The project modification restores sea turtle nesting habitat on Oak Island by placing beach compatible sand from the Yellow Banks Confined Disposal Facility between East 26th Place and East 58th Street to construct a 8,900 foot long main fill and a small dune to discourage turtles from crawling beyond the project. Implementation of a lighting ordinance will provide a more attractive nesting beach and improve survival of hatchlings. The approved estimated cost for construction implementation is $11,284,000 (2000), consisting of $5,000,000 Federal and $6,284,000 non-Federal. The project was approved by the Division Commander on September 17, 1999 under the continuing authority of Section 1135, Water Resources Development Act of 1986, as amended.

Local Cooperation. The sponsor shall contribute 25 percent of total project modification costs, which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The sponsor shall also contribute sufficient additional funds to keep the Federal cost from exceeding the per project limit of $5,000,000. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; work-in-kind credit for dune walkover structures and dune stabilization provided by the sponsor; credit for participation on the Project Coordination Team; and cash.

Operations and results during fiscal year. New Work: Continuing resolution of a construction contractor claim cost $55,494 in contributed funds.

Condition at end of fiscal year. The construction contract was awarded in December 2000 and substantially completed in May 2001. Monitoring of turtles and seabeach amaranth is continuing. Project closeout is underway. A construction contractor claim is being addressed.

31. LITTLE SUGAR CREEK AQUATIC ECOSYSTEM RESTORATION, N.C. (CAP Section 206)

Location. This project is located on Little Sugar Creek between Brandywine Avenue and East Boulevard in Charlotte, North Carolina. (See USGS quadrangle sheet, Charlotte East, N.C.)

Existing project. This aquatic ecosystem restoration project includes: placement of fishery enhancement structures to include rock vanes that project into the stream, boulder clusters, and lunker boxes; removal of an inoperable dam and concrete apron in the upstream area; stream bank stabilization on Little Sugar Creek upstream to East Boulevard to reduce sedimentation that would cover the fish structures; and planting of trees and vegetation in riparian areas to provide stream

shading and aesthetic enhancement. The approved estimated cost for construction implementation is $2,680,000 (2000), consisting of $1,742,000 Federal and $938,000 non-Federal. The project was approved by the Division Commander on July 27, 2000 under the continuing authority of Section 206, Water Resources Development Act of 1996, as amended.

Local Cooperation. The sponsor shall contribute 35 percent of project costs, which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The sponsor shall also contribute sufficient additional funds to keep the Federal cost from exceeding the per project limit of $5,000,000. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; work-in-kind credit for public involvement and 3 years of monitoring of fish and benthic organism populations, to be provided by the sponsor; credit for participation on the Project Coordination Team; and cash.

Operations and results during fiscal year. New Work: Design continued at a cost of $52,672.

Condition at end of fiscal year. Design is underway. In October 2003, the sponsor requested that the Corps of Engineers terminate work on this project.

32. ROANOKE ISLAND FESTIVAL PARK, DARE COUNTY, NC. (CAP Section 206)

Location. The Roanoke Island Festival Park is a State owned historic facility located on Iceplant Island, in Shallowbag Bay, off of Roanoke Sound adjacent to Manteo, in Dare County, North Carolina, about 75 miles south of Norfolk, Virginia. (See USGS quadrangle sheet, Manteo)

Existing project. This project will provide 4 acres of valuable estuarine and wetland habitat that will be restored and protected, including protection of 2 acres of existing coastal marsh and adjacent wooded wetlands from erosion and restoration of about 2 acres of shallow water area by marsh restoration and development of sea grass, marine rock and oyster habitat. . In order to facilitate the construction of the aquatic ecosystem restoration and to protect the aquatic habitat from further wave erosion, a 1,330-foot long rock sill and breakwater will be constructed. The project will provide incidental benefits by shoreline protection for public facilities located at Festival Park. The approved estimated cost for construction implementation is $1,080,000 (2002), consisting of $702,000 Federal and $378,000 non-Federal. The project was approved by the Division Commander on November 21, 2001 under the continuing authority of Section 206, Water Resources Development Act of 1996, as amended.

Local Cooperation. The sponsor shall contribute 35 percent of project costs, which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The sponsor shall also contribute sufficient additional funds to keep the Federal cost from exceeding the per project limit of $5,000,000. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; estimated at $1,000; work-in-kind credit for oyster bed placement, management of the 1.3 acres of wooded wetland, and project signage, estimated at $42,000, and participation on the project coordination team, estimated at $6,000; and cash.

Operations and results during fiscal year. New Work: Construction continued, including completion of the rock sill, monitoring, and coordination with the sponsor on work-in-kind credits at a Federal cost of $53,638 and a contributed funds cost of $52,674.

Condition at end of fiscal year. The Division Commander approved the PDA Documentation and the project on November 21, 2001. Construction was substantially completed and the project was operational in FY 2002. Additional construction to complete the rock sill was completed in FY 2003. Marsh and sea grass plantings, as needed, and project monitoring will continue through FY 2005.

33. WILSON BAY RESTORATION, JACKSONVILLE, N.C. (CAP Section 206)

Location. Wilson Bay is a 126-acre shallow estuarine embayment of the New River within the city of Jacksonville, Onslow County, North Carolina (See USGS quadrangle sheet Jacksonville North)

Existing Project The project will restore the Wilson Bay ecosystem, which has been degraded for many years by wastewater plant discharges, urban runoff, and alteration of hydrology. The project consists of mechanical water column aeration by the purchase, installation, and operation of three aerators and the use of three existing aerators; restoration of approximately 11.3 acres of wetlands along creeks and drainages within the Wilson Bay urban watershed; restoration of a viable benthic community by bivalve plantings at Wilson Bay Island and Wilson Bay Park; planting of approximately 4.5 acres of submerged aquatic vegetation in five areas on the perimeter of the bay; planting of approximately 1.6 acres of bioswale in an area characterized with relatively heavy surface runoff

within the Wilson Bay urban watershed; and planting of approximately .08 acre of rain gardens in areas characterized with sheet flow. The approved estimated cost for construction implementation is $5,340,000 (2003), consisting of $3,471,000 Federal and $1,869,000 nonfederal.

Local Cooperation The sponsor shall contribute 35 percent of project costs, which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The sponsor shall also contribute sufficient additional funds to keep the Federal cost from exceeding the per project limit of $5,000,000. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; estimated at $696,000; work-in-kind credit currently estimated at $1,168,000, and participation on the project coordination team, estimated at $5,000. Cash may be required but is not anticipated. The sponsor will assume full responsibility for the costs of operation, maintenance, repair, rehabilitation, and replacement of project features, currently estimated at $20,000 per year.

Operations and results during fiscal year. New Work: Feasibility studies and completion and approval of the report and project cost $40,513. Preparation of plans and specifications was initiated at a cost of $39,959.

Condition at end of fiscal year. The feasibility report and project were approved in June 2003 and construction funds were committed in August 2003. Preparation of plans and specifications started in June 2003 and is continuing. The PCA is scheduled to be executed in FY 04. Construction of work-in-kind features by the sponsor is scheduled to start in FY 04, after execution of the PCA.

34. WANCHESE MARSH CREATION AND PROTECTION, DARE COUNTY, NC (CAP Section 204)

Location. This project is in Dare County, North Carolina on the southeastern corner of Roanoke Island at Wanchese Harbor adjacent to the channel from Oregon Inlet and north of the entrance to Wanchese Harbor. (See USGS quadrangle sheet, Oregon Inlet)

Existing project. The marshes of Roanoke Sound are important habitat for fish and wildlife resources, support recreational and commercial activities that rely on these resources, and provide an important function as nursery habitat for estuarine fish and shellfish and support a rich and diverse benthic fauna. The proposed project will create an estuarine creek and marsh area within a protective dike. The project will encompass an area of about 12.1 acres including; (1) 8.6 acres of construction in an area that is primarily open sound waters, (2) 2 acres of high marsh that will be protected by the proposed construction and (3) 1.5 acres of *Phragmites* to be removed by chemical control and replaced by native grasses. Construction will include a dike to protect the marsh from wave action until it becomes established and can withstand the strong wave action in this area. The dike will be parallel to the existing harbor entrance channel for approximately 500 feet and then turn in a northerly direction and parallel the shoreline for approximately 700 feet. Armor stone will be placed on the outside of the permanent dike to protect against wave action. The construction of the new marsh will protect 2 acres of existing marsh from continued erosion and provide an incidental benefit by helping to stabilize the Wanchese Harbor entrance. The marsh area will be graded, planted with marsh grasses as needed over a 3-year establishment period, and monitored for the same 3 years to determine appropriate functioning of the habitat. Dredged material will come from maintenance dredging of the Manteo (Shallowbag) Bay – Channel to Wanchese navigation channel. The new marsh will be established by sprigging with at least three varieties of native marsh grasses including smooth cordgrass (S*partina alterniflora*), black needlerush (J*uncus roemerianus*) and saltmeadow hay (S*partina patens*). The use of additional species to increase habitat diversity will be considered. The approved estimated cost for construction implementation is $1,864,000 (2003) consisting of $1,398,000 Federal and $466,000 non-Federal. The Division Commander approved the project on August 9, 2001 under the continuing authority of Section 204, Water Resources Development Act of 1992, as amended.

Local Cooperation. The sponsor shall contribute 25 percent of project costs which include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The non-Federal contribution will consist of credit for required lands, easements, relocations, and rights-of way; credit for participation on the Project Coordination Team; and cash.

Operations and results during fiscal year. New Work: The plans and specifications phase was completed at a cost of $10,747, including advertisement and award of the construction contract. Construction was initiated at a Federal cost of $584,043 and a contributed funds cost of $278,927.

Condition at end of fiscal year. The PCA was executed in November 2002. The construction contract for the sill was awarded in February 2003 and is scheduled to be completed in FY 2004. Dredged material, in connection with a maintenance dredging

contract, will be placed in the site in FY 2004. After settling, the site will be graded and planted in marsh grass in FY 2005. Monitoring will continue through FY 2008.

35. STANLY COUNTY WASTEWATER INFRASTRUCTURE, N.C.

Location. The project is located in Stanly County, in mid-southern North Carolina about 26 miles northeast of Charlotte. (See USGS quadrangle sheets, Norwood, Stanfield, Mt. Pleasant, and Albemarle).

Existing project. The county desires to upgrade a substandard wastewater system at three elementary schools, including a wastewater pumping station, 20,000 feet of force main and 1,700 feet of gravity sewer. The county is predominately rural and unemployment is relatively high. In much of the county, basic infrastructures such as water lines and highways necessary to attract industry are lacking. Without major infrastructure improvements, quality of life in many of the communities in the county will continue to fall well short of the rest of the Nation. The estimated project cost is $3,500,000 (2003), including $2,625,000 Federal and $875,000 non-Federal. This project is authorized by Sec 219(f) of the WRDA of 1992, as amended and Section 108(d) of the FY 2001 Omnibus Appropriations Act which provides "$8,900,000 for wastewater Infrastructure, Stanly County, North Carolina".

Local cooperation. The sponsor shall contribute 25 percent of the total cost of the project, estimated at $875,000. Project costs include implementation of the authorized improvements as well as planning, engineering, design, supervision and administration, monitoring, and other activities associated with implementation, but does not include betterments. The non-Federal contribution will consist of credit for required lands, easements, relocations, rights-of way, and borrow or disposal areas and participation on the project coordination team.

Operations and results during fiscal year. New Work: Preparation of a decision document for replacement of a wastewater pumping station and associated force main in the Town of Norwood to benefit Aquadale School cost $6,800.

Condition at end of fiscal year. The decision document for replacement of a wastewater pumping station and associated force main in the Town of Norwood to benefit Aquadale School was approved in August 2003. The project cooperation agreement is scheduled for preparation and execution in FY 2004.

36. REGULATORY PROGRAM

Cost for the period was $4,941,530, including $4,045,040 for Permit Evaluation, $882,903 for Enforcement, and $13,587 for Environmental Impact Statement preparation.

General Investigations

37. SURVEYS

Cost for the period was -$95,111 for navigation studies, $180,141 for flood damage prevention studies, $856,770 for shoreline protection studies, $44,353 for watershed/ecosystem restoration studies, $73,686 for Special Investigations, $1,299 for FERC License Review, $14,822 for Interagency Water Resources Development, $3,042 for National Estuary Studies, $2,134 for North American Waterfowl Management, $1,043 for Cooperation With Other Water Resource Agencies, and $122,255 for Planning Assistance To States. Contributed funds cost was $95,111 for navigation studies, $92,642 for flood damage prevention studies, $899,568 for shoreline protection studies, and $97,756 for Planning Assistance To States.

38. COLLECTION AND STUDY OF BASIC DATA

Flood plain management information studies, as authorized by Section 206, 1960 Flood Control Act, as amended, provide information, technical assistance, and guidance in identifying the magnitude of the flood hazard and for planning wise use of the flood plain. Direct response and assistance are provided to states, Indian tribes, and local governments without charge and to Federal agencies and private persons on a cost reimburseable basis. Total costs for the period were $197,344. Total costs to September 30, 2003 were $8,991,467. Contributed funds of $1,752 were expended for the New Hanover County Flood Study, the cost of which is fully paid by New Hanover County.

Hydrologic studies collect and analyze basic data on hydrologic, climatologic, and river morphology for general use in connection with Corps planning, design, construction, and operation of water resource projects. Total costs for the period were $8,566.

39. PRECONSTRUCTION ENGINEERING AND DESIGN

Preconstruction engineering and design (PED) was continued on: Manteo (Shallowbag) Bay, N.C. at a cost of $159,124; and Dare County Beaches, N.C. (Bodie Island) at a Federal cost of $192,861 and a contributed funds cost of $122,302.

TABLE 6-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total cost to Sept. 30, 2003
1.	Atlantic Intracoastal	New Work:					
	Waterway between	Approp.	5,484,000	1,838,000	285,000	-	88,829,273[1]
	Norfolk, Va. & St.	Cost	5,862,703	1,741,229	508,841	8,100	88,823,583[1]
	John River, Fla.	Maint:					
	(Regular Funds)	Approp.	10,466,301	12,708,459	10,196,316	8,866,274	228,036,021[2]
		Cost	10,495,630	12,748,141	10,137,960	8,910,049	228,020,864[2]
	(Contributed Funds)	New Work:					
		Contrib	-	-	-	-	86,851
		Cost		-	-	-	86,851[3]
		Maint:					
		Contrib.	-		-	-	667,300
		Cost	-		-	-	667,300
2.	Beaufort Harbor, N.C.	New Work:					
	(Regular Funds)	Approp	-		-	-	818,040[4]
		Cost	-		-	-	818,040[4]
		Maint:					
		Approp.	113	21,372	198,752	49,894	4,657,742[5]
		Cost	113	21,372	198,752	49,894	4,657,742[5]
	(Contributed Funds)	New Work:					
		Contrib.	-		-	-	34,000
		Cost	-		-	-	34,000
		Maint:					
		Contrib.	-		-	-	326,225
		Cost	-		-	-	326,225
3.	Cape Fear River,	New Work:					
	N.C. above	Approp.	-		-	-	3,759,573[6]
	Wilmington	Cost	-		-	-	3,759,573[6]
		Maint:					
		Approp.	711,764	554,678	671,771	904,305	25,881,456[7]
		Cost	736,290	562,503	632,550	941,201	25,879,131[7]
4.	Lockwoods Folly	New Work:					
	River, N.C.	Approp.	-		-	-	241,272[8]
	(Regular Funds)	Cost	-		-	-	241,272[9]
		Maint:					
		Approp.	280,145	428,762	1,241,752	1,125,377	14,394,635
		Cost	280,758	429,509	1,228,252	1,138,877	14,394,635
	(Contributed Funds)	New Work:					
		Contrib.	-		-	-	92,650
		Cost	-		-	-	92,650[10]
5.	Manteo (Shallowbag)	New Work:					
	Bay, N.C.	Approp .	100,000	-	252,000	-	10,099,515[11]
	(Regular Funds)	Cost	36,942	82,667	234,903	23,464	10,099,373[11]
		Maint:					
		Approp.	3,611,526	6,233,018	6,285,371	8,458,373	118,192,744
		Cost	3,702,365	6,234,339	5,905,827	8,715,527	118,066,457
	(Contributed Funds)	Maint:					
		Contrib.	110,000	250,000	47,000	1,951,000	5,042,993
		Cost	58,402	310,098	51,004	164,868	3,205,687

TABLE 6-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total cost to Sept. 30, 2003
6.	Morehead City Harbor, N.C. (Regular Funds)	New Work:					
		Approp.	-		-	-	13,204,707[12]
		Cost	-		-	-	13,204,707[12]
		Maint:					
		Approp.	5,571,450	1,628,072	5,233,598	3,195,277	91,984,867[13]
		Cost	5,579,155	1,628,072	5,232,746	3,191,250	91,979,986[13]
	(Contributed Funds)	New Work:					
		Contrib.	-		-	-	2,731,996
		Cost	-		-	-	2,731,996
		Maint:					
		Contrib	-	-	1,484,546	-	3,321,324
		Cost	-	-	1,480,334	-	3,307,628
7.	Pamlico and Tar River, N.C.	New Work:					
		Approp.	-		-	-	674,651
		Cost	-		-	-	674,651
		Maint:					
		Approp.	-	93,500	-	3,034	1,316,947
		Cost	-	93,500	-	3,034	1,316,947
8.	Roanoke River, N.C.	New Work:					
		Approp	-		-	-	404,584
		Cost	-		-	-	404,584
		Maint:					
		Approp.		-	-	67,573	775,992
		Cost		-	-	67,573	775,992
9.	Rollinson Channel, N.C. (Regular Funds)	New Work:					
		Approp.	-		-	-	589,105
		Cost	-		-	-	589,105
		Maint:					
		Approp.	225,907	294,875	327,974	23,896	3,523,645
		Cost	225,907	294,875	261,212	90,658	3,523,645
	(Contributed Funds)	Maint:					
		Contrib.	-		-	-	41,142
		Cost	-		-	-	41,142
10.	Silver Lake Harbor, N.C. (Regular Funds)	New Work:					
		Approp.	-		-	-	184,284
		Cost	-		-	-	184,284
		Maint:					
		Approp.	1,369,945	776,321	1,037,596	113,192	12,112,869
		Cost	1,370,179	777,079	830,825	319,963	12,112,869
	(Contributed Funds)	Maint:					
		Contrib.	-		-	-	75,000
		Cost	-		-	-	75,000
11.	Stumpy Point Bay, N.C. (Regular Funds)	New Work:					
		Approp	-	-	-	-	268,381
		Cost	-	-	-	-	268,381
		Maint:					
		Approp.	-		-	-	1,181,650
		Cost	-		-	-	1,181,650
	(Contributed Funds)	Maint:					
		Contrib.	-	387,400	38,500	-	699,900
		Cost	-	70,115	344,242	1,234	688,382

TABLE 6-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total cost to Sept. 30, 2003
12.	Wilmington Harbor, N.C.	New Work:					
	(Regular Funds)	Approp.	8,364,000	53,574,000	63,665,000	41,801,000	215,904,426[14]
		Cost	7,372,585	52,805,188	65,639,752	41,980,976	215,825,702[14]
		Maint					
		Approp.	5,794,161	5,238,488	5,818,154	4,226,626	142,100,615[15]
		Cost	6,318,863	5,260,311	5,662,742	4,383,212	142,100,609[15]
	(Contributed Funds)	New Work:					
		Contrib.	9,239,100	14,084,200	22,350,800	16,002,000	74,005,353
		Cost	5,196,152	17,946,697	20,477,868	17,618,577	72,788,906
		Maint:					
		Contrib.	681,000	188,508	1,169,929	150,000	13,079,401[16]
		Cost	831,362	186,894	303,632	1,007,253	12,829,105[16]
13.	Adkin Branch,	New Work:					
	Kinston, N.C.	Approp.	4,000	-	-	2,000	249,000[17]
	(Regular Funds)	Cost	2,201	4,054	-	1,739	248,591[18]
14A.	B. Everett Jordon	New Work:					
	Dam and Lake, N.C.	Approp.	205,000	303,000	7,000	-17,000	149,905,287
	(Regular Funds)	Cost	194,376	397,779	30,469	-	149,899,097
		Maint:					
		Approp.	1,312,590	1,092,470	1,161,198	2,005,804	24,182,705[19]
		Cost	1,336,760	1,098,196	1,130,066	2,022,337	24,167,882[20]
	(Contributed Funds)	New Work:					
		Contrib.	-		-	-	1,764,735
		Cost	-		-	-	1,764,735
15.	Clinton Wastewater	New Work:					
	Treatment Plant,	Approp.	294,000	33,000	-38,000	3,000	1,012,000[21]
	Clinton, N.C.	Cost	245,785	29,754	10,188	5,064	1,009,918[22]
	(Regular Funds)	New Work:					
	(Contributed Funds)	Contrib.	-	-	-	-	144,000
		Cost	96,123	-	-2,500	-	135,150
16.	Moravian Creek,	New Work:					
	Wilkesboro, N.C.	Approp.	32,000	93,000	358,000	19,000	730,000[23]
	(Regular Funds)	Cost	3,500	90,647	367,709	20,479	728,234[24]
		New Work:					
	(Contributed Funds)	Contrib.	-	100,000	-	-	100,000
		Cost	-	65,870	-1,000	138	65,008
17A	Falls Lake, N.C.	New Work:					
	(Regular Funds)	Approp.	150,000	40,000	148,000	56,000	184,491,996
		Cost	426,215	7,398	254,020	71,381	184,312,946
		Maint:					
		Approp.	1,078,205	1,002,849	1,175,967	1,214,253	22,361,535[19]
		Cost	1,114,682	1,009,096	1,173,618	1,210,085	22,354,834[20]
	(Contributed Funds)	New Work:					
		Contrib.	8,456	-	-	-	259,724
		Cost		67,508	-	-	259,724
18.	Roanoke River Upper	New Work:					
	Basin VA. - Headwaters	Approp.	827,000	1,278,000	1,366,000	1,930,000	8,898,000
	Area	Cost	711,636	1,163,098	1,564,777	1,953,924	8,815,062
	(Regular Funds)	New Work:					
	(Contributed Funds)	Contrib.	-		-	-	446,000[25]
		Cost	-		-	-	416,064[25]
19A.	W. Kerr Scott Dam	New Work:					
	and Reservoir, N.C.	Approp.	-		-	-	8,841,326
	(Regular Funds)	Cost	-		-	-	8,841,326
		Maint:					
		Approp.	2,238,420	2,556,302	2,832,168	2,928,050	47,487,844[26]
		Cost	2,272,801	2,569,463	2,829,684	2,892,203	47,449,375[27]

TABLE 6-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total cost to Sept. 30, 2003
22	Brunswick County	New Work:					
	Beaches N.C. (Cape	Approp.	168,000	4,192,000	433,000	828,000	5,923,114
	Fear to N.C. - S.C. Line)	Cost	125,158	3,638,607	1,001,854	801,315	5,869,048
	(Regular Funds)	New Work:					
	(Contributed Funds)	Contrib.	-	2,865,000	-	-	3,135,000
		Cost	-	3,638,607	31,932	12,457	2,905,366[28]
23.	Carolina Beach and	New Work:					
	Vicinity, N.C.	Approp.	180,000	2,098,000	27,000	129,000	26,419,533
	(Regular Funds)	Cost	60,190	2,051,688	278,241	141,003	26,418,746
	(Contributed Funds)	New Work:					
		Contrib.	-	1,412,500	-53,751	-	16,535,096[29]
		Cost	35,787	1,195,884	168,187	-	16,526,739[29]
24.	Dare County Beaches,	New Work:					
	N.C. (Bodie Island)	Approp.	-	-	-	16,000	16,000
	(Regular Funds)	Cost	-	-	-	6,125	6,125
	(Contributed Funds)	New Work:					
		Contrib.	-	138,000	162,000	25,000	325,000
		Cost	-	92,650	55,951	122,302	270,903
25.	West Onslow Beach	New Work:					
	and New River Inlet, N.C	Approp.	-	276,000	153,000	658,000	1,087,000
	(Regular Funds)	Cost	-	30,878	377,290	671,280	1,079,448
	(Contributed Funds)	New Work:					
		Contrib.	-	48,500	233,333	217,000	498,833
		Cost	-	6,964	126,049	226,439	359,452
26.	Wrightsville Beach,	New Work:					
	N.C.	Approp.	-	45,000	753,000	-9,000	5,398,100
	(Regular Funds)	Cost	-65,421	154,803	756,726	-	5,397,891
	(Contributed Funds)	New Work:					
		Contrib.	-	-30,384	500,061	-	3,720,610[30]
		Cost	50,363	-	500,061	-	3,720,610[30]
27A.	John H. Kerr Dam	New Work:					
	and Reservoir, VA&NC	Approp.	-	-	-		94,402,927
	(Regular Funds)	Cost	-	-	-		94,402,927
		Major Rehab:					
		Approp.	1,201,000	3,664,000	2,652,000	4,894,000	12,411,000
		Cost	1,095,603	2,727,820	3,539,356	4,998,090	12,360,869
		Maint:					
		Approp.	10,436,000	11,067,719	10,372,861	9,639,683	192,398,451[31]
		Cost	10,352,772	9,700,064	10,172,609	10,609,551	191,505,599[32]
	(Contributed Funds)	Maint:					
		Contrib.	-	-	-	-	390,657
		Cost	5,249	-	-	-	70,096
27B.	Philpott Lake, Va.	New Work:					
		Approp.	-	-	-	-	14,796,384
		Cost	-	-	-	-	14,796,384
		Maint:					
		Approp.	2,378,002	5,181,257	4,085,806	1,493,244	58,379,905[33]
		Cost	2,374,066	2,718,703	4,880,486	3,168,128	58,349,464[34]
29.	Little Sugar Creek	New Work:					
	Habitat Restoration N.C.	Approp.	75,000	145,000	97,000	13,000	480,000[35]
	(Regular Funds)	Cost	52,624	156,678	89,036	35,839	479,729[36]
30.	Sea Turtle Habitat,	New Work:					
	Oak Island, N.C.	Approp.	184,000	4,595,000	-		5,000,000[37]
	(Regular Funds)	Cost	183,482	4,600,592	-		5,000,000[38]
	(Contributed Funds)	New Work:					
		Contrib.	120,000	4,305,000	70,000	-	4,495,000
		Cost		4,307,821	118,831	55,494	4,482,146

TABLE 6-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total cost to Sept. 30, 2003
31.	Little Sugar Creek	New Work:					
	Aquatic Ecosystem,	Approp.	151,000	190,000	136,000	27,000	563,000[39]
	Restoration, N.C.	Cost	152,649	167,302	145,923	52,672	562,617[40]
	(Regular Funds)						
32.	Roanoke Island Festival	New Work:					
	Park, Dare County, N.C.	Approp.	-	-	544,000	54,000	598,000[41]
	(Regular Funds)	Cost	-	-	542,671	53,638	596,309[42]
	(Contributed Funds)	New Work:					
		Contrib.	-	-	246,000	62,000	308,000
		Cost	-	-	245,787	52,674	298,461
33.	Wilson Bay Restoration,	New Work:					
	Dare County, N.C.	Approp.	45,000	-12,000	217,000	80,000	330,000
	(Regular Funds)	Cost	24,347	4,793	219,140	80,472	328,752
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-		-
		Cost	-	-	-		-
34.	Wanchese Marsh	New Work:					
	Creation and Protection	Approp.	16,000	65,000	48,000	591,000	888,000[43]
	Dare County, N.C.	Cost	15,236	43,943	67,199	594,790	886,043[44]
	(Regular Funds)	New Work:					
	(Contributed Funds)	Contrib. -	-	-	-	400,000	400,000
		Cost	-	-	-	278,927 -	278,927
35.	Stanly County Wastewater	New Work:					
	Infrastructure, N.C.	Approp.	-	-	420,000	-394,000	26,000
	(Regular Funds)	Cost	-	-	17,669	6,800	24,469
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	-
		Cost	-	-	-	-	-

1. Includes $198,707 for previous projects.
2. Includes $107,634 for previous projects.
3. Includes $13,934 refund to local interests.
4. Includes $25,000 for previous projects.
5. Includes $12,854 for previous projects.
6. Includes $149,119 for previous projects.
7. Includes $8,178 for previous projects.
8. Includes preauthorization study funds: FY64, $3,000; FY65, -$2,755; FY71, $8,000; FY72, $2,000; FY74, $9,000; FY75, $25,000; FY76 & 76T, $20,000; FY77, $2,500; FY78, $8,800; FY79, $3,000; FY81, $1,680; and preconstruction planning funds: FY80, $15,000 and FY81, $19,320.
9. Includes preauthorization study costs: FY64, $219; FY65, $26; FY71, $8,000; FY72, $1,448; FY73, $552; FY74, $9,000; FY75, $11,925; FY76 & 76T, $27,977; FY77, $7,598; FY78, $7,449; FY79, $4,351; FY81, $1,680; and preconstruction planning costs: FY80, $5,686 and FY81, $1,471.
10. Includes $69,145 refund to local interests.
11. Adjusted by $6,361 to reflect actual costs.
12. Includes $44,484 for previous projects.
13. Includes $284,557 for previous projects.
14. Includes $4,625,614 for new work on previous projects.
15. Includes $602,614 for previous projects.
16. Includes refunds to local interests: FY78, $92,374; FY79, $8,000; FY80, $14,007; FY81, $1,847; FY82, $2,823; FY85, $60,000.
17. Includes preauthorization study funds: FY92, $40,000 and preconstruction planning funds: FY95, $5,000; FY96, $102,000; FY97, $109,000; FY98, $24,000; FY99, $11,000; FY00, $4,000. Does not include $219,477 of FY67-FY81 funds for an earlier study and design that was deauthorized 18 September 1981.
18. Includes preauthorization study costs: FY92, $39,626; FY93, $563; FY94 $414; FY95 $523 and preconstruction planning costs: FY95, $682; FY96, $57,527; FY97, $82,889; FY98 $37,471; FY99 $22,029; and FY00, $2,201. Does not include $219,477 of FY67-FY82 costs for an earlier study and design for a project deauthorized 18 September 1981.
19. Includes maintenance and operation of Dams funds: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900.
20. Includes maintenance and operation of Dams costs: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900.

21. Includes preauthorization study funds: FY82, $10,000; FY83, $85,000; FY84, $70,000; FY85, $35,000; FY86, $45,000; FY87, $30,000; FY88, $1,000; FY89, $55,000; FY90, $85,000; FY92, $39,484 and preconstruction planning funds: FY92, $516; FY94, $40,000; FY95, $75,000; FY96, $61,000; FY97, $10,000; FY98, $14,000 and FY99, $11,910.

22. Includes preauthorzation study costs: FY82, $4,828; FY83, $76,218; FY84, $61,709; FY85, $41,994; FY86, $36,550; FY87, $49,888; FY88, $3,562; FY89, $30,816; FY90, $32,657; FY91, $63,108; FY92, $50,468; FY93, $3,024; FY94, $662 and preconstruction planning costs: FY94, $25,758; FY95 $70,987; FY96, $27,117; FY97, $41,023; FY98, $21,990; and FY99 $25,551.

23. Includes preauthorization study funds: FY91, $70,000; FY92, $15,000; FY93, $3,000; FY94, $35,000; FY95, $4,543 and preconstruction planning funds: FY95, $457; FY96, $20,000; FY97, $55,000; FY98, $15,000; FY99, $10,000 and FY00, $32,000.

24. Includes preauthorization study costs: FY91, $12,573; FY92, $69,544; FY93, $57; FY94, $32,103; FY95, $13,311; FY96, -$45 and preconstruction planning costs: FY96, $11,317; FY97, $26,257; FY98, $45,357; FY99, $15,425; and FY 00, $23,500.

25. Adjusted in FY2000 report to remove funds and costs for reimbursable, support for others work on the low water bridges; should not have been included in the FY90 - FY99 report.

26. Includes Special Recreation Use Fees funds: FY74, $4,000; FY75, $5,500; FY76 & 76 T, $3,600; FY 77, $5,800; FY78, $7,200; FY79, $8,000; FY80, $10,000; FY81, $10,000; FY82, $11,040; FY83, $7,000; FY84, $9,000; and maintenance and operation of Dams funds: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,200; FY93, $80,300; FY94, $67,800; FY95, $153,900.

27. Includes Special Recreation Use Fees costs: FY74, $4,000; FY75, $4,400; FY76 & 76T, $4,666; FY 77, $5,193; FY78, $6,824; FY79, $7,506; FY80, $11,312; FY81, $9,688; FY82, $9,727; FY83, $7,000; FY84, $8,444; FY85, $2,379; and maintenance and operation of Dams costs: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,200; FY93, $80,300;FY94, $67,800; FY95, $153,900.

28. Includes $116,508 refund to local interests and prior to FY77 costs of $31,161 for Ocean Isle, $49,731 for Long Beach, $41,443 for Yaupon Beach and $31,157 for Sunset Beach.

29. Includes refunds to local interests: FY83, $400,000; FY84, $128,345; FY85, $82,600.

30. Includes $61,585 refund to local interests.

31. Includes Special Recreation Use Fees funds: FY74, $35,000; FY76 & 76T, $48,000; FY77, $51,400; FY78, $115,100; FY79, $63,000; FY80, $60,000; FY81, $80,000; FY82, $67,160; FY83, $77,759; FY84, $73,000; and maintenance and operation of Dams funds: FY79, $167,646; FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900; FY00, $475,769.

32. Includes Special Recreation Use Fees costs: FY75, $35,000; FY76 & 76T, $13,606; FY77, $85,692; FY78, $114,604; FY79, $1,120; FY80, $118,718; FY81, $83,760; FY82, $67,160; FY83, $77,759; FY84, $67,850; FY85, $5,149; and maintenance and operation of Dams costs: FY79, $167,350; FY80, $296; FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900; FY00, $472,993.

33. Includes Special Recreation Use Fees funds: FY75, $47,000; FY78, $40,400; FY79, $22,000; FY80, $25,000; FY81, $20,000; FY82, $20,240; FY83, $21,000; FY84, $19,000; and maintenance and operation of Dams funds: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900; FY00, $18,748.

34. Includes Special Recreation Use Fees costs: FY75, $13,741; FY76 & 76T, $31,666; FY77, $1,593; FY 78, $39,771; FY79, $22,629; FY80, $24,619; FY 81, $20,381; FY82, $20,240; FY83, $21,000; FY84, $19,000; and maintenance and operation of Dams costs: FY87, $66,678; FY88, $75,000; FY89, $73,000; FY90, $54,000; FY91, $97,200; FY92, $79,000; FY93, $80,300; FY94, $67,800; FY95, $153,900.

35. Includes preauthorization study funds; FY98, $40,000; FY99, $110,000; FY00, $10,000 and preconstruction planning funds; FY00, $65,000; FY01, $145,000; FY02, $97,000.

36. Includes preauthorization study costs; FY98, $16,807; FY99, $128,745; FY00, $14,448 and preconstruction planning costs; FY00, $38,176; FY01, $156,678; FY02, $89,036.

37. Includes preauthorization study funds: FY97, $150,000; FY98, $30,000, FY99, $40,000 and preconstruction planning funds: FY99, $ 1,000; FY00, $184,000; FY01, $31,000.

38. Includes preauthorization study costs: FY97, $4,792; FY98, $167,663; FY99, $43,471; FY00, $4,074 and preconstruction planning costs: FY00 $179,408; FY01, $36,592.

39. Includes preauthorization study funds: FY99, $59,000; FY00, $111,000 and preconstruction planning funds: FY00, $40,000; FY01, $190,000.

40. Includes preauthorization study costs: FY99, $44,071; FY00, $112,681; FY01, $11,766 and preconstruction planning costs: FY00, $39,968; FY01, $155,536.

41. Includes planning design and analysis funds: FY02, $15,000 and construction implementation funds: FY02, $231,000.

42. Includes planning design and analysis costs: FY02, $15,000 and construction implementation costs: FY02, $230,787.

43. Includes preauthorization study funds: FY97, $25,000; FY98, $115,000; FY99, $28,000; FY00, $16,000; FY01, $14,000 and preconstruction planning funds: FY01, $51,000; FY02, $48,000.

44. Includes preauthorization study costs: FY98, $103,281; FY99, $61,594; FY00, $15,236; FY01, $17,869; FY02, $20 and preconstruction planning costs: FY01, $26,073; FY02, $67,179.

TABLE 6-B AUTHORIZING LEGISLATION

Acts	Project and Work Authorized	Documents
	ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA. AND ST. JOHNS RIVER, FLA.	
July 25, 1912	Original route of the Norfolk-Beaufort Inlet section.	H.D. 391, 62d Cong., 2d sess.
July 25, 1912	Purchase of canal.	H.D. 589, 62d Cong., 2d sess.
August 8, 1917	Change in route; following changes approved by Secretary of War, April 14, 1919. Albemarle Sound-Pamlico Sound section: Changed from "Alligator River-Rose Bay route" to "Alligator River- Pungo River route." Pamlico Sound-Neuse River section: Changed from "Pamlico Sound-Brant Shoal Neuse River route" to "Goose Creek-Bay River route."	H.D. 1478, 63d Cong., 3d sess. and H. D. 1136, 64th Cong., 1st sess.[1]
July 18, 1918	Alligator River-Pungo route (proposed land cut connecting the rivers): Changed from a straight line to a bent line approaching nearer town of Fairfield, N. C.	Approved by Secretary of War, May 15, 1919.
January 21, 1927	A 12-foot channel 90 feet wide from Beaufort to Cape Fear River, N.C., including highway bridge and tidal lock.[4]	H.D. 450, 69th Cong., 1st sess.
July 3, 1930	An 8-foot channel 75 feet wide from Cape Fear River to Winyah Bay, S.C.	H.D. 41, 71st Cong., 1st sess.
March 4,1933[2]	Construct a suitable bridge near Fairfield, N. C.	Rivers and Harbors Committee Doc. 5, 72d Cong., 1st sess.
June 26, 1934[3]	Operating and care of works of improvements provided for with funds from War Department appropriations for rivers and harbors.	
August 26, 1937	Increasing dimensions of waterway to 12 feet deep and 90 feet wide.	Rivers and Harbors Committee, Doc. 6, 75th Cong., 1st sess.[1]
August 26, 1937	A 12-foot side channel 90 feet wide to Swansboro.	Rivers and Harbors Committee, Doc. 16, 75th Cong., 1st sess.[1]
June 20, 1938	A yacht basin near Southport, 12 feet deep, 230 feet wide, and 450 feet long, with connecting channel.	H.D. 549, 75th Cong., 3d sess.[1]
June 20, 1938	A 6-foot channel 90 feet wide from New River Inlet to Inland Waterway.	H.D. 691, 75th Cong., 3d sess.[1]
March 2, 1945	Six mooring basins.[5]	H.D. 660, 76th Cong., 3d sess.[1]
June 30, 1948	A 12-foot channel in New River.[6, 11]	H.D. 421, 80th Cong., 1st sess.[1]
May 17, 1950	Vicinity of Fairfield - drainage.	H.D. 723, 80th Cong., 2d sess. [1]
May 17, 1950	Masonboro Inlet and connecting channels, including jetties at the inlet.[7,12] .	H.D. 341, 81st Cong., 1st sess.[1]
September 3, 1954	A 12-foot channel and basin in Peltier Creek.[8]	H.D. 379, 81st Cong., 1st sess. [1]
November 29, 1963, Sec. 107 July 14, 1960	A 6-foot channel 90 feet wide from Intracoastal Waterway to Bogue Inlet gorge.	Detailed Project Report April 1963.
April 7,1966 Sec. 107, July 14, 1960	An 8-foot channel 150 feet wide through New Topsail Inlet, thence a 7-foot channel 80 feet wide to Intracoastal Waterway by way of Old Topsail Creek; and a 7-foot channel 80 feet wide in Banks Channel from New Topsail Inlet, paralleling barrier beach, to Intracoastal Waterway.	Detailed Project Report July 1965.
November 7, 1966	Maintenance of a channel 6 feet deep, 80 feet wide, and 8,000 feet long, from the through channel of the waterway to and including a basin of the same depth, 130 feet wide and 180 feet long at Carolina Beach.	H.D. 515, 89th Cong., 2d sess.1
November 7, 1966	Maintenance of general navigation features of N.C. State Ports Authority Small Boat Harbor at Southport.	H.D. 514, 89th Cong., 2d sess.
December 31, 1970	Replacement of federally-owned and operated highway bridges at Coinjock, Fairfield, Wilkerson Creek, Hobucken, and Core Creek.	H.D. 142, 92nd Cong., 1st sess.

TABLE 6-B AUTHORIZING LEGISLATION

Acts	Project and Work Authorized	Documents
October 22, 1976	Modification of terms of local cooperation to allow for full Federal funding of Wilkerson Creek and Coinjock Bridges.	H.D. 597, 94th Cong., 2d sess.
August 13, 1968	Mitigation of damages caused by north jetty at Masonboro Inlet.	Approved by OCE Oct. 2,1980
February 18, 1982, Sec. 107 July 14, 1960	An 8-foot channel 150 feet wide through Carolina Beach Inlet to the Intracoastal Waterway.	Detailed Project Report June 1980
September 7, 1983, Sec. 107 July 14, 1960	An 8-foot channel 150 feet wide from the gorge in Bogue Inlet through the ocean bar.	Detailed Project Report May 1983
November 17, 1986	Modification of terms of local cooperation to allow for full Federal funding of Core Creek, Hobucken and Fairfield Bridges.	
	BEAUFORT HARBOR, N.C.	
March 3, 1881	A 9-foot channel 200 feet wide through Bulkhead Channel to Beaufort; a 6-foot channel 100 feet wide to North River and Core Sound; and construct jetties on Shackleford Point.	Annual Report, 1881, p.1013
March 2, 1907	Repairs to Fort Macon jetties and additional jetties and shore protection.	Specified in act.
March 3, 1925	Bulkhead across Bird Shoal.	Rivers and Harbors Committee Doc. 8, 68th Cong., 2d sess.1
July 3, 1930	Increase in depth to 12 feet in Bulkhead Channel, Gallants Channel, and in front of Beaufort.	H.D. 776, 69th Cong., 2nd sess.1
March 2, 1945	Increase in width and length of basin in front of Beaufort, all to 12 feet deep.	H.D. 334, 76th Cong., 2nd sess.1
May 17,1950	Increase in depth to 12 feet and in width to 100 feet in Taylors Creek; transfer to Beaufort Harbor project.	H.D. 111, 81st Cong., 2nd sess.1
May 21, 1965, Sec. 107 July 14, 1960	Channels 15 feet deep, 100 feet wide in Bulkhead, Gallants and Taylors Creek channels, and through turning basin in front of Beaufort; and harbor of refuge in Town Creek, 12 feet deep, 400 feet wide and 900 feet long connected to Gallants Channel by channel 12 feet deep, 150 feet wide and 1,400 feet long.	Detailed Project Report April 1965
August 12, 1983 Sec. 107 July 14, 1960	A channel 14 feet deep, 70 feet wide, and 1,900 feet long, from Bulkhead Channel to a turning basin 14 feet deep, 150 feet wide, and 300 feet long near the upper end of Morgan Creek.	Detailed Project Report June 1983

TABLE 6-B AUTHORIZING LEGISLATION

Acts	Project and Work Authorized	Documents
	SILVER LAKE HARBOR, N. C.	
July 3, 1930	Entrance channel, 5 feet deep and 50 feet wide, from Pamlico Sound to the 3-foot contour in the lake, and training wall at entrance.	Rivers and Harbors Committee Doc. 3, 70th Cong., 1st sess.
October 17, 1940	Channel, 10 feet deep, and anchorage basin of same depth, 100 feet wide across Big Foot Slough and 60 feet wide in entrance.	H.D. 325, 76th Cong., 1st sess.[1]
February 7, 1967, Sec. 107 July 14, 1960	Basin depth of 12 feet in Silver Lake Harbor; channels 12 feet deep, 150 feet wide, in Teaches Hole and Big Foot Slough Channels and across Bluff Shoal; entrance channel, same depth, 60 feet wide; and training wall on south side of entrance channel.	Detailed Project Report July 9, 1965
	WATERWAY CONNECTING PAMLICO SOUND AND BEAUFORT HARBOR, N. C.	
August 30, 1935[9]	A 7-foot channel 75 feet wide from Pamlico Sound to Beaufort Harbor via Wainright Channel.	H.D. 485, 72d Cong., 2d sess.[1]
August 26, 1937	A7-foot channel 75 feet wide to Atlantic.	Rivers and Harbors Committee Doc. 92, 74th Cong., 2d sess.[1]
March 2, 1945	Channels, 7 feet deep, 75 feet wide, at east and west ends of Harkers Island and side channel 5 feet deep, 75 feet wide, with basin 150 by 130 feet, same depth, at Davis.	H.D. 99, 77th Cong., 1st sess.[1]
March 2, 1945	A 7-foot side channel 75 feet wide, with basin 200 feet by 500 feet, same depth, at sea level.	S.D. 247, 77th Cong., 2d sess.[1]
May 17,1950	A6-foot side channel 60 feet wide, with basin 100 feet by about 600 feet, same depth, at Marshallberg.	H.D. 68, 81st Cong., 1st sess.[1]
July 11, 1963, Sec. 107 July 14, 1960	A side channel 7 feet deep, 70 feet wide to local harbor at Cedar Island and an access channel 6 feet deep, 60 feet wide and about 400 feet long to a basin same depth, 60 by 100 feet.	Detailed Project Report Dec.12, 1962
September 22, 1967, Sec. 107 July 14, 1960	An entrance channel 6 feet deep, 60 feet wide, from Back Sound to harbor of refuge 120 by 250 feet, same depth, at west end of Harkers Island in Brook Creek.	Detailed Project Report March 13, 1967
February 17, 1969, Sec. 107 July 14, 1960	A channel 7 feet deep, 70 feet wide, from existing side channel at Atlantic to a basin 600 by 180 feet, same depth, with a breakwater, between mouth of Little Port Brook and White Point.	Detailed Project Report December.21, 1967
April 3, 1975, Sec. 107 July 14, 1960[10]	Deepening the existing 5-foot channel and basin at Davis to 7 feet.	Detailed Project Report Feb. 8, 1974

1. Contains latest published maps.
2. Public Law No. 443, 72d Cong.
3. Permanent Appropriations Repeal Act.
4. Tidal lock in land cut between Myrtle Sound and Cape Fear River, deauthorized September 23, 1986, under authority of Sec. 12, PL93-251.
5. Deauthorized August 5, 1977, under authority of Sec. 12, PL 93-251.
6. A12-foot by 90-foot channel in New River from Intracoastal Waterway to and including a basin at Jacksonville, N. C.
7. Jetties on each side of Masonboro Inlet.
8. A 6-foot by 50-foot channel provided under Section 3,River and Harbor Act of March 2, 1945; 12-foot by 90-foot project deauthorized November 17, 1986, under authority of 1002, PL99-662.
9. Included in the Public Works Administration Program January 3, 1934.
10. Deauthorized by the Chief of Engineers March 31, 1982.
11. Deauthorized January 1, 1990, under authority of Sec. 1001(b)(1), PL99-662.
12. Training wall at Masonboro Inlet deauthorized April 5, 1999 under authority of Sec. 1001 (b)(1), PL99-662.

TABLE 6C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Aquatic Plant Control[1] (R & H Act of 1958 and 1962)	1969	70,664	—
Aquatic Plant Control (R & H Act of 1965)[1,6]	2002	958,800	31,809
Atlantic Beach Channels, N.C. [7]	2002	517,995	528,595
Avon Harbor, N.C. [1]	1999	74,096	1,821,129
Bay River, N.C.[1]	1950	44,382	49,627
Belhaven Harbor, N.C.[1.]	1998	126,687	773,175
Black River, N.C.[1]	1969	12,358	124,846
Cashie River, N.C.[1]	1950	40,403	15,905
Channel Connecting Thoroughfare Bay with Cedar Bay, N.C.[1]	1975	69,610	25,615
Channel From Back Sound to Lookout Bight, N.C.[1]	2001	88,328	3,375,794
Channel from Pamlico Sound to Rodanthe, N.C.[1]	1998	42,029	853,925
Chowan River, N.C.	1950	—	—
Contentnea Creek, N.C.[1]	1941	64,395	32,247
Drum Inlet, N.C.[1]	1999	166,119	3,725,663
Edenton Harbor, N.C.[1]	1960	73,750	47,642
Far Creek, N.C.[1]	1999	164,642	2,311,371
Fishing Creek, N.C.[1]	1922	22,715	8,633
Knobb's Creek, N.C.[1,2]	1961 [3]	80,500	48,969
Mackay Creek, N.C.[1]	1938 [3]	13,375	6,273
Neuse River, N.C.[1]	1999	477,223[5]	336,747
Newbegun Creek, N.C.[1]	1928 [3]	4,802	247
Northeast Cape Fear River, N.C.[1]	1950	10,688	61,139
Ocracoke Inlet, N.C.[1]	2001	346,240	1,032,786
Pembroke Creek, N.C.[1]	1976	60,000	—
Perquimans River, N.C.[1]	1910 [3]	13,750	414
Scuppernong River, N.C.[1]	1950	81,164	92,825
Shallotte River, N.C.[1]	2002	18,181	718,163
Smith's Creek (Pamlico County), N.C.[1]	1989	113,273	55,771
Smiths Creek (Wilmington), N.C.[1]	1950	8,507	18
South River, N.C.[1]	1936	12,452	23,686
Stumpy Point Bay, N.C.[1]	1999	268,381	1,453,941
Swift Creek, N.C.[1]	1940	1,600	5,422
Trent River, N.C.[1,4]	1968	115,199	143,579
Wallace Channel, Pamlico Sound, N.C.[1]	1965	132,834	85,299
Waterway Connecting Pamlico Sound and Beaufort Harbor, N.C.	2000	502,567	4,160,783
Waterway Connecting Swanquater Bay with Deep Bay, N.C.[1]	1997	751,099	193,880
Waterway - Norfolk, Va. to Sounds of N.C.	1976	751,196	2,893,812
Wrights Creek N.C. [1]	1984	68,325	166,602

1. Completed.
2. Transferred from Norfolk District (FY1970 Meherrin River, N.C., transferred to Norfolk District.)
3. Report of Norfolk District.
4. 8-foot modification deauthorized August 5, 1977, under authority of Sec. 12, PL93-251
5. Includes $1,959 refund to local interests Dawson Creek, N.C.
6. Includes $2,369 refund to local interests in FY 82.
7. Includes $2,055 refund to local interests.

TABLE 6D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Fort Fisher and Vicinity, N.C.	1997	5,966,730	__
Fort Macon Park, N.C.[1]	1973	620,000	__

1. Uncompleted portion of project was deauthorized November 17, 1986, under authority of Sec. 1002, PL99-662.

TABLE 6EOTHER AUTHORIZED ENVIRONMENTAL RESTORATION PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Battery Island Bird Habitat Preservation, N.C. (CAP Section 204)	2002	1,220,850	__
Cape Fear L&D No.1 Fish Ladder, N.C. (CAP Section 1135)	2002	63,000	__

TABLE 6E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Ararat River, Mount Airy, N. C. [1]	1987	4,901,854	—
Black River, Harnett County, N. C. [1]	1984	475,574	—
Blackberry Creek, Henry Country, Va. [1]	1994	22,870	—
Broad Creek, Beaufort County, N. C. [1]	1972	283,846	—
Conetoe Creek, N. C. [1]	1960	29,867	—
Contentnea Creek, N. C. [1]	1939-1943 & 1958	50,889	—
Core Creek, N. C. [1]	1965	236,223[7]	—
Dan River, Madison Wastewater Treatment Plant, N. C. [1]	1989	175,315	—
Danville (Southside Wastewater Treatment Plant) Va. [1]	1999	279,562	—
Deep Creek, Edgecombe County, N. C. [1]	1984	394,055	—
Ellerbe Creek, Durham County, N. C. [1]	1963	223,413	—
Ellis Swamp, Gates County, N. C. [1]	1971	138,117[4]	—
Filberts Creek, N. C. [1]	1970	37,777[3]	—
Gapway Swamp, N. C. & S. C. [1,8]	1969	374,005	—
Gardners Creek, N. C. [1]	1972	54,597[6]	—
Genoa Sewer Facility, Wayne County, N. C. [1]	1985	167,800	—
Goldsboro, Neuse River, N.C.	1984	50,430	623,687
Hamlet City Lake, N.C.	2002	3,019,828	—
Joyce Creek, Camden County, N. C. [1]	1984	606,189[12]	—
King (Water Plant), N.C. [1]	1998	270,227	—
Leesville, Va. [1]	1989	367,755	—
Leith's Creek, Scotland County, N. C. [1, 10]	1982	430,951	—
Lick Run, Roanoke, Va. [1]	1974	1,280,317	—
Little Rockfish Creek, Hope Mills, N. C. [1]	1978	113,657	—
Little Sugar Creek, Charlotte, N. C. [1, 8]	1979	763,022	—
Lower Creek, Lenoir, N.C. [1]	1997	638,500	—
Neuse River, Oriental, N. C. [1]	1992	370,446	—
New River, N.C. [1]	1950 & 1956	51,896	—
New River, Onslow County, N. C. [1]	1972	580,977	—
N.C. Aquarium, Dare County, N.C. [1]	1998	708,000	—
Northeast Cape Fear River, N. C. [1]	1961	95,873	—
Old Field Swamp, N. C. [1, 8]	1969	86,600	—
Oriental, South Avenue, N.C. [1]	1997	542,800	—
Pantego Creek and Cucklers Creek, N. C.	1963	517,948	—
Pasquotank River, N. C	1960	80,931	—
Perquimans River, N. C. [1]	1961	6,366	—
Pungo Creek, N. C. [1]	1972	582,270	—
Pungo River, N. C. [1]	1971	296,602[2,3]	—
Simmons Bay, N. C. [8]	1963	186,435	—
South Creek, N. C. [1]	1971	194,367[5]	—
Stuart, Va. [1]	1989	2,220,440	—
Swift Creek, Pitt and Craven Counties, N. C. [1]	1966	611,096	—
Tar River, N. C.	1964	81,266	61,473
Tar River, N. C. [1]	1947	18,624	—
Tar River and Tributaries, N. C. [1]	1943	22,660	—
Tar River, Princeville, N. C. [1]	1967	390,249	—
Thomasville (Walnut Street), N.C. [1]	1996	59,919	—
Trent River, N. C. [1]	1953	64,769	—
Waccamaw River & Seven Creeks, N. C. & S. C. [1 8]	1961	67,821	—
White Oak Dike, Bladen and Pender Counties, N.C. [1]	1963	214,286	—

1. Project authorized by Chief of Engineers under continuing authority.
2. Includes $17,356 refund to local interests.
3. Adjusted to reflect actual cost.
4. Includes $1,519 refund to local interests.
5. Includes $387 refund to local interests
6. Includes $338 refund to local interests
7. Adjusted $3,000 to include preauthorization cost prior to FY 1960.
8. Transferred from Charleston District, FY 1980.
9. Reclassified to inactive category February 3, 1976.
10. Transferred from Charleston District, FY 1984.
11. Includes $1,057 refund to local interests.

TABLE 6-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Adkin Branch, N. C.	1982	8 Sept. 81[2]	219,477	__
AIWW- Masonboro Inlet - Training Wall	1998	5 April 99[8]	__	__
AIWW- Mooring Basins	None	5 Aug. 77[1]	__	__
AIWW- New River Onslow County, N. C.	1990	1 Jan. 90[6]	__	__
AIWW- Peltier Creek, N. C. 12-foot project	None	17 Nov. 86[5]	__	__
AIWW- Tidal Lock in Snows Cut	None	23 Sept. 86[1]	__	__
Bodie Island, N. C.	None	5 Aug. 77[1]	__	__
Cape Lookout, N. C.	None	5 Aug. 77[1]		
Conoho Creek, N. C.	1974	31 Mar. 78[2]	79,782	__
Contentnea Creek, N. C.	1972	31 Mar. 78[3]	4,250	__
Davis, N. C.	1982	31 Mar. 82[4]	25,419	__
Fort Macon State Park, N. C., Remaining Work	1973	17 Nov. 86[5]	__	__
Harbor of Refuge, Cape Lookout, N. C.	1934	1 Nov. 81[1]	1,396,653	__
Hominy Swamp, N. C.	1973	31 Mar. 78[2]	107,472	__
Howards Mill Lake, N.C.	1980	9 Jul. 95[8]	698,400	__
Hyde County Dike, N. C.	None	5 Aug. 77[1]	__	__
MacKay Creek, N.C.	1976	31 Mar. 78[2]	130,900	__
Mann's Harbor, N. C.	1973	31 Mar. 78[4]	7,265	__
Mill Creek, N. C.	1973	31 Mar. 78[2]	116,395	__
Mocassin Swamp, N. C.	1973	31 Mar. 78[2]	36,680	__
Morehead City Harbor, N. C. Jetties at Beaufort Inlet	1986	17 Nov. 86[5]	__	__
Moyock Creek, N. C.	1973	31 Mar. 78[2]	64,416	__
Nahunta Swamp, N. C.	1973	31 Mar. 78[2]	65,673	__
Neuse River, N. C.	None	31 Mar. 78[4]	30,911	__
Neuse River Barrier, N. C.	None	5 Aug. 77[1]	__	__
Neuse River, 300 ft.-wide channel in front of New Bern, N.C.	None	5 Aug. 77[1]	__	__
North River Dike, N. C.	None	5 Aug. 77[1]	__	__
Ocracoke Inlet Jetty, N. C.	1986	17 Nov. 86[5]	__	__
Ocracoke Island, N. C.	1975	17 Nov. 86[5]	129,592	__
Randleman Lake, N.C.	1994	16 Apr. 02[8]	4,786,088	__
Reddies River Lake, N.C.[9]	1980	16 Apr. 02[8]	985,800	__
Roanoke River, 50 mile long Channel from Palmya Landing to Weldon, N.C.	1983	17 Nov. 86[5]	__	__
Roaring River Lake, N.C.[9]	1978	16 Apr. 02[8]	370,000	__
Rockfish Creek, N. C.	1976	31 Mar. 78[2]	157,721	__
Scuppernong River, N. C.	1987	20 Apr. 88[2]	234,032	__
Six Runs Creek, N. C.	1971	31 Mar. 78[2]	64,977	__
Sweetwater Creek, N. C.	1973	31 Mar. 78[2]	64,584	__
Thoroughfare Swamp, N. C.	1976	31 Mar. 78[2]	132,767	__
Topsail Beach and Surf City, N.C.	None	5 Aug. 77[1]	__	__
Tranters Creek, N. C.	1974	11 Jan. 85[2]	139,339	__
Trent River, Basins and Access Channels at New Bern, N.C.	None	5 Aug. 77[1]	__	__
Wilmington Harbor Widening and Deepening, N.C.	1990	1 Jan. 90[6]	__	__

1. Deauthorized under authority of Sec. 12, PL93-251.
2. Deauthorized pursuant to the continuing authority provided the Chief of Engineers under Sec. 205 of the 1948 Flood Control Act, as amended.
3. Deauthorized pursuant to the continuing authority provided the Chief of Engineers under Sec. 208 of the 1954 Flood Control Act.
4. Deauthorized pursuant to the continuing authority provided the Chief of Engineers under Sec. 107 of the R&HAct of 1960, as amended.
5. Deauthorized under authority of Sec. 1002, PL99-662.
6. Deauthorized under authority of Sec. 1001 (b)(1), PL99-662.
7. Cost-to-date included in remaining authorized portion of project (Engineering and Design only).
8. Deauthorized under authority of Sec. 1001(b)(2), PL99-662.

TABLE 6-H DAMS AND RESERVOIRS

See Section in Text	Project	Name	Nearest City	River	Miles Above Mouth	Height of Dam (Ft)	Type	Reservoir Capacity (acre-feet)	Power Development (kilowatts)	Construction	Estimated Cost Lands and Damages1	Total
14.	Cape Fear River Basin, N.C.	B.Everett Jordan[2]	Moncure, N.C.	Haw	4.3	112	E	753,500	-	89,186,000	58,414,000	147,600,000[3]
		Randleman[2,14]	Randleman, N.C.	Deep	85.0	110	E	108,000	-	62,300,000	61,700,000	124,000,000[13]
		Small reservoirs	-	Various	-	20 to 70+	E	923,000	-	-	-	38,454,000
17.	Neuse River Basin, N.C.	Falls[2]	Falls, N.C.	Neuse	-	92	E	335,620	-	91,334,000	91,666,000	183,000,000[4]
		Wilson Mills	Wilson Mills, N.C.	Neuse	-	81	CG,E	201,000	-	-	-	13,000,000
		Beulahtown	Kenly, N.C.	Little	-	50	E	81,000	-	-	-	9,300,000
		Bakers Mills	Princeton, N.C.	Little	-	53	E	36,000	-	-	-	6,600,000
		Little Buffalo	Kenly, N.C.	Little Buffalo Creek	-	51	E	13,000	-	-	-	1,100,000
		Buckhorn	Wilson, N.C.	Contentnea Creek	-	63	E	119,000	-	-	-	17,300,000
		Wiggins Mill	Wilson, N.C.	Contentnea Creek	-	42	E	35,000	-	-	-	6,700,000
		Stantonsburg	Stantonsburg, N.C.	Tisnot Swamp	-	36	E	48,000	-	-	-	5,100,000
		Great Swamp	Fremont, N.C.	Great Swamp	-	39	E	18,000	-	-	-	1,800,000
		Black Creek	Wilson, N.C.	Black Creek	-	33	E	17,000	-	-	-	1,500,000
		Aycock Swamp	Fremont, N.C.	Aycock Swamp	-	37	E	7,000	-	-	-	550,000
		Hillsboro	Durham, N.C.	Eno	-	136	E	123,000	-	-	-	8,100,000
		Orange	Durham, N.C.	Little	-	107	E	57,000	-	-	-	3,500,000
19.	Yakdin River Basin, N.C.&S.C.	W. Kerr Scott, N.C.	Wilkesboro, N.C.	Yadkin-Pee Dee	404.0	148	E	153,000	-	5,749,343	3,360,657	9,110,000
27.	Roanoke River Basin, Va. and N.C.	John H. Kerr, Va., and N.C.[2]	Boydton, VA	Roanoke	178.7	144	CG,E	2,808,000	204,000	67,529,000	24,521,000	92,050,000[5]
		Philpott, Va.[2]	Bassett, Va.	Roanoke	336.2	220	CG[11]	249,800	14,000	13,933,000	1,157,000	15,090,000
		Gaston, Va. and N.C.[6]	Roanoke Rapids, N.C.	Roanoke	144.9	108	CG,E	432,000	54,000	27,000,000	3,500,000	30,500,000
		Roanoke Rapids, N.C.[7]	Roanoke Rapids, N.C.	Roanoke	137.0	75	CG	59,300	83,000	31,300,000	800,000	32,100,000
		Smith Mountain, Va.[8]	Altavista, Va.	Roanoke	314.2	244	CG	825,000	41,000	28,000,000	3,800,000	31,800,000
		Leesville, Va.[9]	Altavista, Va.	Roanoke	293.7	95	CG.E	76,900	20,000	9,100,000	1,000,000	10,100,000
		Taber, Va.	Altavista, Va.	Roanoke	275.0	54	CG	34,000	12,000	8,000,000	1,700,000	9,700,000
		Melrose, Va.	Bookneal, Va.	Roanoke	262.9	110	CG,E	120,000	43,000	17,700,000	6,000,000	23,700,000[10]
		Randolph, Va.	Chase City, Va.	Roanoke	227.8	147	CG,E	350,000	48,000	22,100,000	4,700,000	26,800,000
		Stuart, Va. and N.C.	Spray, N.C.	Roanoke	297.2	138	E	163,000	15,000	9,000,000	1,100,000	10,100,000
		Schoolfield, Va. and N.C.	Danville, Va.	Roanoke	265.9	126	CG,E	248,000	80,000	27,800,000	6,400,000	36,000,000

1. Includes highway, railroad, and utility relocations.
2. For details, see individual report.
3. Includes $3,700,000 presently allocated to water supply to be reimbursed in the future by local interests and $44,000 cash contribution for construction of ranger security buildings.
4. Includes $13,637,000 presently allocated to water supply and $21,595,000 recreation and fish and wildlife to be reimbursed in the future by local interests.
5. Exclusive of transmission lines.
6. Construction completed in 1963 by Virginia Electric and Power Co.
7. Based on modified plan developed in fiscal year 1949. Construction completed June 1955 by Virginia Electric and Power Co.
8. Construction completed in February 1966 by Appalachian Power Co.
9. Construction completed in June 1963 by Appalachian Power Co.
10. Includes cost of earth dam on Whipping Creek.
11. Authorizing legislation provided for earth dam; concrete gravity dam constructed.
12. Includes $1,600,000 presently allocated to recreation and fish and wildlife.
13. Includes $74,058,000 presently allocated to water supply, $8,646,000 allocated to recreation and $8,296,000 to flood control to be paid by local interests during construction.
14. Deauthorized April 2002

Key
E.....Earth
CG.....Concrete-Gravity

TABLE 6-I RECONNAISSANCE AND CONDITION SURVEYS

Project	Date Survey Conducted
Beaufort Harbor, N.C.	February - September 2003
Rollinson Channel, N.C.	May, September 2003
Shallotte River, N.C.	October 2002 - February 2003
Silver Lake Harbor, N.C.	November 2002 - August 2003
Waterway Connecting Pamlico Sound and Beaufort Harbor, N.C.	December 2002; June, September 2003

NAVIGATION WORK UNDER SPECIALAUTHORIZATION
Navigation Activities CAP Section 107, Public law 86-645 (Preauthorization)

TABLE 6-J

Study Identification	Fiscal Period Cost
Edgewater Canal, Camden County, N.C.	58,116
Newport River, Carteret County, N.C.	25,372[1]
Shallotte River, Brunswick County, N.C.	2,569
Walter Slough, Dare County, N.C.	13,141
Section 107 Coordination Account	5,027

1. Includes $11,348 contributed funds cost.

ENVIRONMENTAL RESTORATION WORK - SPECIAL AUTHORIZATION
CAP Sections 1135, 206, 204, 933
(Preauthorization)

TABLE 6-L

Study Identification	Fiscal Period Cost
Lower Lockwoods Folly River, Brunswick County, N.C.	3,965[2]
Pleasant Green Road Dam Removal, Eno River Near Durham, N.C.	22,350[2]
Western Cary Streams Restoration, Cary, N.C.	946[2]
Section 1135 Coordination Account	120
Section 1135 Preliminary Restoration Plans	5,761
Section 206 Coordination Account	30,514
Section 206 Preliminary Restoration Plans	45,470
Section 204 Coordination Account	1,975

1. Sec. 1135 Project.
2. Sec. 206 Project.
3. Sec. 204 Project.
4. Sec. 933 Project.

FLOOD CONTROLWORK UNDER SPECIAL AUTHORIZATION
Flood Control Activities CAP Section 205,
Public Law 858, 80th Congress, as amended
(Preauthorization)

TABLE 6-L

Study Identification	Fiscal Period Cost
Ahoskie Creek, Hertford County, N.C.	15,991
Greens Mill Run, Greenville, N.C.	4,393
Hominy Swamp, Wilson, N.C.	188
Neuse River, Seven Springs, N.C.	42,159
White Marsh, Whiteville, N.C.	775
Section 205 Coordination Account	9,727
Section 14 Coordination Account	0

1. Sec. 14 Project.

CHARLESTON, S.C., DISTRICT*

This district comprises all of South Carolina (except local watersheds draining into the Savannah River). It embraces the drainage basins tributary to the Atlantic Ocean between Little River and Port Royal Sound, except watersheds of Mackey and Skull Creeks, and excluding Hilton Head Island.

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Navigation

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*All costs and financial statements for projects are listed at the end of this chapter. All other tables are referenced in text and also appear at the end of this chapter.

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Navigation

1. AQUATIC PLANT CONTROL, SC

Location. The project includes all public waters in the State of South Carolina.

Existing Project. The project provides for the control of noxious aquatic plant growths from public waters in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, and public health.

Local Cooperation. Local interests must agree to hold the United States free from damages that may occur from operations performed in connection with this project and contribute 50 percent of the total cost. The South Carolina Department of Natural Resources, Water Resources Division, is designated as the State's lead agency for aquatic plant management and meets local interest requirements.

Operations and results during fiscal year. Aquatic plants now infest approximately 11,100 acres, with the worst infestations occurring in the Cooper River, Back River Reservoir, and Lake Murray. During FY 03, 6,071 acres of aquatic plants in 17 water bodies were treated to control problematic growth. The total cost of control operations (non-Federal and Federal) in FY 03 was $633,045. Most of the control effort this year involved the stocking of 64,500 grass carp in Lake Murray to control 4,300 acres of hydrilla at a cost of $369,529. The total Federal share of work performed in FY 03 was $253,965.

2. ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA AND ST. JOHNS RIVER, FL (CHARLESTON DISTRICT)

Location. The project starts near Little River at the North Carolina-South Carolina state line and extends generally south along the coast of South Carolina 62 miles to Winyah Bay; thence 63.5 miles to Charleston; thence 84.5 miles to and including Port Royal Sound; a total of 210 miles. (See National Ocean Survey Charts Nos. 11513, 11521, 11531, 11534, and 11535.)

Previous projects. For further details see page 613 of Annual Report for 1932.

Existing project. The project provides for a waterway twelve feet deep and not less than 90 feet wide with a branch channel of the same dimensions to McClellanville and construction of three bridges crossing the waterway in Horry County, South Carolina. Existing project was completed in 1940; three bridges were completed in 1936. (See Table 7-B for authorizing legislation.)

Local cooperation. None required.

Terminal facilities. There are rail-water terminals at Georgetown, Charleston and Port Royal and numerous open-pile wharves mostly for shipping agricultural products, fish, oysters, pulpwood, wood products, and petroleum products. Marinas are located at convenient intervals along the waterway where limited supplies and repair facilities are available for both commercial vessels and pleasure craft. Facilities are considered adequate for existing commerce and recreation requirements.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed by Southern Dredging using a pipeline dredge in the AIWW from Georgetown to Little River during July – September 2003, removing 545,503 cubic yards of material, at a cost of $818,834. Costs of $67,719 were incurred for contract dike maintenance. Costs of $151,266 were incurred for mosquito abatement and trenching. The cost of operating the Snagboat *Snell* in the Myrtle Beach Canal area during August 2003 was $169,973. Condition and operation studies, natural resource management, project operations management, lands and damages, water control management, planning, engineering and design and supervision and administration costs were $585,776. Federal costs for the project were $1,793,568.

3. CHARLESTON HARBOR, SC

Location. The harbor is located on the coast of South Carolina about 15 miles south of the midpoint of the coastline, 50 miles southwest of Winyah Bay, SC, and 80 miles northeast of the mouth of Savannah River. (See National Ocean Survey Charts Nos. 11521 and 11524.)

Previous projects. For further details see page 1808 of the Annual Report for 1915; page 579 of the Annual Report for 1926; page 562 of the Annual Report for 1938; page 425 of the Annual Report for 1962; and page 7-2 of the Report for 1997.

Existing project. The project as authorized by the 1996 Water Resources Development Act provides for deepening of the entrance channel from 42 ft deep to 47 ft deep and the inner channels from 40 ft deep to 45 ft deep. Other improvements include realignment/widening of various channels/reaches, construction of a new turning basin opposite the future Daniel Island terminal, construction of a new contraction dike, reconstruction of two existing dikes and removal of a third existing dike. Removal of the east contraction dike on Daniel Island was completed in June 1999. Dredging of the Daniel Island Reach was completed in July 2000. The Entrance Channel dredging was completed in September 2001. Dredging in the Lower Harbor was completed in April 2002. Construction of dikes at the Clouter Creek disposal area continues. Dredging in the Upper Harbor started in May 2002 and is scheduled for

completion in May 2004. The entire project is scheduled for completion in June 2008. Ultimate project cost after 10% reimbursement will be $85,433,000 (Federal) and $53,267,000 (non-Federal) for a total project cost of $138,700,000 (fully funded). (See Table 7-B for authorizing legislation.)

Local cooperation. Requirements are described in full on pg 7-2 of the FY 99 Annual Report. The non-Federal partner is the South Carolina State Ports Authority. The Project Cooperation Agreement was executed on June 5, 1998.

Terminal facilities. The South Carolina State Ports Authority owns and operates four public terminals and a grain elevator in Charleston Harbor. These terminals offer more than two miles of berthing space, room enough for seventeen vessels at one time. The Ports Authority operates twenty-one container cranes, thirty rubber tire gantry cranes, twenty-three toplifters, nine emptyhandlers, and two traveling breakbulk gantry cranes. There are 1.4 million square feet of warehouse space with covered rail access and truck loading docks. In addition to both CSX and Norfolk Southern rail lines, over 150 truck carriers provide inland transportation for Charleston Harbor. Facilities for marine repairs and servicing are available at Detyens Shipyard, which operates two yards. The main shipyard is located on the Cooper River and the original, smaller shipyard is located on the Wando River. For further details see Port Series No. 13, 1987, Corps of Engineers.

Operations and results during fiscal year. New Work: Dredging was performed (a) by Marinex Construction Company using pipeline and hydraulic dredges in the Upper Harbor during October 2002 – September 2003, removing 2,572,568 cubic yards of material, at a cost of $10,304,205. Adjustments of -$459,141 were made for work performed in FY02 for dredging in the Lower Harbor. Costs of $30,000 were incurred for mosquito abatement and trenching at the Clouter Creek Disposal Area. Real estate costs, engineering and design and supervision and administration costs were $811,812. Federal costs were $8,315,502. Maintenance: Dredging was performed (a) by Marinex Construction Company using pipeline dredges in the Upper Harbor during October 2002 – September 2003, removing 660,935 cubic yards of material, at a cost of $1,594,975, and (b) by Norfolk Dredging using a clam/bucket dredge in the Lower Harbor during January – July 2003, removing 1,650,420 cubic yards of material, at a cost of $5,154,496, and (c) by Great Lakes Dredge and Dock in the Entrance Channel using a hopper dredge during January – March 2003, removing 708,405 cubic yards of material, at a cost of $1,811,268. Costs of $35,487 were incurred for work performed in FY02 for dredging of the lower reaches. Costs of $197,490 were incurred for trenching efforts at the Clouter Creek Disposal Area. Costs of $64,870 were incurred for mosquito abatement and trenching. Condition and operation studies, water control management, natural resource management, lands and damages , planning, engineering and design, and supervision and administration costs were $1,661,237. Federal costs for maintenance were $10,519,823.

4. COOPER RIVER, CHARLESTON HARBOR, SC

Location. Cooper River is located in Charleston and Berkeley Counties, SC, and empties into the Atlantic Ocean at Charleston (See National Ocean Survey Charts Nos. 11521 and 11524.)

Existing project. The major cause of the shoaling problem in Charleston Harbor was the diversion of fresh water from the Santee River through Pinopolis Dam into the salt water of Charleston Harbor, which caused density currents that trapped sediments resulting in a phenomenal rate of deposition. The most practical solution of the shoaling problem was to redivert most of the Santee River waters above Pinopolis Dam back into the lower Santee River through a canal beginning at Lake Moultrie and extending to the Santee River in the vicinity of St. Stephen, South Carolina. The project for Cooper River, as authorized by the 1968 River and Harbor Act, provided that the discharge through the existing Pinopolis Hydroplant be reduced to a flow which would not establish a density current in the harbor. This flow was estimated at 3,000 cubic feet per second (cfs) during the design phase of the project, but after operational tests, this flow is estimated at 4,500 cfs. The excess water impounded in Lake Moultrie is being directed through a new canal above St. Stephen, South Carolina, to enter the Santee River at a point well below the Lake Marion Spillway (Wilson Dam). A new hydroelectric facility was constructed on the new canal at the edge of the swamp adjacent to the Santee River. This plant replaces those features made less effective at Pinopolis through curtailment of flows. The average flow of 11,000 cfs at the new powerplant, plus the 4,500 cfs average release planned for Pinopolis, approximates the historical average flow at Pinopolis. The three generators at the new plant are rated at 28,000 kilowatts each, for a total of 84,000 kilowatts. In the interest of fish and wildlife resources of the area, the project includes a herring lift at the new powerhouse site and a fish hatchery. Construction as initiated March 1977. The power-on-line date was March 1985. The power plant, channels and canals, and attendant work were completed in FY 85. (See Table 7-B for authorizing legislation.)

Local cooperation. None required.

Operations and results during fiscal year. New Work: Funds of $-22,336 were revoked in order to financially close out the construction phase. Maintenance: Funds of $5,033,022 were spent for maintenance of completed work.

5. FOLLY RIVER, SC

Location. The project begins in Folly River and Folly Creek north of the Town of Folly Beach and follows a southwesterly

course into the Atlantic Ocean. (See National Ocean Survey Chart No. 11521.)

Existing project. The project provides for an entrance channel, eleven feet deep by 100 feet wide extending from the Stono River three miles through the ocean bar; a channel within Folly River nine feet deep and 80 feet wide, extending three miles downstream from U. S. Highway 171 to the confluence of Folly and Stono Rivers; and a channel within Folly Creek nine feet deep by 80 feet wide extending three miles downstream from Highway 171 to the confluence with the Folly River. The existing project was completed in FY 79. (See Table 7-B for authorizing legislation.)

Local cooperation. None required.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed (a) by the government-owned sidecaster dredge *Fry* in the entrance channel during May – June 2003, removing 64,000 cubic yards of material, at a cost of $361,550, and (b) by Cottrell Construction Corporation in the inside shoals by pipeline dredge during June – July 2003, removing 127,202 cubic yards of material, at a cost of $517,430. Condition and operations studies, environmental monitoring, planning, engineering and design and supervision and administrative costs were $102,589. Federal costs for the project were $981,569.

6. GEORGETOWN HARBOR, SC

Location. The harbor is located on the coast of South Carolina 50 miles northeast of Charleston Harbor and 90 miles southwest of the entrance to Cape Fear River, North Carolina. (See National Ocean Survey Chart No. 11532)

Previous projects. For further details see page 1806 of Annual Report for 1915; page 549 of Annual Report for 1938; and page 442 of Annual Report for 1944.

Existing project. The authorizations provide for a channel 27 feet deep with varying widths of 600 feet to 400 feet from the Atlantic Ocean to and including a turning basin at the U. S. Highway 17 bridge over Sampit River, with a side channel 2,400 feet long and not less than 200 feet wide leading to a turning basin at the upper end of the built-up portion of the city waterfront, a total of 17.9 miles. The project also provides for the continued maintenance to a depth of 18 feet and a width of 400 feet for the bypassed portion of Sampit River opposite the City of Georgetown. The existing project was completed in 1951. The jetties were completed in 1903 - 1904. (See Table 7-B for authorizing legislation.)

Local cooperation. None required.

Terminal facilities. Terminal facilities at the Port of Georgetown consist of one 600-foot concrete wharf, one 700-foot bulkhead adjacent to a paved outside storage area, and one 600-foot steel berth. There are 103,000 square feet of transit warehouse space, 36,400 square feet of covered transit storage sheds, and 25 acres of paved backup space. Mobile cranes with up to a 225-ton lifting capacity are available. The port is equipped with special handling facilities for metals, cement, salt, and forest products. On-terminal rail service is provided by CSX and the port is accessible via U.S. Highways 17, 521, 701 and Interstates 95,26, and 20. For further details, see Port Series No. 13, 1987, Corps of Engineers.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed (a) by Cottrell Contracting Corporation in the Sampit River and Upper Winyah Bay by pipeline dredge during January – March 2003, removing 991,551 cubic yards of material, at a cost of $2,179,922, and (b) by Great Lakes Dredge and Dock in the Lower Winyah Bay range C shoal by hopper dredge during March 2003, removing 49,319 cubic yards of material, at a cost of $181,099. Adjustments of -$20,500 were made for work performed in FY02 for dredging of Lower Winyah Bay shoal 7 and 8. Costs of $494,512 were incurred for dike maintenance. Costs of $12,630 were incurred for mosquito abatement and trenching. Water control management, natural resource management, condition and operation studies, easement acquisition, planning, engineering and design and supervision and administration costs were $551,030. Federal costs for the project were $3,398,693.

7. LITTLE RIVER INLET, NC AND SC

Location. The project is located near the North Carolina-South Carolina state line. Little River enters the Atlantic Ocean at Little River Inlet at the state line and affords the only connection between the Atlantic Intracoastal Waterway and the ocean along 68 miles of coastline from Shallotte, N. C. to Georgetown, S. C. (See National Ocean Survey Chart No. 11535.)

Existing project. The project provides for an entrance channel twelve feet by 300 feet across the ocean bar; thence a ten by 90-foot inner channel to the Atlantic Intracoastal Waterway. The entrance channel is stabilized by jetties extending seaward 3,284 feet and 3,830 feet long on the east and west sides of the inlet, respectively. The project was completed in FY 84. (See Table 7-B for authorizing legislation.)

Local cooperation. Fully in compliance.

Terminal facilities. There are seven marinas, numerous private docks, and several public boat ramps located in or near Little River.

Operations and results during fiscal year. New Work: None. Maintenance: Condition and operation studies, water control management, and supervision and administration costs were $3,615.

8. MURRELLS INLET, SC

Location. The project is located on the coast of South Carolina, in Georgetown County, about 13 miles southwest of the City of Myrtle Beach. The inlet is the ocean entrance through a barrier beach to several tidal streams in the Murrells Inlet-Garden City estuarine area. (See National Ocean Survey Chart No. 11535.)

Existing project. The project provides for an entrance channel twelve feet by 300 feet across the seaward bar; thence a ten by 90-foot inner channel to a turning basin at the old Army crashboat dock. The entrance channel is stabilized by ocean jetties extending seaward 3,445 feet and 3,319 feet on the north and south sides of the inlet, respectively. The recreational project includes a walkway on the south jetty with access road and parking area. The existing project was completed in 1981. (See Table 7-B for authorizing legislation.)

Local cooperation. Fully in compliance.

Terminal facilities. There are five marinas, numerous private docks, and several public boat ramps located about the Murrells Inlet Harbor.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed by Southern Dredging in the entrance channel and deposition basin during October - November 2002 by pipeline dredge, removing 145,212 cubic yards of material, at a cost of $718,717. Condition and operations studies, sampling and testing of sediments, water control management costs, planning, engineering and design, and supervision and administration costs were $96,430. Federal costs for the project were $815,147.

9. PORT ROYAL HARBOR, SC

Location. The harbor is located on the coast of South Carolina 57 miles southwest of Charleston Harbor and 23 miles northeast of the mouth of the Savannah River. (See National Ocean Survey Chart No. 11516.)

Existing project. The authorized project provides for a channel from the ocean through Port Royal Sound to Port Royal, South Carolina, 27 feet deep and 500 feet wide across the ocean bar and in Port Royal Sound for approximately 12.8 miles, thence 24 feet deep and 300 feet wide in Beaufort River and Battery Creek for approximately 8.8 miles to and including a turning basin 27 feet deep and 600 feet wide opposite the wharf of the South Carolina State Ports Authority. The existing project was completed in 1959. (See Table 7-B for authorizing legislation.)

Local cooperation. None required.

Terminal facilities. Facilities at Port Royal Harbor include a 565-foot marginal concrete berth, 60,000 square feet of bulk cement storage, 27,000 square feet of transit storage, and 12 acres of backup storage space. Mobile cranes with up to a 90-ton lifting capacity are available. Ground transportation is provided by Port Royal Railroad, which connects to CSX Transportation. The Port is accessible via US Highways 71 & 21 and Interstate 95.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed by Great Lakes Dredge and Dock in the entrance channel by hopper dredge during March – April 2003, removing 140,625 cubic yards of material, at a cost of $370,000. Condition and operation studies, water control management, natural resource management, planning, engineering and design, and supervision and administration costs were $137,650. Federal costs for the project were $507,650.

10. TOWN CREEK, SC

Location. Town Creek Channel begins at the AIWW directly south of the Town of McClellanville in Charleston County, SC. The channel follows Five Fathom Creek in a southerly direction to the Atlantic Ocean. (See National Ocean Survey Chart No. 11531.)

Existing project. The project provides a channel ten feet deep by 80 feet wide from the AIWW to the mouth of Five Fathom Creek, a distance of 6.2 miles. The project includes an entrance channel twelve feet deep by 100 feet wide across the ocean bar, a distance of 4.0 miles. The existing project was completed in 1975. In 1989, Hurricane Hugo breached Sandy Point and created a new inlet to the ocean. This inlet continued to increase in size and was being used by local traffic to get to the Atlantic Ocean. In 1997, the district requested authority to maintain this new inlet in lieu of the existing authorized channel. Our request to abandon the existing Town Creek channel alignment and establish the Clark's Creek channel alignment was approved by headquarters. The proposed channel relocation, due to natural occurrences, is within the scope of the project authorization. The authorized project dimensions of 12 feet deep by 100 feet wide shall be maintained as appropriate. (See Table 7-B for authorizing legislation.)

Local cooperation. Requirements fully satisfied.

Operations and results during fiscal year. New Work: None. Maintenance: Maintenance dredging was performed by the government-owned sidecaster dredge *Fry* during June – July 2003, removing 86,430 cubic yards of material, at a cost of $370,000. Condition and operations studies, water control management, natural resource management, planning, engineering and design and supervision and administration costs were $24,105. Federal costs for the project were $394,105.

11. RECONNAISSANCE AND CONDITION SURVEYS

Costs of $68,738 were incurred.

12. OTHER AUTHORIZED NAVIGATION PROJECTS

(See Table 7-C.)

13. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation Activities Pursuant to Section 107, Public Law 86-645, as amended (Preauthorization).

Fiscal year costs were Coordination Account, $880.

Snagging and Clearing for Navigation (Section 3, Public Law 79-14.)

No cost incurred in FY03.

14. CALABASH CREEK, BRUNSWICK COUNTY, SC

Location. Calabash Creek originates in the southeastern part of Brunswick County, NC, and flows generally southwestward, parallel to the ocean coastline, until it enters the Little River in Horry County, SC. The creek is flanked by the Town of Calabash, NC on the north at the upper limit of the project area. The SC and NC state line crosses Calabash Creek approximately mid-way up the navigation channel. The confluence of Calabash Creek and the Little River is approximately 0.5 miles from the AIWW and about 3.0 miles from the Atlantic Ocean at Little River Inlet.

Existing project. The existing navigation channel did not provide adequate depth for full tidal use by commercial vessels. The project consisted of construction of approximately 2,585 linear feet of low-level dikes at the Goat Island Disposal Site using material at the site. An adjustable water control structure was constructed on the AIWW side of disposal site. A 60' wide navigation channel was dredged in Calabash Creek from the AIWW upstream for a distance of approximately 1.5 miles. Approximately 1.0 miles of the channel was dredged to a depth of 7 ft deep with the reminder dredged to a depth of 8 ft deep. Dredged material was placed in the Goat Island Disposal Site. Initial dredging work was completed in October 2000; however, additional follow-on work was required to remove a bump in the channel in during August – September 2002, (See Table 7-B for authorizing legislation).

Local cooperation. The Project Cooperation Agreement was executed on December 8, 1999 with the Town of Calabash, NC.

Operations and results during fiscal year. An adjustment to the Federal cost was made as a result of a cost transfer from the non-Federal sponsor to balance the project cost sharing requirements. Federal costs for the project were -$15,559.

Shore Protection

15. FOLLY BEACH, SC

Location. The municipality of Folly Beach, SC is located along the Atlantic shoreline of Folly Island, approximately 12 miles south of the City of Charleston, SC. Folly Island is the second island south of the Charleston Harbor entrance channel. (See National Ocean Survey Chart No. 11521).

Existing project. Approximately 2.7 million cubic yards of sand were placed on the beach over a total project reach of 28,200 feet. Rehabilitation of nine groins was completed in May 1993. Periodic nourishment will be required approximately every eight years. For further details see page 7-7 of the Annual Report for 1996. . (See Table 7-B for authorizing legislation.)

Local cooperation. Requirements are described in full on page 7-8 of the FY 1994 Annual Report.

Operations and results during fiscal year. Investigations were initiated to identify a new sand source for the next beach nourishment. Total engineering and design costs were $75,404. Federal costs for the project were $75,160.

16. MYRTLE BEACH, SC

Location. Myrtle Beach is located along the northern coast of SC. The area is commonly referred to as the Grand Strand. The Grand Strand extends from Little River Inlet at the NC border, in a southerly direction, to Murrells Inlet, SC for a total distance of approximately 37 miles. This project includes the developed area along the coast of Horry County, SC and a portion of the coastal area of Georgetown County, SC. Major municipalities in the

project area include the cities of Myrtle Beach and North Myrtle Beach, Garden City, and the Town of Surfside Beach.

Existing project. The plan of improvement placed about 6.3 million cubic yards of sand over a total project reach of 25.4 miles of beach encompassing three separable reaches. The material came from offshore borrow sites. Periodic nourishment will be required once every 8 to 10 years throughout the project life of 50 years. Estimated cost (October 1995 price levels) of initial construction is $35,188,000 Federal and $18,947,000 non-Federal for a total of $54,135,000. Estimated cost of periodic nourishment is $105,347,000 Federal and $56,725,000 non-Federal for a total project cost of $216,207,000. Sand placement on the North Myrtle Beach reach was completed in May 1997 placing 2.5 million cubic yards of sand. Sand placement on the Myrtle Beach reach was completed in January 1998 placing 2.3 million cubic yards of sand. Sand placement on the Garden City/Surfside reach was completed in November 1998 placing 1.5 million cubic yards of sand. (See Table 7-B for authorizing legislation.)

Local cooperation. Requirements are described in full on page 7-8 of the FY 1995 Annual Report.

Operations and results during fiscal year. A sand fencing/dune vegetation contract was awarded to Professional Grading, Clearing, and Excavation on September 6, 2002 for the Garden City/Surfside area and the work was performed in FY03. Total costs were $521,389. Federal costs for the project were $325,733.

17. HUNTING ISLAND WATER LINE, SC

Location. Hunting Island is located approximately 16 miles east of Beaufort, South Carolina. The island is owned and operated as a State Park by the South Carolina Department of Parks, Recreation, and Tourism.

Existing project. The project addressed storm damages to Cabin Road and associated utilities located at Hunting Island State Park through placement of 230,181 cubic yards of beach quality sand over a project length of 2,484 linear feet of beach fronting Cabin Road. (See Table 7-B for authorizing legislation.)

Local cooperation. The Section 103 Project Cooperation Agreement was executed on 26 August 2002 with the South Carolina Department of Parks, Recreation, and Tourism.

Operations and results during fiscal year. The construction contract was awarded to Marinex Construction on November 15, 2002. Construction began on January 15, 2003 and was completed on March 6, 2003. Marinex placed 230,181 cubic yards of beach quality sand, over a project length of 2,484 feet, at a cost of $2,479,458. Cost excludes $800 credit the sponsor received for LERRD's. Federal costs for the project were $1,612,168.

18. OTHER AUTHORIZED SHORE PROTECTION PROJECTS

(See Table 7-D.)

19. SHORE PROTECTION WORK UNDER SPECIAL AUTHORIZATION

Shore Protection Activities Pursuant to Section 103, Public Law 87-874 (Preauthorization).

Fiscal year costs were Morris Island Lighthouse, SC, $21,911.

Flood Control

20. INSPECTION OF COMPLETED WORKS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to maintain and operate local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. Inspections were made to determine extent of compliance and responsible local officials were advised of inadequacies in maintenance and operation on local flood protection works when appropriate. Cost for the period was $28,402. For project inspection data see Table 7-K.

21. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 7-E.)

22. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control Activities Pursuant to Section 205, Public Law 80-858, as amended (Preauthorization).

(See Table 7-J.)

Emergency Bank Protection

23.STREAMBANK EROSION UNDER SPECIAL AUTHORIZATION

Emergency Streambank and Shoreline Protection Activities Pursuant to Section 14, Public Law 79-526 as amended (Preauthorization).

Fiscal year costs were Chambers Waterfront, Beaufort, SC, $1,503; Morris Island Lighthouse, SC, $28,537; and Coordination Account, $3,246. (See Table 7-H for Other Authorized Streambank Erosion Control Projects.)

Snagging and Clearing of Navigable Streams and Tributaries in Interest of Flood Control, Section 208, Public Law 83-780.

No cost incurred in FY 03.

Environmental Infrastructure

24. LAKES MARION & MOULTRIE, SC

Location. The Lakes Marion and Moultrie, SC project is located in the east central part of the state and the two lakes make up the Santee Cooper Lake system. Calhoun, Clarendon, Colleton, Dorchester, Orangeburg, and Sumter Counties are located around Lakes Marion and Moultrie.

Existing project. Six counties and fourteen municipalities have joined together to form the Lake Marion Regional Water Agency. Using Lake Marion as a source, the system will provide potable water to satisfy the immediate and future water supply needs for a large portion of five counties and six municipalities located in central South Carolina in the proximity of Lake Marion. The proposed project includes construction of an 8 MGD (million gallon per day) water treatment plant and installation of approximately 62 miles of water transmission pipeline (includes five separable reaches). The five reaches are Santee, Elloree, Holly Hill, St. George, and Manning., The U.S. Army Corps of Engineers currently has authorization to expend $15 million for planning, engineering, design, and construction assistance for the project. (See Table 7-B for authorizing legislation).

Local cooperation. The Design Agreement was executed on May 11, 2001 with the Lake Marion Regional Water Agency. An amendment was executed on January 14, 2002 that allowed the Corps to accept a design provided by the sponsor.

Operations and results during fiscal year. The Corps is performing design review, environmental compliance activities, real estate oversight, scheduling services, and value engineering studies during the design phase. Total costs for the project were $511,148. Federal costs for the project were $367,122.

25. MULTIPLE PURPOSE PROJECTS INCLUDING POWER

(See Table 7-F.)

Miscellaneous

26. ECOSYSTEM RESTORATION AND PROTECTION

Project modifications accomplished under the authority of Section 206, Aquatic Ecosystem Restoration, Water Resources Development Act of 1996 (Preauthorization).

(See Table 7-M.)

Project modifications accomplished under the authority of Section 204, Beneficial Use of Dredged Material, Water Resources Development Act of 1986, as amended.

Fiscal year costs were Coordination Account, $207.

Project modifications accomplished under the authority of Section 1135, Project Modifications For Improvement of the Environment, Water Resources Development Act of 1986, as amended.

Fiscal year costs were Coordination Account, $1,490.

See Table 7-L for Other Authorized Environmental Projects.

27. EMERGENCY RESPONSE ACTIVITIES - FLOOD CONTROL AND COASTAL EMERGENCIES

Operational Program Areas. Federal costs incurred under the Flood Control and Coastal Emergencies Program was $468,413.

Emergency Work in Support of Other Federal Agencies. Costs of $16,994 were incurred to support FEMA.

Costs of $24,272 were incurred for the Catastrophic Disaster Preparedness Program. Costs of $23,729 were incurred for anti-terrorism/force protection.

28. GENERAL REGULATORY ACTIVITIES

During FY 03, $2,849,108 was expended on Permit Evaluation, and $583,318 on Enforcement. Total costs were $3,432,426.

General Investigations

29. ACTIVE INVESTIGATIONS

See Table 7-I which covers: Surveys, Collections, and Study of Basic Data, and Research and Development Activities.

TABLE 7-A COST AND FINANCIAL STATEMENT

See Sect. in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003	
1	Aquatic Plant Control, SC	New Work:						
		Approp.	0	250,000	99,000	357,000	11,554,605	
		Cost	77,339	153,511	187,987	253,965	11,440,172	
	(Contributed Funds)	Approp.	0	0	0	0	52,028	
		Cost	0	0	0	0	52,028	
2	Atlantic Intra-coastal Waterway Between Norfolk, Va. and the St. Johns River, FL	New Work:						
		Approp.	0	0	0	0	7,455,378	1
		Cost	0	0	0	0	7,455,378	1
		Maint:						
		Approp.	2,186,288	5,644,295	4,246,000	1,788,221	91,511,512	2
		Cost	2,303,405	5,610,848	4,247,531	1,793,568	91,477,951	2
3	Charleston Harbor, SC	New Work:						
		Approp.	38,117,000	25,434,386	7,004,000	8,313,000	140,538,493	3
		Cost	39,839,960	25,421,886	7,133,969	8,315,502	140,524,655	3
		Maint:						
		Approp.	3,804,820	9,306,336	5,630,000	10,459,221	171,191,015	4
		Cost	3,858,836	9,020,486	5,840,601	10,519,823	171,173,267	4
	(Contributed Funds)	New Work:						
		Approp.	12,700,000	8,836,137	3,858,009	1,174,983	43,547,977	5
		Cost	13,208,413	8,770,722	2,398,804	2,371,374	43,119,043	5
4	Cooper River, Charleston Harbor, SC	New Work:	-143,000	0	0	-25,800	204,188,712	
		Approp.	-90,225	742	51	-22,336	204,188,712	
		Cost						
		Maint:	3,390,689	3,783,043	3,266,542	7,072,828	70,361,630	6
		Approp.	3,345,327	3,812,871	3,243,217	5,033,022	68,272,032	6
		Cost						
5	Folly River, SC	New Work:						
		Approp.	0	0	0	0	337,736	
		Cost	0	0	0	0	337,736	
		Maint:						
		Approp.	487,541	419,828	661,000	979,491	7,889,894	
		Cost	485,904	419,750	659,000	981,569	7,887,631	
6	Georgetown Harbor, SC	New Work:						
		Approp.	0	0	0	0	7,061,755	7
		Cost	0	0	0	0	7,061,755	7
		Maint:						
		Approp.	5,215,583	2,502,835	3,060,000	3,333,723	93,221,699	8
		Cost	5,279,103	2,485,142	3,000,055	3,398,693	93,208,494	8

TABLE 7-A COST AND FINANCIAL STATEMENT

See Sect. in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
7	Little River Inlet, NC and SC	New Work:					
		Approp.	0	0	0	0	17,037,428
		Cost	0	0	0	0	17,037,428
		Maint:					
		Approp.	5,110	2,600	7,000	-1,808	3,017,822
		Cost	5,077	2,588	124	3,615	3,016,322
	(Contributed Funds)	New Work:					
		Approp.	0	0	0	0	1,521,920
		Cost	0	0	0	0	1,521,920
8	Murrells Inlet, SC	New Work:					
		Approp.	0	0	0	0	15,502,240
		Cost	0	0	0	0	15,502,240
		Maint:					
		Approp.	14,500	408,150	2,483,072	787,363	7,822,274
		Cost	5,857	414,532	2,453,416	815,147	7,817,924
	(Contributed Funds)	New Work:					
		Approp.	0	0	0	0	1,536,893 9
		Cost	0	0	0	0	1,536,893 9
9	Port Royal Harbor, SC	New Work:					
		Approp.	0	0	0	0	1,786,100
		Cost	0	0	0	0	1,786,100
		Maint.					
		Approp.	1,757,168	51,855	93,000	492,514	16,748,620
		Cost	1,776,332	51,061	78,710	507,650	16,748,065
10	Town Creek, SC	New Work:					
		Approp.	0	0	0	0	219,521
		Cost	0	0	0	0	219,521
		Maint.					
		Approp.	191,045	369,044	356,000	383,477	9,266,807
	(Contributed Funds)	Cost	191,048	368,975	345,410	394,105	9,266,807
		New Work:					
		Approp.	0	0	0	0	8,600
		Cost	0	0	0	0	8,600

TABLE 7-A COST AND FINANCIAL STATEMENT

See Sect. in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003	
14	Calabash Creek, NC	New work: Approp.	473,503	71,000	-1,000	-16,912	582,591	
		Cost	477,939	69,246	2,584	-15,559	582,591	
	(Contributed Funds)	New Work: Approp.	78,400	7,000	15,000	12,526	112,926	
		Cost	77,812	1	21,883	13,230	112,926	10
15	Folly Beach, SC (First Nourishment)	New work: Approp.	0	0	98,000	92,000	190,000	
		Cost	0	0	93,262	75,160	168,422	
	(Contributed Funds)	New Work: Approp.	0	0	15,000	20,294	35,294	
		Cost	0	0	14,891	244	15,135	
16	Myrtle Beach, SC	New work: Approp.	0	-260,386	25,000	295,000	33,344,614	11
		Cost	207,158	-163,862	57,244	325,733	33,343,857	11
	(Contributed Funds)	New Work: Approp.	0	210,000	-7,719	175,000	16,337,281	
		Cost	0	233,547	15,707	195,656	16,325,965	12
17	Hunting Island Water Line, SC	New work: Approp.	0	0	0	1,612,896	1,612,896	
		Cost	0	0	0	1,612,168	1,612,168	
	(Contributed Funds)	New Work: Approp.	0	0	740,800	130,139	870,939	
		Cost	0	0	0	867,290	867,290	13
24	Lakes Marion & Moultrie, SC	New Work: Approp.	0	3,352,000	9,786,000	-9,793,600	3,344,400	
		Cost	0	117,328	240,936	367,122	725,387	
	(Contributed Funds)	New Work: Approp.	0	62,000	177,400	150,400	389,800	
		Cost	0	9,220	75,212	144,026	228,459	

1 Includes $109,490 for new work for previous projects.

2 Includes $69,422 for maintenance of previous projects.

3 Includes $47,395,108 for previous projects and $318,000 for Preconstruction, Engineering and Design on the current project.

4 Includes $401,989 for maintenance of previous projects and $600 for maintenance expended from contributed funds for the existing project.

5 Includes $12,409,848 for the 40 ft project, excludes $2,996,994 credit for LERRD's and $1,966,945 final project reimbursement for the 40 ft project. Includes $179,000 for Preconstruction,
Engineering and Design on the current project.

6 Includes $765,000 appropriated and expended in FY 96 under appropriation 96X5125 Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

7 Includes $2,445,852 for new work for previous projects.

8 Includes $114,556 for maintenance of previous projects.

9 Includes $67,000 accomplished under authority of Section 3, P.L. 79-11 incurred through FY 73.

10 Excludes $33,000 credit for LERRD's.
11 Includes $2,666,000 for Preconstruction, Engineering and Design.
12 Excludes $1,629,993 credit for LERRD's.
13 Excludes $800 credit for LERRD's.

TABLE 7-B AUTHORIZING LEGISLATION

See Sect. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		AQUATIC PLANT CONTROL, SC	
1.	Oct. 27, 1965	Provides for control and progressive eradication of water hyacinth, alligatorweed, Eurasian water-milfoil and other obnoxious aquatic plant growths from navigable waters, tributary streams, connecting channels, and other allied waters of the U.S., in combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health and related purposes, including continued research for development of most effective and economic control measures in cooperation with other Federal and state agencies.	H.D. 251, 89th Cong., 1st Sess. P.L. 89-298
		ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA, AND ST. JOHNS RIVER, FL	
2.	Sep. 19, 1890	Channel from Minim Creek to Winyah Bay.	Annual Report, 1889, p. 1184.
	Jun. 13, 1902	Channel from Charleston to a point opposite McClellanville.	H.D. 84, 56th Cong., 1st sess. and Annual Report 1900, p.1908
	Mar. 2, 1907	Branch channel to McClellanville.	Annual Report 1903, p. 1133
	Mar. 2, 1907	Extending the channel to Minim Creek, thence through the Esterville-Minim Canal to Winyah Bay.	H.D. 178, 63rd Cong., 1st. sess.
	Mar. 3, 1925	Cut across the Santee Delta at Four Mile Creek.	H.D. 237, 68th Cong., 1st sess.
	Mar. 3, 1925	Widening and deepening the waterway from Charleston to Beaufort.	S.D. 178, 68th Cong., 2nd sess.
	Jul. 3, 1930	A waterway eight feet deep and 75 feet wide from Cape Fear River to Winyah Bay.	H.D. 41, 71st Cong., 1st sess.
	Aug. 30, 1935 [1]	Construction of bridges across the waterway in Horry County, SC.	Rivers and Harbors Committee Doc. 14, 72nd Cong., 1st sess.
	Aug. 30, 1935 [2]	Cutoff between Ashepoo and Coosaw Rivers.	H.D. 129, 72nd Cong., 1st sess.
	Aug. 30, 1935 [2]	Enlarging the channel from Winyah Bay to Charleston including the branch channel to McClellanville, to depth of ten feet and bottom width of 90 feet.	Rivers and Harbors Committee Doc. 11, 72nd Cong., 1st sess.
	Aug. 26, 1937	Increasing dimensions of waterway to twelve feet deep and 90 feet wide.	Rivers and Harbors Committee, Doc 6, 75th Cong., 1st sess.[3]
	Mar. 2, 1945	Anchorage Basin 125 feet wide, 335 feet long, twelve feet deep, near Myrtle Beach, SC. (Deauthorized by 1986 WRDA) [4]	H.D. 327, 76th Cong., 1st sess.

TABLE 7-B AUTHORIZING LEGISLATION

See Sect. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		CHARLESTON HARBOR, SC	
3.	Jun. 18, 1878	2 jetties. [5]	Annual Report 1878, pp. 553-572.
	Aug. 8, 1917	Increase in depth to 30 feet with width of 500 feet between the jetties and 1,000 feet seaward thereof.	H.D. 288, 62nd Cong., 2nd sess. H.D. 1946, 64th Cong., 2nd sess, pt.1, pp. 21-29, 57, 58, and 64-68.
	Jul. 18, 1918	The 40-foot channel to the Naval Base. Act provided that the 40-foot channel should not be undertaken "until the proposed new drydocks at this navy yard, carrying a depth of 40 feet of water over the blocks, has been authorized." This dock was authorized in the Naval Appropriations Act approved July 1, 1918 (40 Stat. L. 725).	
	Jan. 21, 1927	A 30-foot channel from the sea to Goose Creek via Cooper River, together with a 30-foot channel through Town Creek for commercial purposes. The act also provided that the 40-foot channel be prosecuted only as found necessary for national defense.	H.D. 249, 69th Cong. 1st sess.
	Oct. 17, 1940	The 35-foot channel depth from the sea to the head of the project via Cooper River and Town Creek, also a channel in Shem Creek to Mount Pleasant, 110 feet wide and ten feet deep, including a turning basin at the upper end.	H.D. 259, 76th Cong., 1st sess.
	Mar. 2, 1945	An anchorage area 30 feet deep in the water area between Castle Pinckney and Fort Moultrie. [6] (Deauthorized by 1986 WRDA)	H.D. 156, 77th Cong., 1st sess.
	Sep. 3, 1954	Deepen the 30-foot channel north and east of Drum Island to 35 feet.	S.D. 136, 83rd Cong., 2nd sess.[3]
	Jul. 14, 1960 as amended	Shem Creek Channel modified by extending 1,150 feet upstream and downstream from mouth to Atlantic Intracoastal Waterway.	H.D. 35, 86th Cong., 1st sess.
	Oct. 22, 1976	Project authorized for the Phase I design memorandum stage of Advanced Engineering and Design.	H.D. 94-436, 94th Cong., 2nd sess.
	Nov. 17, 1986	Deepening 35 foot channel to 40 feet (42 feet in the ocean bar and entrance channel) from the 42 foot ocean contour to Goose Creek, a distance of 27.1 miles, construction of one turning basin, modification of existing turning basins, deepening and modification of the anchorage basin, deepening Shipyard River to 38 feet, maintain the Wando River Channel to 35 feet at Federal expense and the deepening of this channel to 40 feet if economically justified.	99th Cong. 2nd sess., P.L. 96-662

TABLE 7-B AUTHORIZING LEGISLATION

See Sect. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct 12, 1996	Deepening of the entrance channel from 42 ft. deep to 47 ft. deep and the inner channels from 40 ft. deep to 45 ft. deep. Other improvements include realignment/widening of various channels/reaches, construction of a new turning basin opposite the future Daniel Island terminal, construction of a new contraction dike, reconstruction of two existing dikes and removal of a third existing dike.	104 th Cong. P.L. 104-303
.			
		COOPER RIVER, CHARLESTON HARBOR, SC (ST. STEPHEN PROJECT)	
4.	Aug. 13, 1968	Redivert most of the Santee River waters Pinopolis Dam into the lower Santee River through a canal beginning at Lake Moultrie and extending to the Santee River in the vicinity of St. Stephen, South Carolina	S.D. 88, 90th Cong.,P.L. 90-483
		FOLLY RIVER, SC	
5.	Jul. 14, 1960 as amended	Consists of stable all-tide channel nine feet deep and 80 feet wide in Folly River and Folly Creek and an entrance channel at Stono Inlet 100 feet wide and eleven feet deep.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers, Dec. 23, 1977.
		GEORGETOWN HARBOR, SC	
6.	Aug. 5, 1886	Jetties and earthen dike to protect south jetty.	H. Ex. Doc. 258 48th Cong., 2nd sess., and Annual Report 1885, pp. 1154-1170, and H. Ex. Doc. 117, 50th Cong., 2nd sess., and Annual Report 1889, pp. 1110-1111.
	Jun. 25, 1910	Previous project channel dimensions and training wall.	H.D. 398, 58th Cong., 2nd sess. and Annual Report 1904, pp. 1591-1605.
	Mar. 2, 1945	27-foot channel from ocean, including a turning basin in Sampit River.	H.D. 211, 76th Cong., 1st sess.
	Jun. 30, 1948	Cutoff and side channel in Sampit River.	H.D. 21, 81st Cong., 1st sess.

TABLE 7-B AUTHORIZING LEGISLATION

See Sect. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		LITTLE RIVER INLET, NC AND SC	
7.	Oct. 27, 1965	Provides for an entrance channel twelve feet by 300 feet across the ocean bar; thence ten feet by 90-foot inner channel to the Atlantic Intracoastal Waterway.	H.D. 362, 92nd Cong. Section 201, P.L. 89-298 River and Harbor and Flood Control Act of 1965
	Mar. 7, 1974	Authorized emergency dredging operations as the Chief of Engineers determines necessary to maintain channel depths sufficient to permit free and safe movement of vessels until such time as the authorized project is constructed.	H.D. 10203, 93rd Cong. Section 67, P.L. 93-251 Water Resources Development Act of 1974
		MURRELLS INLET, SC	
8.	Oct. 27, 1965	Provides for an entrance channel twelve feet by 300 feet across the seaward bar, thence ten by 90-foot inner channel to a turning basin at the old Army crash boat dock.	H.D. 137, 92nd Cong. Section 201, P.L. 89-298 River and Harbor and Flood Control Act of 1965
	Mar. 7, 1974	Authorized emergency dredging operations as the Chief of Engineers determines necessary to maintain channel depths sufficient to permit free and safe movement of vessels until such time as the authorized project is constructed.	H.D. 10203, 93rd Congr. Section 67, P.L. 93-251 Water Resources Development Act of 1974
		PORT ROYAL HARBOR, SC	
9.	Sep. 3, 1954	A channel from the ocean through Port Royal Sound to Port Royal, SC.; 27 feet deep and 500 feet wide across the ocean bar and in Port Royal Sound for approximately 12.8 miles thence 24 feet deep and 300 feet wide in Beaufort River and Battery Creek for approximately 8.8 miles to and including a turning basin 27 feet deep and 600 feet wide opposite wharf of the SC State Ports Authority.	H.D. 469, 81st Cong., 2nd sess.

TABLE 7-B AUTHORIZING LEGISLATION

See Sect. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		TOWN CREEK, SC	
10.	Jul 14, 1960 as amended	An entrance channel twelve feet deep by 100 feet wide across the ocean bar a distance of 4.0 miles and a channel ten feet deep by 80 feet wide from the mouth of Five Fathom Creek to the Atlantic Intracoastal Waterway, a distance of 6.2 miles.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers, Feb. 12, 1974.
		CALABASH CREEK, BRUNSWICK CTY, NC	
14.	Jul. 14, 1960 as amended	Deepen navigation channel.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers.
		FOLLY BEACH, SC	
15.	Nov. 17, 1986	Shoreline protection.	P.L. 99-662 99th Cong., 2nd sess.
	Aug. 17, 1991	Construct hurricane and storm protection measures.	P.L. 102-104, 102nd Cong.
		MYRTLE BEACH, SC	
16.	Nov. 28, 1990	Storm damage reduction for periodic nourishment over The 50-year life of the project.	P.L. 101-640
		HUNTING ISLAND WATER LINE, SC	
17.	Oct. 23, 1962	Shoreline protection.	Sec. 103, P.L. 87-874 Authorized by Chief of Engineers, Aug. 6, 2002.
		LAKES MARION & MOULTRIE, SC	
24.	Aug. 17, 1999	Provide technical, planning and design, and construction assistance for $5M for water supply treatment and distribution projects in the counties of Calhoun, Clarendon, Colleton, Dorchester, Orangeburg, and Sumter, SC.	Sec. 502(f)(25), P.L. 106-53 Water Resources Development Act of 1999
	Dec. 21, 2000	Increased authority from $5M to $15M	Sec. 108(c)(4), P.L. 106-554
	Dec. 1, 2003	Increased authority from $15M to $35M and added wastewater treatment component.	Sec. 126, P.L. 108-137

1/ Included in Public Works Administration Program September 6, 1933.
2/ Included in Emergency Relief Administration Program May 28, 1935.
3/ Contains latest published maps.
4/ Inactive.
5/ Completed under previous projects.
6/ For national defense.

TABLE 7-C OTHER AUTHORIZED NAVIGATION PROJECTS

(See Section 12 of Text)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Operation & Maintenance
Adams Creek, SC	Completed	1978	$125,697		$29,143
Aquatic Plant Control, NC and SC 1/	Completed	1968	379,680		--
Archers Creek, SC	Completed	1914	20,646		--
Ashley River, SC	Completed	1955	260,996		589,436
Brookgreen Gardens, SC	Completed	1992	94,700	2/	4,011
Charleston Hbr Rediversion (Fishlift), SC	Completed	2001	0		6,705,010
Edisto River, SC	Completed	1938	33,103		2,887
Great Pee Dee River, SC	Completed	1950	183,712		271,098
Jeremy Creek, SC	Completed	1996	49,987		116,175
Lynches River and Clark Creek, SC	Completed	1982	9,500		85,595
Mingo Creek, SC	Completed	1950	29,050		8,575
Salkahatchie River, SC	Completed	1896	15,841		1,936
Santee River, NC & SC	Completed	1950	99,750		182,469
Village Creek, SC	Completed	1985	26,500		111,314
Waccamaw River, NC and SC	Completed	1978	262,814		284,347
Wateree River, SC	Completed	1940	60,000		154,559

1 Pilot Program

2 Excludes $7,800 contributed funds.

TABLE 7-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

(See Section 18 of the Text)

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Folly Beach, SC	Completed	1996	$11,719,001 1/	--
Hunting Island Beach, SC	Completed	1984	$ 4,122,053	--

Construction costs include both federal and non-federal.

1/ Excludes $819,693 credit for LERRD's and includes $1,586,000 for Preconstruction, Engineering and Design.

TABLE 7-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Section 21 of Text)

Project	Status	For Last Full Report See Annual Report for	Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Buck Creek, NC & SC	Completed	1970	$298,167	--
Cow Castle Creek, SC	Completed	1985	250,000	--
Cowpen Swamp, SC	Completed	1960	18,679	--
Crabtree Swamp, SC	Completed	1969	97,000	--
Eagle Creek, SC	Completed	1986	1,245,063	--
Edisto River, SC	Discontinued	1947	6,379	--
Edisto River, North Fork, SC	Completed	1969	127,660	--
Edisto River, Vicinity Canadays Landing, SC	Completed	1958	3,160	--
Gapway Swamp, SC 1	Completed	1969	339,197	--
Kingstree Branch, Williamsburg County, SC	Completed	1978	247,242	--
Leith Creek, NC 2	Completed	1982	430,951	--
Little Sugar Creek, NC 1	Completed	1969	86,600	--
Old Field Swamp, NC 1	Completed	1979	763,022	--
Reddies River Lake, NC 1	Completed	1980	985,800	--
Reedy River, SC	Discontinued	1974	4,500	--
Roaring River, Wilkes County, NC 1	Phase I Only	1978	370,000	--
Saluda River, SC	Completed	1963	99,000	--
Sawmill Branch, SC	Completed	1971	248,605	--
Scotts Creek, SC	Completed	1988	545,000	--
Shot Pouch Creek, Sumter Co., SC	Completed	1971	77,400	--
Simmons Bay Creek, NC 1	Completed	1963	186,435	--
Simpson Creek, SC	Completed	1957	81,000	--
Socastee Creek, SC	Completed	1996	1,110,156	--
Todd Swamp, SC	Completed	1964	29,000	--
Turkey Creek, Sumter County, SC	Completed	1974	319,669	--
Turkey Creek, Sumter County, SC 2 3	Completed	2001	576,765	--
Waccamaw R. & Seven Creeks, NC & SC 1	Completed	1961	67,821	
Wilson Branch, Chesterfield County, SC	Completed	1985	277,111	

1 Transferred to Wilmington District

2 Construction costs include both federal and non-federal.

3 Includes $5,596 credit for LERRD's.

TABLE 7-F MULTIPLE PURPOSE PROJECTS INCLUDING POWER

(See Section 25 of the Text)

Project	Status	For Last Full Report See Annual Report for	Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Cooper River Seismic Modification, SC	Completed	1992	$29,400,000 1/	--

1 Excludes $770,000 for credits to Santee Cooper.

TABLE 7-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Abbapoola Creek, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Beresford Creek, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Charleston Hbr (Anchorage Basin), SC	1954	17 Nov 86 Section 1002, P.L. 99-662	$1,330,000	--
Congaree River, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Little Pee Dee River, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Lumber River, SC & NC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Myrtle Beach (Anchorage Basin), SC	1954	17 Nov 86 Section 1002, P.L. 99-662	--	--
Reedy River, Greenville, SC	1971	17 Nov 86 Section 1002, P.L. 99-662	$ 4,500	--
Russell Creek, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--
Yadkin River, SC	--	5 Aug 77 Section 12, P.L. 93-251	--	--

OTHER AUTHORIZED

TABLE 7-H STREAMBANK EROSION CONTROL PROJECTS

(See Section 23 of the Text)

Project	Status	For Last Full Report See Annual Report for	Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Battery Pringle, SC	Completed	1996	$152,579	--
Castle Pinckney, SC	Completed	2000	$381,681	--
Cooper River, Pompion Hill Chapel, SC	Completed	1987	$185,000	--
Drayton Hall, SC	Completed	1994	$250,374	--
Hunting Island Waste Treatment Plant, SC	Completed	2000	$ 69,160	--
Indian Bluff, SC	Completed	1998	$164,155	--
Pinopolis Dam, SC	Completed	1996	$574,787	--
Santee Dam, SC	Completed	1996	$558,117	--
SC DOT Bridges, SC	Completed	1998	$217,890	--
Shore Drive, Singleton Swash, SC	Completed	2001	$261,077 1/	--

Construction costs include both federal and non-federal.

1/ Includes $6,785 for work-in-kind credit and $36,028 for betterments.

TABLE 7-I ACTIVE GENERAL INVESTIGATIONS

(See Section 29 of Text)

ITEM	FISCAL YEAR COSTS
FLOOD DAMAGE PREVENTION (CATEGORY 120)	
Waccamaw River	$6,298
SHORELINE PROTECTION (CATEGORY 130)	
Pawleys Island	$90,977
SPECIAL STUDIES (CATEGORY 140)	
Reedy River	$54,826
Santee Delta Environmental Restoration	$21,725
COMPREHENSIVE STUDIES (CATEGORY 150)	
Broad River	$35,948
REVIEW OF AUTHORIZED PROJECT (CATEGORY 160)	
AIWW	$484,196
Charleston Harbor	$ 79
MISCELLANEOUS ACTIVITIES (CATEGORY 170)	
Special Investigations	$18,354
Interagency Water Resources Development	$ 8,169
COORDINATION STUDIES WITH OTHER AGENCIES (CATEGORY 180)	
Cooperation With Other Water Resource Agencies	$ 3,923
Planning Assistance to States (Coordination)	$30,241
Planning Assistance to States (Cost-shared Studies)	$ 279,051
TOTAL (CATEGORY 100)	**$ 1,033,787**
FLOOD PLAIN MGMT SERVICES (CATEGORY 250)	
Flood Plain Management Services	$34,748
National Floodproofing Committee	$12,998
RAS-HEC, SC	$11
SC HES Restudy	$ 960
Southeast US Regional Study	$2,532
SS – Mullins Drainage Study	$14,961
SS - SC Waves	$13,097
SS - Riverine Model	$113
Texas Hurricane Evacuation Study	$ 541
Technical Services	$55,408
HYDROLOGIC STUDIES (CATEGORY 260)	
Hydrologic Studies	$ 920
TOTAL (CATEGORY 200)	**$136,287**
PRECONSTRUCTION ENGINEERING & DESIGN (CATEGORY 400)	
Pawleys Island	$8,286
TOTAL (CATEGORY 400)	**$8,286**
TOTAL GENERAL INVESTIGATIONS	**$ 1,178,360**

TABLE 7-J FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Preauthorization Studies
(See Section 22 of Text)

Study Identification	Section	Fiscal Year Costs
Brushy Creek, Greenville, SC	205	$72,515
Coordination Account	205	3,452
Congaree River Floodway, SC	205	32,468
Crooked Creek, Bennettsville, SC	205	111

TABLE 7-K INSPECTION OF COMPLETED WORKS

(See Section 20 of Text)

Project	Date of Inspection
Battery Pringle, SC	July 18, 2003
Cape Marsh, SC	August 25, 2003
Castle Pinckney, SC	August 15, 2002
Cow Castle Creek, SC	August 14, 2003
Drayton Hall, SC	July 17, 2003
Eagle Creek, SC	July 22, 2003
Hunting Island, SC	September 18, 2003
Indian Bluff, SC	August 19, 2003
Kingstree Branch, SC	August 12, 2003
Murphy Island, SC	August 25, 2003
Pinopolis Dam, SC	July 16, 2003
Pompion Hill, SC	August 18, 2003
Santee Dam, SC	July 16, 2003
Sawmill Branch, SC	July 22, 2003
Shore Drive, Singleton Swash, SC	September 9, 2003
Scotts Creek, SC	August 14, 2003
SC DOT Bridges, SC	September 3, 2003
Socastee Creek, SC	September 10, 2003
Turkey Creek, SC	August 19, 2003
Wilson Branch, SC	August 12, 2003

TABLE 7-L OTHER AUTHORIZED ENVIRONMENTAL PROJECTS

(See Section 26 of the Text)

Project	Status	For Last Full Report See Annual Report for	Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Cape Marsh Management Area, Santee Coastal Reserve, Charleston County, SC	Completed	2001	$333,914 1/	--
Miller Corner Phragmites Control, SC	Completed	2001	$236,923 2/	--
Murphy Island, SC	Completed	1998	$375,631 3/	--

Construction costs include both federal and non-federal.

1 Includes $43,000 credit for work-in-kind installation of the water control structures.

2 Includes $47,600 credit for work-in-kind structural modifications.

3 Includes $100,277 for work-in-kind credit.

TABLE 7-M AQUATIC ECOSYSTEM RESTORATION

Preauthorization Studies
(See Section 26 of Text)

Study Identification	Section	Fiscal Year Costs
Bonneau Ferry, SC	206	$1,221
Cedar Hill Plantation, SC	206	22
Chapel Branch, SC	206	54,526
Cousar Branch, SC	206	54
Coordination Account	206	8,121
Grace Memorial Bridge, SC	206	14,778
Hunting Island, SC	206	258,906
Filbin Creek, SC	206	9,701
Ireland Creek, SC	206	105,105
Jeffries Creek, SC	206	33,805
Lake Connestee, SC	206	48,648
Lynches River, Lake City, SC	206	21,466
Mulberry Plantation, SC	206	86,591
Pocotaligo River and Swamp, SC	206	15,691
Preliminary Restoration Plan	206	404
Quimby Plantation, SC	206	49,652
Reedy River, SC	206	32,065
Silas Pearman Bridge, SC	206	17,693
Ware Shoals,/Saluda River, SC	206	210
Wilson Branch, SC	206	1,734
	206	

SAVANNAH, GA, DISTRICT

The District comprises drainage basins that flow into the Atlantic Ocean between Port Royal Sound, SC, and Cumberland Sound, GA and FL, and includes the Atlantic Intracoastal Waterway between these points. This area covers the headwaters of the Savannah River in southwestern North Carolina, eastern Georgia, and a small portion of northeastern Florida.

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Navigation

1. ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA, AND ST. JOHNS RIVER, FL (SAVANNAH DISTRICT)

Location. This 161-mile section of waterway connects Port Royal Sound, SC, with Cumberland Sound, GA and FL. (See NOAA charts 11489-11507, formerly Coast and Geodetic Survey Charts 838-841, inclusive.)

Previous Projects. (Between Savannah, GA, and Fernandina, FL) For details see pages 1814, 1821-1823 of Annual Report for 1915 and page 585 of Annual Report for 1938.

Existing Project. The project provides for a waterway 12 feet deep at mean low water and not less than 90 feet wide between Port Royal Sound, SC, and Savannah, GA; 12 feet deep at mean low water, with widths of 90 feet in land cuts and narrow streams and 150 feet in open waters between Savannah, GA, and Cumberland Sound, GA and FL; and a suitable anchorage basin at Isle of Hope, GA. Mean tidal range between Port Royal, SC, and Cumberland Sound, GA and FL is from 6 to 8 feet with fluctuations from 1.5 to 2.5 feet due to winds and lunar phases. (See Table 8-B for Authorizing Legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Exclusive or adequate terminal facilities at port of entry. This improvement serves numerous wharves, some of which are open to the public on equal terms. Facilities are considered ample for existing commerce.

Operations and Results During Fiscal Year.
Maintenance: The District used Cottrell Engineering Corporation dredge "Marion" to dredge the waterway during the first and second quarters of FY 02. The dredge removed 781,044 cubic yards of material at a cost of $1,123,759.

Operation and Maintenance costs for the FY amounted to $324,935.27, which included such items project condition surveying and real estate monitoring. (See Table 8-A for Cost and Financial Statement.)

Condition at End of Fiscal Year. The main channel of the existing project, completed in 1941, is maintained at 12 feet. The former main channel, now an alternate route through the westerly end of the south channel and northerly end of Wilmington River, will be maintained to a depth of 7 feet mean low water for traffic points north and south of Savannah Harbor. Relocation of the main channel from the Frederica to Mackay Rivers near St. Simons Island, GA, was accomplished under Section 107 of the Continuing Authorities Program after construction of a new bridge for the Torras Causeway. The notice on the final Environmental Impact Statement appeared in the Federal Register October 29, 1976.

2. BRUNSWICK HARBOR, GA

Location. The harbor entrance is 70 statute miles south of the entrance to Savannah Harbor, GA, and 25 statute miles north of the entrance to Fernandina Harbor, FL. (See NOAA Chart 11215, formerly Coast and Geodetic Survey Chart 447.)

Previous Project. For details see page 1818 of Annual Report for 1915 and page 591 of Annual Report for 1938.

Existing Project. The project provides for a stone jetty 4,350 feet long at the entrance to East River and the following channels: 32 feet deep and 500 feet wide across the bar; 30 feet deep and 400 feet wide through St. Simons Sound, Brunswick River, and East River to the foot of Second Avenue; 30 feet deep and 300 feet wide in Turtle River to the Allied Chemical Company wharf, formerly the Atlantic Refining Company; 30 feet deep and 400 feet wide in South Brunswick River; 27 feet deep and 350 feet wide in East River from Second Avenue to its confluence with Academy Creek; and a channel in Back River 20 feet deep and 150 feet wide from St. Simons Sound to the mouth of Mill Creek; and a channel in Terry Creek 10 feet deep and 80 feet wide from its mouth to a point immediately above the wharf of the former Glynn Canning Company. All depths refer to mean low water. Mean tidal range on the bar is 6.5 feet, at the City of Brunswick 7.3 and 7.6 feet at the upper end of the harbor. For further details see Annual Report for 1962.

Local Cooperation. Complied with to date.

Terminal Facilities. Twenty-six wharves and piers, almost all privately or state (Georgia Ports Authority) owned, have a berthing space of 7,530 linear feet. The Port of Brunswick and the State of Georgia have a transit shed and modem docks with 1,640 feet of berthing space (three general cargo berths) on East River. For further details see Port Series No. 14, Corps of Engineers (revised 2000).

Operations and Results During Fiscal Year.
Maintenance: The District used Cottrell Contracting Corporation during the third quarter in FY 03 to dredge the East and South Brunswick Rivers using the dredge "Richmond". The dredge removed 401,344 cubic yards of material at a cost of $580,147. The District used the deepening contractor, Bean Stuyvesant, LLC during the first and second quarters in FY2003 to dredge Entrance Channel using the dredges "Meridian" and Eagle 1". The dredges removed 413,625 cubic yards of maintenance material at a cost of $744,524.

Operation and Maintenance costs for the FY amounted to $2,536,600, which included such items as water quality monitoring, project condition surveying, real estate monitoring, environmental and cultural resources

monitoring. (See Table 8-A for Cost and Financial Statement.)

Condition at End of Fiscal Year. The existing project was completed in December 1960. General condition of the harbor works is satisfactory, providing maintenance dredging continues. The notice on the Final Environmental Impact Statement appeared in the Federal Register October 3, 1975. Authorized depths were maintained throughout the FY.

Total cost for existing completed project to September 30, 2002, is $120,099,399. New Work costs for the FY amounted to $8,952,434. (See Table 8-A for Cost and Financial Statement.)

New Work Dredging. Deepening the Brunswick Harbor from 30 to 36 feet began with the award of the Entrance Channel Contract on July 2, 2003 to Bean Dredging Corporation for a sum of $13,677,080. The cutterhead dredge "Meridian" began the work on September 23, 2002. The hopper dredge "Eagle" arrived on December 9, 2002 and dredged the remainder of the channel. A total of approximately 200,000 cubic yards of new work and O&M materials was removed from the channel by 1 October 2002. The District used the deepening contractor, Bean Stuyvesant, LLC during the first and second quarters in FY2003 to dredge Entrance Channel using the dredges "Meridian" and "Eagle 1". Both dredges removed a total of 4,669,837 of new work materials between September and March 2003 at a cost of $10,930,299. The dredges also removed 413,625 cubic yards of maintenance material in conjunction with the new work material at a cost of $744,524.

Bids for the Inner Harbor were opened on 17 October 2002. Three bids were received. The apparent low bid was for $66 million. The Government estimate was $28.9 million. The apparent low bidder filed a protest on the adequacy of the Government Estimate. The solicitation was cancelled on 24 December 2002 and this too was protested. This case is before the federal court of claims at this time. To account for the increased project costs due to added features and an out dated estimating program, post authorization change report were submitted in January and September 2003 for higher approval. Based on these reports, Congress revised the total project cost to $96,277,000 from 50,717,000 and the fully funded cost to $101,581,000 from 53,345,000. As of this writing, the District awaits the federal court of claims judge decision on the protest and is ready to re-advertise a repackaged project for the Inner Harbor that divides the project into two contract phases, one for predominantly sand materials and the other for rock materials. The latter contract requires environmental approvals for blasting and open water disposal.

3. LOWER SAVANNAH RIVER BASIN, GA & SC

Location. The project is located on the Savannah River between river mile 40.9 and river mile 42.0, approximately 20 river miles above the city of Savannah, GA. The project area itself is located within Effingham County, GA and Jasper County, SC. A portion of the project is within the Federal Savannah National Wildlife Refuge.

Existing Project. This environmental restoration project was authorized by a resolution passed on August 1, 1990, by the U.S. House of Representatives Committee on Public Works and Transportation. The total project cost approved is $4,222,000. The recommended plan includes a large partial diversion structure at cut #3, a plug in bend #3 below the mouth of Bear Creek, a realignment and restoration of the mouths of Bear and Mill Creeks, which provides improved flows into both creeks.

The Project Cooperation Agreement (PCA) was executed and the construction phase officially began in FY 00. Construction was completed in FY 02.

Local Cooperation. The cost share is 75% Federal and 25% non-Federal.

New Work costs for the FY amounted to $26,377. (See Table 8-A for Cost and Financial Statement.)

4. SAVANNAH HARBOR, GA

Location. Harbor entrance is 75 statute miles south of Charleston, SC, and 70 miles north of Brunswick Harbor, GA. (See NOAA Chart 11512, formerly Coast and Geodetic Survey Chart 440.)

Previous Project. For details see page 1810 of Annual Report for 1915 and page 578 of Annual Report for 1938.

Existing Project. The project provides for a channel 44 feet deep and 600 feet wide across the ocean bar about 7.0 miles long; 42 feet deep and 500 feet wide to the upper end of King Island Turning Basin and 36 feet deep and 400 feet wide to the upper end of Argyle Island Turning Basin about 22.6 miles; and 30 feet deep and 200 feet wide to a point 1,500 feet below the Houlihan Highway Bridge, about 1.5 miles, for a total length of 31.1 miles; Fig Island and Marsh Island Turning Basins 34 feet deep by 900 feet wide by 1,000 feet long. Kings Island Turning Basin 42 feet deep by 1,500 feet wide by 1,600 feet long in the vicinity of the Garden City Terminal of the Georgia Ports Authority; Argyle Island and Port Wentworth Turning Basins 30 feet deep by 600 feet long and at the extreme upper limit of the project and a 1,200 foot long by 1,050 foot wide by 40 foot deep Oyster Bed Island Turning Basin in the vicinity of Georgia Ports Authority Lash Facility. The project also

provides for sediment control works consisting of an inactivated tide gate structure across Back River; a sediment basin 40 feet deep, 600 feet wide; about 2 miles long, with an entrance channel 38 to 40 feet deep and 300 feet wide; a drainage canal across Argyle Island 15 feet deep and 300 feet wide; control works and canals for supplying fresh water to the Savannah National Wildlife Refuge; and facilities to mitigate damages to presently improved areas other than refuge lands. Mean range of tide is 7.9 feet at the upper end of the harbor and 6.9 feet at the lower end. Extreme ranges are about 11.1 and 10.7 feet, respectively.

The tide gate structure across Back River was taken out of operation as of March 1991 to decrease salinity levels in the wildlife refuge. The drainage canal across Argyle Island, which was part of the original tide gate project, was closed as of April 1992 by the New Cut closure contract done by a Section 1135 program. The cost of this contract was $1,531,847.

Local Cooperation. Local interests must provide suitable disposal areas and retaining dikes for construction and future maintenance of the project. The Georgia Department of Transportation became the local sponsor in December 1999 and has met all requirements to date.

Terminal Facilities. Sixty-one piers and wharves adequately serve existing waterborne commerce of the port. These facilities, with use of dolphins, have a combined berthing space of 46,930 linear feet at mean low water. Included in the berthing space are six container berths with 271 acres of handling area. All have railway and highway connections. Lash Facilities are located at the entrance to the harbor and have depth ranging up to 38 feet mean low water. The berthing space of Lash facilities is included in the above combined berthing space. For further details, see Port Series No. 14, Corps of Engineers (revised 1982) and Annual Report for 1990.

Savannah Harbor Deepening. The Savannah Harbor Deepening project was authorized by WRDA 92 on October 31, 1992. The LCA was signed with the local sponsor and the Georgia Ports Authority, on March 2, 1993. Because Federal appropriations would be no earlier than FY 95, the LCA was written and negotiated to allow the local sponsor to up-front the construction funds upon project authorization and the signing of the LCA.

The first phase contracts for the Savannah Harbor Deepening project was awarded in March 1993 for the outer bar channel from Station 0+000 to -60+000 and the lower inner harbor channel from Station 0+000 to 70+000 for $7,298,876 and $8,748,883, respectively. The second phase that requiring significant real estate acquisition, was awarded in July 1993 from Station 70+000 to 103+000, for $4,675,376. The total project scope entails the deepening of the harbor by 4 feet, from -38 ft mlw to -42 ft mlw in the inner harbor and from -40 ft mlw to -44 ft mlw in the bar channel, for a total of 31 miles of harbor improvement.

Construction was initiated with the Inner Harbor contract (0+000 to 70+000) on May 1, 1993, and was completed on April 21, 1994. The authorized cost for the Savannah Harbor Deepening project is $50,050,000. The current estimated cost for the project is $28,107,635. New Work costs for the FY amounted to $8,462. (See Table 8-A for Cost and Financial Statement.)

New Work costs for the FY for Savannah Harbor Widening amounted to $704.

In the FY 95 appropriations bill, Congress provided $11,585,000 as reimbursement to the local sponsor for the Federal share of the NED plan. The appropriations bill also provided the $2,083,000 of those funds be provided for the cost shared Savannah Riverwalk Extension. The PCA for the Savannah Riverwalk Extension Project was executed on July 21, 1995. The final cost estimate for the project is $3,532,499, of which the Federal share was fixed at $2,083,000 and the City of Savannah's share was $1,449,499. Work was completed as scheduled on May 24, 1996 and a dedication ceremony took place on June 10, 1996. In November 1996, the Georgia Ports Authority received $7,500,000 towards their reimbursement of the Federal share of the project and the balance of the Federal share of $1,500,000 has been forwarded now that all the contracts have been closed out and the final audits completed.

Savannah Harbor Expansion. The Georgia Ports Authority completed the Feasibility Study and Tier I Environment Impact Statement (EIS) for the Savannah Harbor Expansion project in August 1998, under the authority of Section 203 of WRDA 86. Based on this study, WRDA 1999 gave a conditional authorization for construction. The conditions are the completion of a Chief's Report and the completion of a Tier II EIS and General Reevaluation Report (GRR). In addition, this Tier II EIS and GRR must obtain the approvals from the Secretary of the Army, the Director of the Environmental Protection Agency, and the Secretary of Commerce and Interior.

The Georgia Ports Authority is currently underway with the additional Environmental Studies as required by the authorization. These studies are scheduled for completion in FY 2005. The Georgia Ports Authority and the Department of the Army signed a Memorandum of Understanding in July 2001 regarding the preparation of the Tier II EIS. The authorization calls for the Savannah Harbor to be deepened as much as 6 feet, from the present –42 feet mlw to as deep as –48 feet at a first cost (October 1997 price levels) of $229,527,000.

In February 2002, the notice of intent to file a draft Tier II EIS on the project was published in the Federal Register.
An in-progress review (IPR) was held with HQUSACE

and OHSA C&W in October 2003.

Operations and Results During Fiscal Year. Maintenance. The District dredged the Inner Harbor from Station 0+000 to 112+500 and the Sediment Basin with a contract to Marinex Corporation using the dredges "Arlington and Hampton Roads". The dredges dredged 2,111,161 cubic yards and 33,121 ft of station dredging from Station 0+000 to 112+500 and 2,555,111 cubic yards from the Sediment Basin at a cost of $6,021,929. The dredge "Bayport" owned by Manson Construction Company dredged 529,921 cubic yards from the Entrance Channel at a cost of $1,803,661.

Operation and Maintenance costs for the FY amounted to $13,199,555, which included such items as water quality monitoring, project condition surveying, and cultural resources monitoring. (See Table 8-A for Cost and Financial Statement.)

Condition at End of Fiscal Year. Training walls, jetties, and other structures are in fair condition. Authorized channels are maintained by a planned dredging program with work at critical areas, when necessary. The notice on the Final Environmental Impact Statement appeared in the Federal Register June 25, 1976. Notices of availability on two Final Supplements to the Environmental Impact Statement appeared in the Federal Register September 25, 1978, and January 8, 1980.

5. SAVANNAH RIVER BELOW AUGUSTA, GA

Location. Savannah River is formed by the confluence of the Tugaloo and Seneca Rivers on the boundary line between South Carolina and Georgia. It flows southeast 314 miles, forming the boundary line between two states, and empties into the Atlantic Ocean 16.6 miles below Savannah, GA. (See NOAA Charts 11514 and 11515, formerly Geological Survey maps of South Carolina and Georgia.)

Previous Projects. For details see page 1813 of Annual Report for 1915 and page 581 of Annual Report for 1938.

Existing Project. The authorized project provides for a channel 9 feet deep and 90 feet wide (at ordinary summer flow of 5,800 second-feet at Augusta, GA) from the upper end of the Savannah Harbor to the head of navigation at Augusta, above the 13th Street Bridge (R.M. 202.6), a total distance of about 181 miles. A lock and dam is located approximately 15 miles below the upper limit of the project at New Savannah Bluff. Improvement is to be obtained by construction of contraction works, closure of cutoffs, bank protection, dredging, removal of snags, over hanging trees and wrecks, and open-river regulation. Mean tidal variation at the mouth of the river is 7 feet. Freshet variation above the normal pool level (elevation 114.5 mean sea level) of New Savannah Bluff Lock and Dam at mile 187 is ordinarily about 13 feet with an extreme of 34 feet. Due to lack of commercial use, the river has not been dredged since FY 79.

Local Cooperation. Complied with to date.

Terminal Facilities. The only water terminals served by this improvement are at Augusta, Sylvania, and at or near Savannah. Augusta provided a municipal dock valued at $50,000 and Georgia Ports Authority constructed a state port at Augusta, GA, costing about $418,000. These facilities were expanded in 1965 at an additional cost of about $250,000. These are supplemented by natural landings along the river and extensive facilities at Savannah.

Operations and Results During Fiscal Year. In general, open-channel works are in good condition. The notice on the Final Environmental Impact Statement appeared in the Federal Register February 18, 1977. There were no dredging projects during this fiscal year.

Operation and Maintenance costs for the FY amounted to $203,818. (See Table 8-A for Cost and Financial Statement.)

6. RECONNAISSANCE AND CONDITION SURVEYS

Condition Surveys were conducted in FY 03 on the following projects:

AIWW
Brunswick Harbor
Savannah Harbor

7. OTHER AUTHORIZED NAVIGATION PROJECTS

(See Table 8-C.)

8. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization). Expenditures in FY 03 totaled $37,326. Coordination account: $9,100;Port Wentworth, GA: $1,504; and Lazaretto Creek, GA: $28,211.

Mitigation of shore damages activities pursuant to Section 111, Public Law 90-483 (preauthorization). Tybee Island, GA incurred costs in FY 03 of $52,139.

Beach Erosion Control

9. TYBEE ISLAND, GA

Location. Tybee Island is located directly south of the Savannah River entrance, about 17 miles east of the City of Savannah, GA. (See NOAA 11512, 11513, and 11509, formerly U. S. Coast and Geodetic Survey Charts Numbers 440, 1240, and 1241, and on maps included in HD 92-105, 92nd Cong.) The only portion of the island that has developed is bounded on the north by the south channel of the Savannah River, on the east by the Atlantic Ocean, and on the south and west by Tybee Creek and other small tidal streams. The city of Tybee Island, GA, occupies this area, hereinafter referred to as "Tybee Island." The ocean face of this area has a wide sandy beach. Tybee Island is about 3.5 miles long from its northerly tip to the mouth of Tybee Creek with an average width of about 0.5 miles. Behind the beach lies a line of sand dunes, a number of which have been removed during the years to make room for improvements and for various other reasons. Those that remain are from 10 to 20 feet high. The ground elevation west of the dunes is from 10 to 18 feet and slopes westward to the salt marsh.

Existing Project. The Water Resources Development Act of 1976 authorized a Project Plan of Improvement for an 800-foot rock groin at the north end of the island, with a 225-foot tie-in to high ground. An additional 1,200-foot extension of this groin is deferred, as are two additional intermediate groins (480 feet long); these would be added at a later date, if needed. The plan also provided for the initial restoration of approximately 13,300 feet of beach, from the vicinity of 18th Street to the terminal groin located at the northern end of the island. Periodic nourishment is authorized to maintain suitable beach dimensions. Section 201 of the Flood Control Act of 1965, U.S. Senate Committee Resolution of June 22, 1971 approved the project as contained in House Document No. 92-105. The main features included a north terminal groin that was completed in June 1975; initial nourishment in March 1976; construction of the south terminal groin in February 1987; the first periodic renourishment in April 1987, and the second renourishment in July of 2000. The Federal Project included 2.6 miles of oceanfront beach between the north and south terminal rock groins.

Local Cooperation. Local interests must: (a) contribute in cash the required percentage of the first cost (including costs for construction, engineering and design, and administration; and excluding the cost of lands, easements, rights-of-way and relocation) of all items of work to be provided by the Corps of Engineers. The local contribution is presently estimated at 39.9 percent to be paid in a lump sum prior to start of construction or in installments prior to the start of pertinent work items in accordance with construction schedules as required by the Chief of Engineers, the final apportionment of cost to be made after the actual costs have been determined; (b) provide maintenance and repair of the groins, and provide (after the first 10 years of project life) periodic nourishment of the restored beach as may be required to serve the intended purpose during the life of the project; (c) provide without cost to the United States all lands, easements, rights-of-way, and relocations required for construction and subsequent nourishment of the project; (e) control water pollution to the extent necessary to safeguard the health of bathers; and (f) provide, without cost to the United States, access and facilities necessary for realization of the public benefits upon which Federal participation is based, and maintain continued public use of the beach and administer it for public use during the life of the project, and provide further the construction on the project shall not be started until local interests furnish lands for beach access and parking, satisfactory to the Chief of Engineers, for the entire project limits.

Condition at End of Fiscal Year. Section 934 of 1986 WRDA and Corps policy guidance required a reevaluation of renourishment projects. The purpose was to determine if future renourishments met current policy and further Federal participation was justified. The analysis, completed in October 1994, recommended extending the project life for the remaining 28 years of the 50-year project life. Section 506 of 1996 WRDA, approved in June 1995, was the formal Secretary of the Army authorization to continue periodic renourishment until 2024. The analysis further indicated the National Economic Plan (NED) might be different than the authorized project and lead to a more detailed analysis in the Special Report on South Tip Beach/Back River.

The Asst. Secretary of the Army (Civil Works) approved the Special Report on South Tip Beach/Back River on August 24, 1998. The report determined the South Tip and Back River segments should be added to the authorized project. It resulted in passage of Section 301 of 1996 WRDA that modified the authorized project to include the portion of Tybee Island located south of the existing south terminal groin between 18th and 19th Streets, including the east bank of Tybee Creek up to Horse Pen Creek as shown below. The project now extends from the north terminal groin southward for 3.5 miles to Horsepen Creek.

Section 301 of Water Resources Development Act of 1996 modified the authorized project as follows:

> *SECTION 301(b) PROJECTS SUBJECT TO REPORTS.--The following projects are modified as follows, except that no funds may be obligated to carry out work under such modifications until completion of a report by the Corps of Engineers finding that such work is technically sound, environmentally acceptable, and economically justified.*
>
> *(4) TYBEE ISLAND, GEORGIA.--The project for beach erosion control, Tybee Island, Georgia, authorized pursuant to section 201 of the Flood Control Act of 1968 (42 U.S.C. 1962d-5; 79 Stat. 1073-1074) is modified to include as an integral part of the*

project the portion of Tybee Island located south of the existing south terminal groin between 18th and 19th Streets, including the east bank of Tybee Creek up to Horse Pen Creek.

The Department of the Army and the City of Tybee Island, Georgia, signed a Project Cooperative Agreement (PCA) that allowed renourishment of oceanfront, nourishment of a State placed groin field on South Tip, and construction of several rock groins and initial nourishment in Back River. (Civil Works) City of Tybee Island is the non-Federal sponsor for the project. The agreement is included in Appendix B. The project, now constructed, includes:

- Renourishing 13,200 feet of oceanfront beach between north and south Federal terminal groins to provide minimum 124-foot wide beach at high tide.
- Constructing rock groin field along 1,800 feet of Back River Beach.
- Restoring the beach along Back River Beach.

In September 1999, construction of the Back River Beach groins began and the associated beach renourishment was completed in July 2000.

The District continued the long term monitoring in FY 2002, performing two full beach surveys in March and August at a contract cost of $27,857. The surveys showed only slight erosion occurring along the Ocean Front beach with marked erosion along the Back River segment. Per the Operations and Maintenance Manual, the South Tip groins were notched once the total erosion between the three Back River cells exceeded 40 percent of the baseline volume. The notching occurred on October 16, 2002 with six of the Campbell units removed from the oceanward end of the three groins. Pre-notching topographic survey information was gathered on October 13, 2002. Agreement was reached that requires three of the units to be replaced if the total sand loss in any cell reaches 30 percent or three feet on average along the seawall in any groin cell or if five feet of the seawall is exposed at any given location within the groin fields.

In FY 2003, the District continued to monitor the beach profiles with particular emphasis on the South tip and Back River. Two monitoring surveys of the Back River and South Tip were taken on 13 October 2002 and 15 January 2003. There was 100 cubic yards of material gained on the Back River while 3000 cubic yards of material were gained on the South Tip and between the groins. The criteria to replace the Campbell Units was as follows:

Review Monitoring surveys after 6 months.
1) If 50% of material lost off South Tip is not accreted on the Back River Beach, replace the modules.
2) If the Sea wall is exposed for 25 feet or less or an average 3 feet maximum of 5 feet is exposed at any given location between the groins the modules must be replaced.
3) Terminate if more than 30% in any groins cell on the South Tip is lost or if 25% or less of the material quantity eroded from the South Tip is accreted on Back River Beach, or the dune system is threatened.
4) Terminate if documented hazards exist to bathers.

A full monitoring survey of the entire beach was completed on 13 June 2003. The beach face was shown to be eroding and the local sponsor requested an analysis, as it appeared the groin notching was exacerbating the erosion. The analysis was inconclusive and the experiment was continued. By October 2003, the beach face along the southern end had eroded but the South Tip and Back River had accreted dramatically with a huge sand bar forming along Pelican spit.

The studies planned for FY 04/05 were an analysis of the possibly of including the North Beach into the federal project, a General Reevaluation Report of the existing project and a Section 111 study to determine the impacts to the beach caused by the Savannah Harbor Federal navigation channel. Of the $225,000 requested in FY04, Congress under the CG Program allocated only $150,000 of federal funds. Only $116,000 of that was available due to Saving and Slippage.

Flood Control

10. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Expenditures for the FY amounted to $30,142. (See Table 8-A&D.)

11. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 8-D)

12. OATES CREEK, RICHMOND COUNTY, GA

Oates Creek is a major drainage outlet for flood water from an urban area of Augusta, GA. A flood control study of Oates Creek was authorized and completed as part of the Savannah River Basin study. The Oates Creek study area is located just south of Augusta in Richmond County.

The revised FEMA mapping has been prepared in order to reduce the flood insurance costs of the inhabitants of the Oates Creek Basin. The Operation and Maintenance manual was completed in December 1993 and the project was turned over to Richmond County for long term maintenance. For more details, see Annual Report

for FY 1995. Based on the Design Deficiency Evaluation Reconnaissance Report, the Oates Creek project will require some repair and improvement work. The deficiency correction is currently on hold awaiting available funds to award the contract for the construction. Total cost of the repair project is $2,230,000. New Work costs for the FY amounted to $72,814.

13. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

These Flood Damage Reduction activities are accomplished under the authority of Section 205, Flood Control Act of 1948 (Public Law 858, 80th Congress) as amended. During FY 02 a total of $251,747 was spent on preauthorization flood damage reduction studies. Study efforts during FY 03 were as follows: Coordination Account: $20,344; Harmon Canal: $139,266; and Unnamed Tributaries Ben Hill County: $92,137.

14. EMERGENCY STREAMBANK AND SHORELINE PROTECTION UNDER SPECIAL AUTHORIZATION

In FY 03, costs were incurred for Section 14, Coordination Account: $7,584 and Augusta Ports: $3,000.

Environmental Restoration

15. PROJECT MODIFICATION TO IMPROVE ENVIRONMENT UNDER SPECIAL AUTHORIZATION

These projects are accomplished under the authority of Section 1135, Water Resources Development Act of 1986 (Public Law 99-662) as amended. During FY 03 costs were incurred as follows: Coordination Account: $18,017 and Preliminary Restoration Plan: $17716. Environmental study efforts were as follows: Back River Restoration, GA: $34,993.

16. AQUATIC ECOSYSTEM RESTORATION UNDER SPECIAL AUTHORIZATION

These projects are accomplished under the authority of Section 206, Aquatic Ecosystem Restoration, Water Resources Development Act of 1996. During FY 03 costs were incurred as follows: Coordination Account: $23,857; Preliminary Restoration Plans: $-8,226; Beaver Ruin Creek: $135,686; Jackson Creek: $62,520; Mill Creek: $110,257; and Quacco Canal: $180,038.

Multiple-Purpose Power Projects Including Major Rehabilitation

17. J. STROM THURMOND DAM AND LAKE, GA AND SC (Formerly Clark Hill Lake)

Location. J. Strom Thurmond Dam and Lake is located at mile 237.7 on the Savannah River about 22 miles upstream from Augusta, GA. (See Geological Survey maps of GA and SC.)

Existing Project. The authorized project provides for construction of J. Strom Thurmond Dam and Reservoir, the final cost of which was $79,156,300. The dam has a concrete section 2,282 feet long with a maximum height of 200 feet and a controlled spillway 1,096 feet long. The concrete section is flanked on the west side by a rolled-earth embankment of 2,069 feet and on the east side by a similar embankment of 1,329 feet.

The total length of the dam is 5,680 feet. The lake covers 71,100 acres at maximum power pool elevation 330 msl. It provides a total storage capacity of 2,900,000 acre-feet allocated as follows: flood control 390,000 acre-feet; hydropower 1,045,000 acre-feet; dead storage 1,465,000 acre-feet. At the end of the FY there were 3 units at 48,000 Kilowatts, 2 units at 52,000 Kilowatts, 2 units unavailable for rehab for a capacity of 248,000 Kilowatts. with an average annual output of 700 million kilowatt-hours of electrical energy.

Local Cooperation. None required.

Operations and Results During Fiscal Year. Net generations of electric energy for the period was 1,194,010 megawatt-hours, all of which was marketed by the Southeastern Power Administration. Cumulative flood damage prevented through FY 03 was $38,471,744. Maintenance: Operation and Maintenance costs for the FY amounted to $8,932,418. (See Table 8-A for Cost and Financial Statement.) The notice of availability on the Final Environmental Impact Statement on J. Strom Thurmond Dam and Reservoir Operation and Maintenance appeared in the December 18, 1981 Federal Register. In FY 03, 5,881,234 persons visited the facility.

Condition at End of Fiscal Year. Construction is complete except for providing additional recreational development.

Major Rehabilitation. The J. Strom Thurmond Powerplant was included as a project in the Major Rehabilitation Program in 1996. An Evaluation Report was approved in July 1994. Appropriations were provided in the FY 96 Energy and Water Bill in November 1996. Current estimate is $69,700,000. All eight contracts have been awarded. Current project cost estimate remains at $69,700,000. Project completion date is May 2006. Currently seven of the eight contracts have been completed in FY 03 with one more scheduled

for completion in 2006. Major Rehabilitation costs for the FY amounted to $9,096,499. (See Table 8-A for Cost and Financial Statement.)

18. HARTWELL DAM AND LAKE, GA AND SC

Location. Hartwell Dam and Lake is on the Savannah River 305 miles above its mouth and 89 miles upstream from Augusta, GA (See Geological Survey maps of GA and SC.)

Existing Project. The dam is a concrete gravity-type structure 1,900 feet long with a maximum height of 204 feet and a controlled spillway 480 feet in length. The concrete section is flanked on the east and west abutments by earth embankments totaling 13,362 feet in length and by a saddle dike 2,590 feet long also on the west side. Total length of the dam is 17,852 feet. At maximum conservation pool elevation of 660 feet the lake covers 55,950 acres. Total capacity of the lake is 2,843,000 acre-feet of storage allocated as follows: flood control - 293,000 acre-feet; hydropower - 1,416,000 acre-feet; dead storage - 1,134,000 acre-feet. Four 66,000 kilowatt generators having a generating capacity of 264,000 kilowatts were installed initially with provisions for a fifth unit. Unit 5 went into operation in 1983 with a nameplate rating of 80,000 kilowatts. Rehabilitation Phase I is complete for Units 1-4 and has increased their nameplate rating to 85,500 kilowatts for a total plant nameplate capacity of 422,000 kilowatts.

Local Cooperation. None required.

Operations and Results During Fiscal Year. Net generation of electrical energy for the period amounted to 761,270 megawatt-hours, all of which was marketed by the Southeastern Power Administration. Cumulative flood damage prevented through FY 03 is $19,114,334. Maintenance: Operation and Maintenance costs for the FY amounted to $14,653,419. (See Table 8-A for Cost and Financial Statement.) The notice on the Final Environmental Impact Statement on the operation and maintenance of Hartwell Dam and Lake appeared in the Federal Register on August 21, 1978. Approximately 10,010,012 persons visited the lake in FY 03.

Major Rehabilitation. The Hartwell Powerplant Major Rehabilitation project was approved by HQUSACE, and was included in the FY 96 budget. The project scope includes the rewinding of the first four generators, the replacement of the transformers, the refurbishment of the turbine water passageways, and the replacement of key electrical/mechanical peripheral equipment and the replacement/refurbishment of the four older headgates. The fully funded cost for the recommended plan is $26,000,000. All five contracts have been awarded and Rehabilitation Phase I was completed in September 2000. Rehabilitation Phase II is underway with plans and specifications being completed in FY 03. Phase II will include replacing the exciters and voltage regulators, governor upgrades, replacing the 230kV switchyard breakers, and upgraded the switchyard equipment and current capacity. Funding in the amount of $10 million has been authorized for Phase II Rehabilitation Program. Schedule for completion of Rehab Phase II is FY 05. Major Rehabilitation costs for the FY amounted to $768,136.

19. HARTWELL LAKE/CLEMSON UPPER & LOWER DIVERSION DAMS, GA AND SC

Location. Both Diversion Dams are located on Government property located between Clemson University and the Savannah River Basin on the South Carolina side of Hartwell Lake, approximately 20 miles upstream of Hartwell Dam.

Existing Project. The Remedial Measures to Increase Post Earthquake Stability for both Upper and Lower Clemson Diversion Dams in accordance with the Dam Safety Assurance Program was authorized in Senate and House Committee resolutions pursuant to the Water Resources Development Act of 2000, as presented to 106th Congress dated January 24, 2000.

Both upper and lower earthen dams were constructed in 1960 and 1961 prior to the impoundment of Hartwell Reservoir to protect Clemson University lands and existing facilities. The upper dam is 2,100 feet and the lower dam is 3,000 feet long, both have a maximum height of 75 feet. Seismic evaluation indicates that the downstream slopes of both dams (the Clemson University side) will fail from seismic events that could occur with a probability of once in every 475 years. Earthquake triggering events of as low as .07 to .10 g forces could cause liquefaction and subsequent failure. In this scenario, 390 acres of Clemson University will flood in about 5 hours. Economic damage is estimated at $1.1 billion and there is a high probability that human life will be lost in such event.

The total project for both upper and lower diversion dams includes the following construction components:

a. **Excavation at Upper & Lower Dams**

- Temporarily excavate existing material from the downstream side over the entire 2,100 and 3,000 foot lengths of both upper and lower dams, respectively. The excavation will take place between approximate elevations of 645 to 640' msl. This section traverses 50 feet perpendicular to the dams and involves removing material to an average depth of about 16 feet.

b. **Deep Soil Mixing at Upper and Lower Dams**

• Deep soil mixing elements will be installed to a depth of two feet below the existing loose alluvium layer. The deep soil mixing elements will be installed into 3 to 8 foot diameter auger holes driven to a varying depths of 40 to 45 feet. All holes will be overlapped into each other to create 50 foot continuous ground walls oriented perpendicular to the axis of each dam and spaced every 11.5 feet. A longitudinal wall paralleling the dam axis will connect the upstream ends of the transverse walls and they run the entire lengths of both dams.

c. **Restore Downstream Side of the Dams to Original Template**

Original excavation material will be reused. Excess excavated material will be placed in the lower berm.

Local Cooperation. None required.

Condition at End of Fiscal Year. The project is funded with construction general funds. The total project cost estimate is $8,741,000 and this figure includes all engineering and design as well as supervision and administration during construction and a 25 percent contingency on the construction cost estimate. The project design was completed in June 2004 and it was awarded for construction in September 2004. The construction period is 18 months and scheduled for completion in May 2005. New work costs for the FY amounted to $382,570. (See Table 8-A for Cost and Financial Statement.)

20. RICHARD B. RUSSELL DAM AND LAKE, GA AND SC (Formerly Trotters Shoals Lake, GA and SC)

Location. Richard B. Russell Dam is located on the Savannah River 275.1 miles above its mouth, 29.9 miles below Hartwell Dam, and about 37.4 miles above J. Strom Thurmond Dam (formerly Clarks Hill Dam). (See NOAA Survey maps of GA and SC.)

Existing Project. The authorized project provides for construction of Richard B. Russell Dam and Lake substantially in accordance with the recommendations. The latest approved (FY 03) cost estimate for the project is $626,000,000 of which $466,969,000 is for construction; $28,857,000 for lands and damages; $4,880,000 for cultural resources; and $124,174,000 for engineering/design, supervision/administration, and all project studies, including environmental. Approval was received in January 1977 to include minimum provisions for pumped storage.

A Feasibility Report and Final Environmental Impact Statement to address the installation and operation of four 75 MW reversible pump-turbines were prepared in 1979 with the Record of Decision signed in August 1980. The Richard B. Russell Fish and Wildlife Mitigation Plan was completed in 1981, approved by the Assistant Secretary of the Army (Civil Works) in September 1982, and the provisions are being implemented. Since 1986, the District has conducted comprehensive Fishery studies in the Russell tailrace and J. Strom Thurmond Lake (formerly Clarks Hill Lake) downstream. In addition, the District conducted water quality studies, hydraulic modeling, and an evaluation of various fish protection measures associated with hydroelectric projects. The results of these study efforts have been used to evaluate the need to develop fish protection at the Richard B. Russell Project associated with pumped storage operations. This evaluation is presented in a supplement to the final Environmental Impact Statement (EIS) on pumped storage. The Record-of-Decision (ROD) was signed September 1991. Installation of pumped storage is complete; final Phase III environmental testing was completed in October 1996.

The Phase III Environmental Report and its Interagency Review was completed in August 1997. The District completed the NEPA Documentation Phase and also completed discussions with the resource agencies in attempting to resolve issues. SAS reached an agreement with SCDNR on operational measures and general mitigation package. The remaining issue was that SC insisted on a consent order for commercial operations. COE could not accept this condition and attempted to resolve this with a Memorandum of Agreement (MOA) in addition to the NEPA Documentation. SCDNR did not accept the MOA. DOJ/USACE request for summary judgement and oral arguments were presented in the Charleston, SC U.S. District Court on October 17, 2000, requesting release from the injunction to commercially operate this 320 mw addition. The court ruled in the Corps' favor on May 3, 2002 and the units were placed into commercial production on September 1, 2002. All cost shared recreation is complete except a wilderness park that was planned in the McCalla Peninsula.

Local Cooperation. Federal Water Project Recreation Act. Public Law 89-72; 79 stat. 213C (for Legislative History of Act see page 1864).

Operations and Results During Fiscal Year. Net generations of electric energy for the period were 746,708 megawatt-hours. Maintenance: Operation and Maintenance costs for the FY amounted to $6,693,069. (See Table 8-A for Cost and Financial Statement.) These funds were for management of lake and power activities. (See Table 8-A for Cost and Financial Statement.) Approximately 1,070,622 persons visited the lake in FY 03.

Condition at End of Fiscal Year. The project is 97 percent complete.

Total cost of project to September 30, 2003, is $730,164,873. New Work costs for the FY amounted to $2,834,081. (See Table 8-A for Cost and Financial Statement.)

General Investigations

21. SURVEYS

During FY 02, costs of $1,042,728 were incurred as follows: Flood Damage Prevention Studies: $412,547; Special Studies: $237,479; Watershed/Comprehensive Studies: $250,871; Review of Authorized Projects: $69,961; and Miscellaneous Activities: $71,870.

22. COORDINATION WITH OTHER AGENCIES

Planning Assistance to States activities are accomplished under the authority of Section 22, Water Resources Development Act of 1974, as amended. During FY 03, a total of $151,759 was expended.

23. COLLECTION AND STUDY OF BASIC DATA

During FY 03, under the Flood Plain Management Services Program, flood hazard related information and assistance were provided to state and local governments on a nonreimbursable basis and to other Federal agencies and private persons on a cost recovery basis. Expenditures were as follows: Flood Plain Management Services: $25,982; Technical Services: $34,985; Quick Responses: $20; five Special Studies: $56,465; HES Dialogue: $59; and Hydrologic Studies: $15,203.

24. PRE-CONSTRUCTION ENGINEERING AND DESIGN (PED)

Total PED expenditures in FY 03	
Projects Not Fully Authorized:	$699,642.
Projects Fully Authorized:	335,490.

Savannah Harbor Expansion, GA & SC: $699,642. Congress added funds for development of the tier II EIS, General Reevaluation Report and the Federal Oversight of the project that was formulated by a non-Federal interest (The Georgia Ports Authority) (GPA) under Section 203 of WRDA 86. The project was conditionally authorized for construction by Congress in the Water Resources Development Act of 1999. The GPA is conducting numerous studies and data gathering under Federal oversight for the required Tier II Environment Impact Statement.

New Savannah Bluff Lock & Dam, GA & SC: $335,490. In the Water Resources Development Act of 2000 and Omnibus Appropriation Act, January 2001, Congressional direction was provided to repair the project at Federal expense, including provision of a fishway. Congressional authorization to transfer the project to the City of North Augusta and Aiken County, SC after the repairs was also provided. This project consists of a lock chamber, dam, operation building, and a 50-acre park and recreation area in Georgia. A naturalistic designed channel will be built on Government property located on the SC side of the facility.

Miscellaneous

25. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

Continuity of Operations	$ 13,962
Catastrophic Disaster Response Planning	0
Emergency Operations Support	1,220
CDRP Training & Exercise	6,093
TOTAL:	$ 21,275

26. OTHER PROGRAMS AND ACTIVITIES

J. Strom Thurmond	$ 37,400
Hartwell Lake MPP	28,800
Ranger Uniforms	4,101
R.B. Russell Dam & Lake MPP	25,800
Anti-Terrorism/Force Protection	15,253
TOTAL:	$111,354

27. FLOOD CONTROL AND COASTAL EMERGENCIES

Disaster Preparedness Program (Code100)	$387,509
Emergency Operations (Code 200)	16,855
Rehabilitation (Code 300)	0
Reimbursable Work for Others	171,921
TOTAL	$576,285

28. GENERAL REGULATORY FUNCTIONS

Permit Evaluation	$2,762,000
Enforcement	559,000
Studies	0
Environmental Impact Statement	0
Administrative	Appeals
0	
Compliance	372,000
TOTAL:	$3,693,000

29. RIVERS AND HARBORS CONTRIBUTED FUNDS

Contributed funds expended in FY 03 for authorized Federal studies included:

Ben Hill County, GA	$69,643
Brunswick Harbor, GA	3,406,017
Chatham County Emergency Flood Reduction Study Augusta-Richmond, GA	416,784
Harmon Canal, GA	70,001
Lower Savannah River Restoration Study	14,667
Oates CR. Flood Control	7,684
PAS-GA-Port Wentworth	0
PAS-GA-SWCC Dam Safety	24,806
PAS-GA-Effingham Co. Stromwater Mgmt	27,227
PAS-Flint, Ogeechee Chattahoochee RVR	238
Savannah Harbor, GA	598,717
Savannah River Basin Comp	86,547
Savannah River Below Augusta	15,500
Savannah Harbor Navigation	3,128,314
Tybee Island, GA	13,928
TOTAL:	$7,881,013

TABLE 8-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY-00	FY-01	FY-02	FY-03	Total to Sep 30, 2003
1.	Atlantic Intra-coastal Water-way between Norfolk, VA, and the St. Johns River, FL	New Work:					
		Approp.	--	--	--	--	958,096(1)
		Cost	--	--	--	--	958,096(1)
		Maint:					
		Approp.	1,567,808	1,847,838	2,786,400	213,922	40,727,475(2)
		Cost	1,641,128	1,679,850	2,828,850	324,936	40,712,264(2)
2.	Brunswick Har-bor, GA	New Work:					
		Approp.		210,000	1,311,000	8,903,000	16,955,608(3)
		Cost	503,000	158,939	1,300,474	8,952,434	17,728,699(3)
		Maint:					
		Approp.	446,633	3,226,224	2,310,600	2,565,081	115,016,333(4)
		Cost		3,230,769	2,371,140	2,536,600	113,859,734(4)
	(Contributed Funds)	New Work:	7,030,500				
		Approp.	7,032,468	10,971	1,370,650	2,400,000	
		Cost		204,773	16,089	3,387,697	
			--				
			-2,876				
3.	Lower Savannah River Basin, GA & SC	New Work:					
		Approp.	168,000	157,000	2,351,000	26,000	2,702,000
		Cost		175,806	2,438,534	26,377	2,701,802
			61,085				
	(Contributed Funds)	New Work:					
		Approp.	--	220,000	900,000	-45,000	
		Cost	--	330	1,052,318	14,667	
4.	Savannah Har-bor, GA	New Work:					
		Approp.		177,000	540,000	648,000	68,992,721(5)
		Cost	163,000	214,474	510,662	699,641	68,374,215(5)
		Maint:	217,928				
		Approp.		10,734,414	7,124,103	13,105,549	296,690,127(6)
		Cost	13,581,368	10,631,540	7,267,055	13,199,555	296,952,028(6)
			13,571,188				
	(Contributed Funds)	New Work:					
		Approp.		564,126	5,760,855	---	
		Cost		3,941,368	5,348,842	598,717	
			30,540,032				
			2,183,377				
5.	Savannah River below Augusta, GA	New Work:					
		Approp.	--	--	--	--	6,790,031(7)
		Cost	--	--	--	--	6,790,031(7)
		Maint:					
		Approp.	194,000	205,602	218,907	183,761	25,483,041
		Cost	286,419	196,625	203,072	203,818	25,422,106

TABLE 8-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY-00	FY-01	FY-02	FY-03	Total to Sep 30, 2003
9.	Tybee Island, GA	New Work:					
		Approp.	--	--	30,000	---	10,415,249(8)
		Cost		56,882	12,985	52,139	10,074,019(8)
			3,992,265				
	(Contributed Funds)	New Work:					
		Approp.		--	--		
		Cost		10,987	54,177	13,928	
			700,000				
			3,617,006				
10.	Inspection of Completed Flood Control Projects	Maint:					
		Approp.		47,787	24,897	30,144	963,745
		Cost	62,853	49,084	26,958	30,142	965,739
			66,503				
17.	J. Strom Thurmond Dam and Lake, GA and SC (Formerly Clark Hill Lake)	New Work:					
		Approp.	--	--	--	--	
		Cost	--	--	--	--	84,880,940(9)
		Maint:					84,876,004(9)
		Approp.		13,462,238	8,745,961	9,238,323	
		Cost	8,449,500	10,594,980	11,172,854	8,932,418	217,686,367(10)
			10,116,982				216,895,145(10)
		Major Rehab:					
		Approp.		5,055,000	7,981,000	9,037,000	
		Cost	8,500,000	6,037,635	8,579,369	9,096,499	47,848,000
			9,187,982				47,842,788
18.	Hartwell Dam and Lake, GA and SC	New Work:					115,874,985(11,12)
		Approp.					115,876,925(11,12)
		Cost					
		Maint:	9,702,500	14,138,464	12,917,881	14,531,146	222,846,618(13)
		Approp.	10,300,248	12,546,343	14,266,316	14,653,419	223,400,035(13)
		Cost					
		Major Rehab:	5,086,000	-65,000	2,558,000	528,000	34,959,950
		Approp.	5,909,315	682,712	2,436,595	768,136	32,479,511
		Cost					
19.	Hartwell Lake/ Clemson Upper & Lower Diversion Dams, GA and SC	Major Rehab:					
		Approp.			315,000	396,000	711,000
		Cost			637,499	382,570	1,020,069
20.	Richard B. Russell Dam and Lake, GA and SC (Formerly Trotters Shoals)	New Work:					
		Approp.	2,882,000	5,084,000	2,789,000	1,316,455	
		Cost	2,517,471	4,979,574	2,135,692	2,834,081	634,779,455
		Maint:					633,763,622
		Approp.	7,149,000	8,274,689	8,561,334	6,729,434	
		Cost	8,073,013	8,380,386	8,470,540	6,693,069	96,839,448

TABLE 8-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY-00	FY-01	FY-02	FY-03	Total to Sep 30, 2003
							105,928,401

1. Includes $194,497 for previous projects.
2. Includes $134,789 for previous projects. Does not include $35,000 appropriated but unexpended of contributed funds in FY's 86 and 87.
3. Includes $643,456 for previous projects and $97,521 expended from Public Works Funds for existing project. Does not include $10,000 contributed funds.
4. Includes $54,414 for previous projects, $4,995 expended from Public Works Funds for existing project, and $2,150,000 under 1983 Job Bill Act. Does not include contributed funds by Brunswick and Georgia Port Authority.
5. Includes $7,260,384 for previous projects. Does not include $46,847 for removal of sunken vessels or contributed funds.
6. Includes $298,894 for previous projects and $62,727 contributed funds.
7. Includes $93,480 for previous projects and $1,634,562 from Public Works Fund.
8. Does not include $61,856 contributed funds.
9. Does not include $395,634 accelerated Public Works Funds. Includes $4,448,613 appropriated under Code 710. Also includes $1,000,000 expended under the 1983 Job Bill Act.
10. Includes $576,665 under special recreation use fees and $736,000 under the 1983 Job Bill Act.
11. Includes $17,515,000 appropriated for construction of 5th Unit of which $17,469,002 has been expended.
12. Does not include $276,200 accelerated Public Works Funds. Includes $4,861,000 appropriated under Code 710 of which $4,851,306 has been expended and $545,000 expended under the 1983 Job Bill Act.
13. Includes $797,558 expended for special recreation use fees.

TABLE 8-B **AUTHORIZING LEGISLATION**

1.		ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA, AND ST. JOHNS RIVER, FL (SAVANNAH DISTRICT)	
	Jun 3, 1896	Section from Beaufort, SC, to Savannah, GA Route No. 2 adopted.	HD295, 53d Cong., 3d sess.
	Mar 3, 1899	Route No. 1 adopted.	HD295, 53d, Cong., 3d sess.
	Jul 13, 1892	Section from Savannah, GA, to Fernandina, FL. Original 7-foot channel.	HD41, 52d Cong., 1st sess.
	Mar 3, 1905	Provided for Skidaway Narrows.	HD450, 58th Cong., 2d sess.
	Jul 25, 1912	Incorporated alternative routes previously improved as separate projects and the auxiliary channels.	HD1236, 60th Cong., 2d sess.
	Aug 8, 1917	Section from Cumberland Sound, GA and FL to St. Johns River, FL. Consolidation of the 3 sections	

TABLE 8-B		AUTHORIZING LEGISLATION	
		shown above, into "Waterway between Beaufort SC, and St. Johns River, FL."	
	Mar 2, 1919	Section from Beaufort, SC to Cumberland Sound GA and FL. Removing logs and snags from Generals Cut.	HD581, 63d Cong., 2d sess.
	Mar 2, 1919	Improving Back River to provide a channel 7 feet deep and 150 wide.	HD1391, 62d Cong., 3d sess.
	Mar 3, 1925	Channel 75 feet wide between Beaufort, SC, and Savannah, GA.	SD178, 68th Cong., 2d sess.
	Jul 3, 1930	Channel from Baileys Cut to Dover Creek.	SD43, 71st Cong., 2d sess.
	Aug 26, 1937	A 7-foot protected channel around St. Andrews Sound.	Senate Committee Print, 74th Cong., 1st sess.
	Aug 26, 1937	A 12-foot channel between Beaufort, SC, and Savannah, GA, via Beaufort River and Port Royal Sound.	Rivers and Harbors Committee, Doc 6, 75th Cong., 3d sess.
	Jun 20, 1938	A 12-foot channel between Savannah, GA, and Fernandina, FL, various cutoffs; and anchorage basin at Thunderbolt, GA.	HD618, 75th Cong., 3d sess.
	Mar 2, 1945	An alternate route 9 feet deep and 150 feet wide in that part of Frederica River, GA, not now traversed by the main route, at no additional cost to the United States.	HD114, 77th Cong., 1st sess.
	Oct 15, 1981	Main channel relocated from Frederica River to Mackay River in the vicinity of Torras Causeway. Navigation Project.	Project authorized by Chief of Engineers under the Small Navigation Project Authority, Sec. 107, PL 86-645, as amended.
2.		BRUNSWICK HARBOR, GA	
	Mar 3, 1879	Construction of East River jetty.	Annual Report, 1980, p.959.
	Mar 2, 1907	Channels in the inner and outer harbors of 30-foot depth at mean high water, with widths varying from 150 feet in Academy Creek to 400 feet across the outer bar, extension of training wall in East River and construction of two spur dikes.	HD407, 59th Cong., 1st sess.
	Mar 2, 1919	Channels 27 feet deep at mean low water over the bar and at Brunswick point; and 24 feet deep at mean low water in the inner harbor and provides for a cut from Academy Creek to Turtle River, if deemed advisable.	HD393, 64th Cong., 1st sess.
	Jul 3, 1930	A channel in Back River 230 feet deep and 150 feet wide.	SD57, 71st Cong., 2d sess.
	Jul 3, 1930	Increased Channel dimensions of the bar, Brunswick Point, East River, and Turtle River, as given in the then existing project.	SD132, 71st Cong., 2d sess.
	Jun 20, 1938	A 10-foot channel in Terry Creek.	HD690, 75th Cong., 3d sess.
	May 17, 1950	Increased channel dimensions of the bar, St. Simons Sound, Brunswick River, East River, and Turtle River, as given in the existing project.	HD110, 81st Cong., 1st sess.
	Oct 22, 1976	Provides for Phase I AE&D studies for deepening portions of existing harbor (East River and Entrance Channel) and for provision of a navigation channel to Colonels Island.	Report of Chief of Engineers dated Aug. 18, 1976.
	Jul 14, 1981	Enlargement of the maneuvering area of the entrance to East River and dredging Brunswick and Turtle Rivers to obtain depths authorized by the Rivers and Harbors Act of May 17, 1950.	HD177, 97th Cong., 1st sess.
	Jul 13, 1983	Enlargement of the East River Turning Basin to a length of 1,000 feet and a width of 750 feet.	PL 98-360
	Oct 17, 1986	Incorporated Georgia Port Authority's 30 foot deep	HR6, 99th Cong., 2d sess., Sec-

TABLE 8-B		AUTHORIZING LEGISLATION	
		by 300 foot wide by 8000 foot channel in South Brunswick River serving Colonel's Island into Brunswick Harbor Navigation Project. A six foot deepening in the inner harbor from 30 to 36 feet and the bar channel from 32 to 38 feet, construct a new turning basin in Upper East River, and widen inner harbor to 400 feet. Construct a 10 acre migratory bird nesting island as a beneficial use of dredged material and a 1300 foot bend widener for safe ship handling.	tion 846 PL 108-07 WRDA 99
3.		LOWER SAVANNAH RIVER BASIN, GA & SC	
	PL-104-303 Water Resources Development Act of 1996, Oct 12, 1996	Project for the environmental restoration of the Lower Savannah River Basin; modification to cut off Bend No. 3 and improve the mouths of Bear Creek and Mill Creek.	HD105-173, 105th Congress, 2nd Session, Jan 27, 1998
4.		SAVANNAH HARBOR, GA	
	Mar 2, 1907	Tentative provisions for a 26-foot channel from the Quarantine Station to the Seaboard Air Line Railway Bridge.	HD181, 59th Cong., 1st sess.
	Jun 25, 1910	Definite provision for the 26-foot channel.	
	Jul 25, 1912	A 21-foot channel from the Seaboard Air Line Railway Bridge to the foot of Kings Island.	HD563, 62d, Cong., 2d sess.
	Aug 8, 1917	A 30-foot depth from the sea to the Quarantine Station.	HD1471, 64th Cong., 2d sess.
	Jan 21, 1927	A 21-foot channel above Kings Island.	HD261,69th Cong., 1st sess.
	Jan 21, 1927	Channel 30 feet deep, with general width 50 feet, from the ocean to the Quarantine Station, thence 26 feet deep, general width 400 feet, to the Seaboard Air Line Rho. Bridge, thence 21 feet deep and 300 feet wide to Kings Island. Widening at West Broad and Barnard Streets; anchorage basin; mooring dolphins; regulating dam across South Channel; relocation of the Inland Waterway; dredging Drakes Cut to 13 feet; widening to 525 ft. at Kings Island; exten sion of training walls, revetments, and jetties. Consolidation of projects relating to Savannah Harbor.	HD262,69th Cong., 1st sess.
	Jul 3, 1930	Channel 26 feet deep and 300 feet wide from the Seaboard Air Line Rho. Bridge to the foot of Kings Island.	SD39, 71st Cong., 1st sess.
	Aug 30, 1935	Authorized the 30-foot project and eliminated from the project (a) the relating dam across South Channel; (b) the relocation of the Inland waterway; and (c) the further extension of training walls, revetments, and jetties.	HD276, 73d Cong., 2d sess.
	Mar 2, 1945	Deepening the channel and turning basin above the Seaboard Air Line Rho. Bridge from 26 to 30 feet and widening the channel opposite the Atlantic Coast Line Terminals to a maximum of 550 feet for a length of 5,000 feet.	HD283, 76th Cong., 1st sess.
	Nov 7, 1945	Deepening the channels to 36 feet deep and 500 feet wide across the ocean bar; 34 feet deep and generally 400 feet wide increased to 550 feet opposite	HD227, 79th Cong., 1st sess.

TABLE 8-B	AUTHORIZING LEGISLATION	
	the Atlantic Coast Line Terminals, with a turning basin 34 feet deep at the Mexican Petroleum Corp. Refinery; and with such modifications thereof as the Secretary of War and the Chief of Engineers may consider desirable.	
Jul 24, 1946	Extending channel 30 feet deep, 200 feet wide upstream from Atlantic Creosoting Terminal to a point 1,500 feet below the Atlantic Coastal Highway Bridge, with turning basin 30 feet deep at upper end.	HD678, 79th Cong., 2d sess.
Sep 3, 1954	Deepening the channel to 34 feet and widening to 400 feet from the upper end of the presently authorized 34-foot channel in the vicinity of the American Oil Company Refinery wharf, to the Savannah Sugar Refinery Corp. with a turning basin at the upper end of the proposed improvement made by widening the channel to 600 feet for a length of 700 feet and providing approaches.	HD110, 83d Cong., 1st sess.
Oct 23, 1962	Enlargement of turning basin near Kings Island to a width of 900 feet and a length of 1,000 feet, with suitable approaches, at a depth of 34 feet.	SD115, 87th Cong., 1st sess.
Oct 27, 1965	Deepening the bar channel from 36 feet to 40 feet, the channel between the bar channel and Garden City Terminal from 34 feet to 38 feet, and the channel from the Garden City Terminal to the vicinity of the Savannah Sugar Refining Corp., from 30 feet to 36 feet; widening the bar channel from 500 feet to 600 feet, the channel between Fort Pulaski and the Atlantic Coast Line Terminal from 400 feet to 500 feet, and the channel between Garden City Terminal and the Savannah Sugar Refinery Corp., from 200 feet to 400 feet; providing necessary wideners of the bends; constructing a new turning basin 900 feet wide by 1,000 feet long by 34 feet deep opposite the Atlantic Coast Line Terminals; and enlargement of existing turning basin at the American Oil Company Terminal from 600 feet wide by 600 feet long to 900 feet wide by 1,000 feet long.	HD226, 89th Cong., 1st sess.
Oct 27, 1965	Providing sediment control works consisting of tide gate structure across Back River; sediment basin 40 feet deep, 600 feet wide about 2 miles long, with entrance channel 38 to 40 feet deep and 300 feet wide; control works and canals for supplying fresh water to Savannah National Wildlife Refuge; and facilities to mitigate damages to presently improved areas other than refuge lands.	HD223, 89th Cong., 1st sess.
SPWC Resolution Jun 15, 1976 and HPWC, Jun 9, 1976 under authority of Sec. 201, Flood Control Act of 1965	Provided for modification of the existing project to include (1) incorporation of the LASH Turning Basin as an element of the existing Federal navigation project for maintenance purposes, (2) enlargement of Kings Island Turning Basin to 1,500 feet by 38 feet.	HD94-520, 94th Cong. dated June 8, 1976.
Jul 16,1984	Construction of three new work curve wideners in the inner harbor channel. Curve Widener #1 is be-	PL 98-360

TABLE 8-B		AUTHORIZING LEGISLATION	
		tween mile 11.1 and 11.9. Curve widener #2 is between mile 13.2 and 13.8 and curve widener #3 is between mile 14.0 and 14.8. The Wideners are located on the north side of the channel.	
	Oct 17, 1986	Savannah Harbor Widening as described in Report of Chief of Engineers date Dec. 19, 1978. Widen channel from 400 feet to 500 feet between Kings Island turning Basin and Fig Island Turning Basin. Allows planning, engineering and design to remove drift and debris as part of operations and maintenance.	HD6, 99th Cong., 2d sess. Dated Oct. 17, 1986, Section 201 Section 867
	Oct 31, 1992	Savannah Harbor Deepening deepened harbor from -38 feet to -42 feet mlw in Inner Harbor and from -40 feet to -44 feet mlw in the Bar Channel for a total of 31 miles of harbor improvements.	WRDA 1992
	Aug 17,1999	Savannah Harbor Deepening conditional approval for –42 feet to –48 feet mlw in the Inner Harbor	WRDA 1999
5.		SAVANNAH RIVER BELOW AUGUSTA, GA	
	Sep 13, 1891	For a 5-foot channel	HD255, 51st Cong., 2d sess.
	Jun 25, 1910	Special improvement by bank protection work of 20 to 25 miles of the river immediately below Augusta.	HD962, 60th Cong., 1st sess.
	Jul 3, 1930	The present 6-foot channel project and Lock and Dam, GA.	HD101, 70th Cong., 1st sess.
	Aug 30, 1935	Provision made for locating the lock and dam at New Savannah Bluff.	Senate Committee Print, 73d Cong., 2d sess.
	Aug 26, 1937	Conditions of local cooperation modified.	Rivers and Harbors Com., Doc. 39, 75th Cong., 1st sess.
	May 17, 1950	Provides for a 9-foot channel.	SD6, 81st Cong., 1st sess.
9.		TYBEE ISLAND, GA	
	SPWC Resolution Jun 22, 1971 and HPWC, Jun 23, 1972 under authority of Sec. 201, Flood Control Act of 1965	Project will provide for beach erosion control, consisting of beach restoration, groin nourishment.	HD105, 92d Cong.
	Oct 17, 1986	Extends authority for renourishment with Federal participation from 15 to 50 years.	HR6, 99th Cong., 2d sess. Dated Oct. 17, 1986, Section 867
	PL-104-303 Water Resources Development Act of 1996, Oct 12,	Sect 301(b)(4) provided for inclusion of that portion of Tybee Island located south of the existing terminal groin, including the East Bank of Tybee Creek up to Horse Pen Creek.	WRDA 1996
	1996	Sect 506(a)(4) extended periodic nourishment for a period of 50 years beginning on the date of initiation of construction.	WRDA 1996
17.		J. STROM THURMOND DAM AND LAKE, GA&SC	
	Flood Control Act	Approved the general plan for the comprehensive	HD657, 78th Cong., 2d sess.

TABLE 8-B **AUTHORIZING LEGISLATION**

	of Dec 22, 1944	development of the Savannah River Basin and pro vided for construction of the Project.	
	Oct 17, 1986 Jan 1988	Recreation and fish and wildlife added as name changed. (Formerly Clarks Hill Lake.)	HR6, 99th Cong., 2d sess. Section 864, HJR 376
18.		HARTWELL LAKE, GA AND SC	
	Flood Control Act of May 17, 1950	Provided for construction of Hartwell Project.	HD657, 78th Cong., 2d sess. PL516, 82st Cong., 2d sess.
	Flood Control Act of Jul 3, 1958	Provided for the completion of the Hartwell Project.	PL85-500, 87th Cong., 2d sess.
	Water Resources Development Act of 1976	Provides for installation of 5th unit.	PL94-587, Sec. 182b., 85th Cong.
19.	Flood Control Acts of 1944, 1950, 1958, and Water Resources Development Act of 1986	HARTWELL LAKE/CLEMSON UPPER AND LOWER DIVERSION DAMS, GA AND SC Seismic remediation.	HD657, 78th Cong., 2d sess. PL516, 81st Cong., 2d sess. Sect 1203; WRDA 1986
20.	Flood Control Act of Nov 7, 1966	RICHARD B. RUSSELL DAM AND LAKE, GA & SC Provided for construction of the Trotters Shoals Project.	SD52, 89th Cong., 1st sess.
	Water Resources Development Act of 1986	Authorized mitigation plan.	HR6, 99th Cong., 2d sess. dated Oct. 17, 1986, Section 601

TABLE 8-C **OTHER AUTHORIZED NAVIGATION PROJECTS**
(See Section 7 in text)

Project	Status	For Last Full Report See Annual Report for	Cost to September 30, 2003	
			Construction	Operation and Maintenance
Bellville Point, GA	Completed	1986	599,379	----
Cedar Point, GA	Completed	1982	656,233	----
Darien Harbor, GA	Completed	1975	199,723	185,433
Fancy Bluff Creek, GA 1	Completed	1935	8,000	7,200
St. Mary's River, GA and FL, and North River, GA	Completed	1951	15,688	69,936
Sapelo Harbor, GA 2, 3	Completed	1929	17,906	19,594
Satilla River, GA 1, 5, 6	Completed	1951	9,452	57,172
Savannah River above Augusta, GA 2, 3, 4	See Notes	1929	69,600	85,944
Savannah River at Augusta, GA 2, 3, 5	See Notes	1929	200,556	17,444

1. Channel adequate for commerce.
2. Project recommended for abandonment in HD 467, 69th Cong., 1st session.
3. No commerce reported.
4. About 84 percent completed. Owing to construction of two power dams which submerged much of the work under the present and former projects, this improvement cannot be completed as originally planned.
5. Excludes $185,000 contributed funds ($172,151 for construction and $12,849 for operation and maintenance).
6. Water Resources Development Act of 1986 authorized demonstration project on the Umbrella Creek - Dover Creek for the purpose of reducing shoaling. Monitor for 10 years, develop a hydrodynamic model.

TABLE 8-D **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**
(See Section 13 in text)

Project	Status	For Last Full Report See Annual Report for	Cost to September 30, 2003	
			Construction	Operation and Maintenance
Augusta, Savannah River, GA	Completed	1941	$ 643,016	$38,242
Curry Creek Dam and Lake, GA (1)	See Note	1974	----	----
Dunn Branch, Woodbine, Camden County, GA	Completed	1977	132,640	5,219
Macon, GA	Completed	1955	380,043	38,243
Oates Creek, GA (2)	Completed	1993	12,565,000	----
Peacock Creek, Liberty County, GA	Completed	1976	582,163	5,219

1. Feasibility report completed. Project not authorized for construction.
2. Authorized by HR 6, Water Resource Development Act of 1986 dated October 17, 1986. First Federal cost of $9,600,000 and non-federal cost of $4,100,000.

TABLE 8-E

SAVANNAH RIVER BASIN, GA AND SC
DAMS AND LAKES
(See Section 19, 20, & 21 in text)

Name	River	Estimated Cost Federal	Non-Federal	Total
J. Strom Thurmond Dam & Lake, GA and SC	Savannah	79,156,000(3)		79,156,000(1,3)
Hartwell Dam & Lake, GA and SC	Savannah	89,240,000		89,240,000(2)
Hartwell Lake/Clemson Upper and Lower Diversion Dams, GA and SC	Savannah	8,741,000		8,741,000
Richard B. Russell Dam & Lake, GA and SC(4)(5)	Savannah	626,000,000		626,000,000(5)

1. Final Cost. (Excludes $127,000 for preauthorization study.)
2. Approved August 1963. (Excludes $73,000 for preauthorization study.)
3. Approved July 1954.
4. Excludes Code 710 funds.
5. Richard B. Russell Dam and Lake (formerly Trotters Shoals Lake) replaced Goat Island, GA and SC and Middleton Shoals, GA and SC.

JACKSONVILLE, FL DISTRICT*

With the exception of a small area in the north-eastern section of Florida, this district comprises a portion of south-central Georgia and all of peninsular Florida, embracing the watersheds tributary to the Atlantic Ocean and the Gulf of Mexico from, and including the harbor at Fernandina, Florida, to and including the Aucilla River. It also includes Puerto Rico and the U.S. Virgin Islands.

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at the end of this chapter. All other tables are referenced in text and also appear at the end of the chapter.

Navigation

1. AQUATIC PLANT CONTROL (R&H ACT OF 1965)

Location. Navigable waters, tributary streams, connecting channels, and other allied waters in Florida.

Existing project. The authorized project provides for control and progressive eradication of water hyacinth, alligator weed, Eurasian water-milfoil, and other noxious aquatic plant growths from navigable waters, tributary streams, connecting channels, and other allied waters of the United States, in combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and related purposes, including continued research for development of most effective and economical control measures in cooperation with other Federal and State agencies in accordance with report of Chief of Engineers, H 251/89/1. The Water Resource Development Act of 1986 amended the River and Harbor Act of 1965 requiring the local sponsor to share 50 percent of planning costs and 50 percent of research costs that are local in nature. The cost of research that is regional or national in scope shall be borne fully by the United States.

Local cooperation. Florida Department of Natural Resources holds the United States free from damages that may occur from operations performed in connection with this project and contributes 50 percent of cost of operations. Compliance with requirements of local cooperation is on schedule.

Operations and results during fiscal year. New work: $2,146.

Condition at end of fiscal year. Cost share operation by the Corps and the State of Florida are on hold due to lack of funding. Water hyacinths within Florida are under maintenance control. Hydrilla is continuing to spread throughout the state and is causing major problems in some areas.

2. ARECIBO HARBOR, PR

Location. The harbor is located on the north shore of Puerto Rico about 40 miles west of San Juan Harbor. (See NOAA Nautical Chart No. 25668.)

Previous project. For details see page 504 of 1956 Annual Report.

Existing project. The project provides for a channel 25 feet deep by 400 feet wide, with flare at entrance and widening at inner end to form a maneuvering area and a stone breakwater 1,200 feet long. Plane of reference is mean low water. Mean tidal range is 1.1 feet. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. A bulkhead wharf 688 by 220 feet providing deep water berthing space of approximately 500 feet and a 300 by 100-foot transit shed. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: $55,493.

Condition at end of fiscal year. Project was completed in 1944. Breakwater was repaired in 1952. Wave action has since caused damage.

3. ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA AND ST. JOHNS RIVER, FL (JACKSONVILLE DISTRICT)

Location. That part of Intracoastal Waterway between southerly limit of Fernandina Harbor, FL, at junction of Lanceford Creek and Amelia River, and St. Johns River, FL. (See NOAA Nautical Chart No. 11489.)

Previous project. For details see page 605 of 1938 Annual Report.

Existing project. Channel 12, 90 to 150 feet wide from Fernandina Harbor to St. Johns River, about 22 miles long. Plane of reference is mean low water. Mean tidal range is 6 feet at Fernandina and 3.8 feet at St. Johns River. (See Table 9-B for Authorizing Legislation.)

Existing project was authorized by River and Harbor Acts of 1913 (H 898/62/2) and 1938 (H 618/75/3).

Local cooperation. Fully complied with to date.

Terminal facilities. There is a commercial marina located at Sisters Creek. No other facilities exist along this section of the waterway and none are currently required.

Operations and results during fiscal year. Maintenance: $45.

Condition at end of fiscal year. Project was completed in 1941. Minor shoals exist throughout the project.

4. BAKERS HAULOVER INLET, FL

Location. The inlet connects the Intracoastal Waterway and the Atlantic Ocean and is located 2 miles north of Miami Beach in Dade County, Florida.

Existing project. The authorized project provides for an entrance channel 11 by 200 feet, thence 8 by 100 feet to the Intracoastal Waterway and a marina basin 8 by 200 feet. The length of the project is 1.02 miles. Plane of reference is mean low water.

Operations and results during fiscal year. None.

Condition at end of fiscal year. The initial construction of project was completed in December 1964. Shoaling at this time is restricting project depth. Maintenance dredging is necessary.

5. CANAVERAL HARBOR, FL

Location. The harbor is located on the east coast of Florida in Canaveral Bight, about 146 miles south of the entrance to Jacksonville Harbor and 69 miles north of the entrance to Fort Pierce Harbor. (See NOAA Nautical Chart Nos. 11478 and 11484.)

Existing project. The authorized project provides for a 37 foot deep entrance channel and maintenance of the 44 foot deep Navy channel in the 37 foot channel reach; and 35 foot depth turning basin; construction and operation of a sand transfer plant; relocation of the perimeter dike about 4,000 feet westward and extension of the harbor westward; south entrance jetty 1,100 feet long and the entrance jetty 1,150 feet long; a lock; a channel and turning basin 31 feet deep near the relocated dike; and a barge canal 12 by 125 feet from the turning basin to the Atlantic Intracoastal Waterway. Plane of reference is mean low water (Banana River) for barge canal. The project is about 11.5 miles long. Mean tidal range is 3.5 feet at the entrance and practically non-tidal in Banana and Indian Rivers. (See Table 9-I for Data Relative to Lock.) (See Table 9-B for Authorizing Legislation.)

Estimated project cost for Canaveral Harbor Sand Transfer System is $40,958,000 Federal and $4,900,000 non-Federal.

Local cooperation. Local interests must; provide all lands, rights-of-way, spoil-disposal areas, retaining dikes, and embankments; hold United States free from damages; provide and maintain four-lane bridge and roadway subject to Federal contribution of 65.3 percent of cost of constructing bridge and 51.2 percent of constructing roadway; provide public terminal and transfer facilities; and make alterations as required in berthing facilities. For further details see Senate Document 140, 87th Congress, 2nd session. Non-Federal contribution for new work is $2,635,845.

Terminal facilities. Canaveral Harbor has 27 commercial waterfront facilities. The General Cargo Facilities consist of 1,900 feet of usable berthing space capacity of 168,000 square feet. The Oil Handling Facilities operate with 3,760 feet of usable berthing space and 1,413,000 barrels of tank storage. Available warehouse storage includes 28,000 square feet of dry storage and 2,500,000 cubic feet of cold storage. Open storage is 189 acres.

Three-cruise ship berths totaling 1,400 feet long by 34-foot depth and three 8,800 square foot cruise terminals are also located on the south side. The western cruise ship berth is equipped with a roll on/off ramp and is adjacent to 20 acres of trailer storage area.

Hoisting facilities consist of one 45-ton floating crane and crawler and mobile cranes, with capacities from 70 to 200 tons, available from local crane rental services. There are 2 waterfront marine repair facilities with the nearest dry-dock facilities located at Port Everglades and Jacksonville. Two tugs with ratings of 1,600 and 2,250 horsepower are also available. There is no rail service available at the port. The nearest rail service is the Florida East Coast Railway located 9 miles away. Facilities are considered adequate for existing commerce. (See Port Series No. 16, Rev. 1982.)

Operations and results during fiscal year. New work: Engineering and design, $738,833. Maintenance: contract dredging cost was $3,858,861. Maintenance and operation of locks and dams amounted to $1,125,400; Real Estate $21,196; Engineering and Design $429,185: Construction management $296,500.

Condition at end of fiscal year. Report for north jetty sand tightening has been completed and is under review.

6. CHANNEL FROM NAPLES TO BIG MARCO PASS, FL

Location. Naples Bay is on the southwestern side of the Florida peninsula about 35 miles south of the mouth of the Caloosahatchee River and approximately 1-mile inland and parallel to the Gulf of Mexico coastline. (See NOAA Nautical Chart No. 11430.)

Existing project. The authorized project provides for an interior channel 6 by 70 feet from Naples to Big Marco Pass; a channel 12 by 150 feet from the Gulf of Mexico to Gordon Pass, thence 10 by 100-70 feet to a 10 foot depth turning basin in the upper Naples Bay; and an 8 foot depth turning basin at the municipal yacht basin. Plane of reference is mean low water. Mean tidal range is 2.1 feet. (See Table 9-B for Authorizing Legislation.)
For further details see Annual Report of 1962.

Local cooperation. Fully complied with to date.

Terminal facilities. Four seafood-packing houses; 4 marine repair yards; a municipal pier and basin for use by recreational boats; and numerous private piers and slips for both commercial and recreational craft are available. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Engineering and design cost was $41,265, Maintenance dredging $973,393, Construction management $71,702.

Condition at end of fiscal year. The project is at authorized depth. A maintenance dredging contract was awarded in September 2002 for the Gordon Pass project. Dredging of the outer portion of the project was completed in April 2003.

7. CHARLOTTE HARBOR, FL

Location. The Harbor is located on the west coast of Florida about 68 miles south of the entrance to Tampa Bay and 150 miles north of Key West. (See NOAA Nautical Chart No. 11429.)

Previous projects. For details, see page 457 of 1959 Annual Report.

Existing project. The authorized project provides for a channel 32 by 300 feet, increased to 700 feet at the bend, from the Gulf of Mexico to Port Boca Grande to and including a turning basin at 200 feet square at the municipal terminal at Punta Gorda. Plane of reference is mean low water. The project is about 29.5 miles long.

Mean tidal range is one foot at Port Boca Grande and 1.4 feet at Punta Gorda. Extreme range is about 3 feet at Port Boca Grande and 3.8 feet at Punta Gorda. Strong southwesterly winds raise water levels about 1.5 feet; strong northerly and easterly winds lower water levels about one foot. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Local cooperation is fully complied with to date.

Terminal facilities. Existing facilities consist of a phosphate wharf at Port Boca Grande and a municipal earth fill pier about 850 feet long at Punta Gorda, both open to the public. Railway connections are available at Port Boca Grande, and highway and railway connections are available at Punta Gorda.

Operations and results during fiscal year. Engineering and Design -$21,324.

Condition at end of fiscal year. The project was completed in 1959, and was dredged for maintenance in June 1998. The Florida Power and Light Company no longer has a requirement for bunker fuel oil to be delivered into Charlotte Harbor. Therefore, there is no future maintenance scheduled for the project.

8. EAU GALLIE HARBOR, FL

Location. The Harbor is located on Indian River about midway of the State of Florida, 176 miles south of Jacksonville Harbor and 174 miles north of Miami Harbor.

Existing project. The authorized project provides for a channel 8 by 100 feet from Indian River to and including a 300 by 600-foot turning basin in Eau Gallie. The project is about 2,700 feet long. Plane of reference is mean low water. The harbor is almost non-tidal.

Local cooperation. Fully complied with to date.

Terminal facilities. A privately owned boatyard in Eau Gallie Harbor provides more than 600 feet of docking space used chiefly by pleasure boats. There are also 2 marine railways and repair and storage facilities

available. The facilities are considered adequate for the present needs of navigation.

Operations and results during fiscal year. None. No future maintenance is scheduled for this project.

Condition at end of fiscal year. The project was completed in 1939. In December 1982, the controlling depth of the channel was 5 feet.

9. FERNANDINA HARBOR, FL

Location. Entrance to the harbor is located on the northeast coast of Florida about 95 miles south of the entrance to Savannah Harbor, Georgia, and 22 miles north of the entrance to Jacksonville Harbor, Florida. (See NOAA Nautical Chart No. 11503.)

Existing project. The authorized project provides for a 32 foot depth channel (maximum channel in active status: 28 feet) generally 300-400 feet wide from deep water in the ocean to the junction of Lanceford Creek with Amelia River; an 800 foot wide turning basin at the first bend below Lanceford Creek; and 2 jetties, 19,150 and 11,200 feet long. The project is 7 miles long. Plane of reference is mean low water. Mean tidal range is 5.8 feet on the bar and 6 feet in the inner harbor. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date. Non-Federal contribution for new work was $935,000.

Terminal facilities. There are 2 large wharves operated by industrial plants; 12 wharves serving fishing boats, recreational craft, and other vessels; 3 oil handling wharves with pipelines; and a Municipal Marina and Sportsman's Wharf with public facilities for small craft. Total berthing space is approximately 4,065 feet. Most terminals are served by rail, and all have highway access. Facilities are considered adequate for existing commerce. (See Port Series No. 16 (Part 2), 1964.)

Operations and results during fiscal year. New work: Maintenance contract dredging, entrance channel $1,116,209. Engineering and design and construction management costs were $666,504 and $101,050 respectively.

Condition at end of fiscal year. The active portion of the existing project is complete. Jetties are in poor condition and are badly in need of repair. Remaining work is to deepen the inner harbor channel and turning basin to 32 feet when and if the presently inactive 1950 authorization is reactivated. The entrance channel has been deepened to 46 feet for the Kings Bay project. Authorized depths were restored as of March 1991.

10. FORT MYERS BEACH, FL

Location. Fort Myers Beach is on Estero Island near the mouth of the Caloosahatchee River, about 20 miles below Fort Myers and 110 miles south of Tampa, Florida. (See NOAA Nautical Chart No. 11427.)

Existing project. The authorized project provides for a channel 12 by 150 feet from that depth in San Carlos Bay into Matanzas Pass, thence 11 by 125 feet in Matanzas Pass to and including a turning basin 2,000 feet upstream from the upper shrimp terminals. Plane of reference is mean low water. Project is 2.5 miles long.

Mean tidal range is 1.7 feet. Spring range is about 2.3 feet. Strong northerly winds lower the water surface 1 to 2 feet; strong southerly winds have an opposite effect. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. There are 3 shrimp-packing houses and several fish-packing houses, 2 marine railways, a fuel terminal and an ice manufacturing plant in the area. There are several commercial facilities for servicing shrimp boats. Recreational craft facilities include 9 marinas, a boat motor testing laboratory which is closed, and numerous privately owned piers and wharves. All terminals have highway access. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. $178.

Condition at end of fiscal year. The project is authorized depths.

11. FORT PIERCE HARBOR, FL

Location. On east coast of Florida, about 218 miles south of entrance to St. Johns River and about 124 miles north of entrance to Miami Harbor. (See NOAA Nautical Chart No. 11475.)

Existing project. A channel 350 feet wide at the 27-foot contour in the ocean, tapering to a width of 200 feet at Station 100+00, thence 200 feet wide to Sta. 30+00, and thence flaring to a turning basin 900 feet wide. Entrance channel is 27 feet deep to Sta. 130+00 and thence 25 feet deep to and including the turning basin. Project includes the maintenance of two jetties

and shore revetments at the inlet. Length of project is about 3.5 miles.
Plan of improvement consists of enlarging the existing entrance channel to 400 feet wide and 30 feet deep, the interior channel to 250 feet wide and 28 feet deep, the existing turning basin to 1,100 feet square and 28 feet deep, and providing an access channel 1,250 feet long, 250 feet wide and 28 feet deep north of the main turning basin.

Mean tidal range is 2.6 feet at the entrance and 0.7 feet at terminals. (See Table 9-B for Authorizing Legislation.) For further details see 1961 Annual Report.

Local cooperation. Fully complied with to date. Non-Federal contribution for new work was $2,503,387. A 25% contribution and an additional 10% reimbursement over 30 years from locals are required.

Terminal facilities. Two earth-filled piers forming a slip 200 by 300 feet, with bulkhead wharf at inner end, affording berthing space of about 1,653 feet. The south pier and bulkhead wharf are municipally owned. Facilities also include a cooling plant, a warehouse and a fruit-packing house. Railway and both piers serve the north pier by highway connections. North of the turning basin local interests have provided deep-draft berthing and pier facilities. Also available is a bulkhead wharf with a depth of 25 feet with ample room for open storage and with tank storage for petroleum in the rear. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: engineering and design, $287,759.

Condition at end of fiscal year. Mitigation contract completed in May 1996. No further work is scheduled.

12. HORSESHOE COVE, FL

Location. On the gulf coast of Florida about 18 miles southeast of the mouth of the Suwannee River.

Existing project. Channel 6 feet deep by 75 feet wide from that depth in the Gulf of Mexico to and including an irregular-shaped basin of like depth at the village of Horseshoe, Fl. Project is 1.75 miles long. Plane of reference is mean low water.

Local cooperation. Fully complied with.

Terminal facilities. Three marine-ways about 300 feet of privately owned piers and wharves, and a public wharf about 200 feet long. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Construction management cost was $100.

Condition at end of fiscal year. Project was complete in 1959.

13. INTRACOASTAL WATERWAY, CALOOSAHATCHEE RIVER TO ANCLOTE RIVER, FL

Location. The Waterway extends from the mouth of the Caloosahatchee River at Punta Rassa, Florida, to the mouth of Anclote River, Florida, following in general an almost continuous series of protected inside waterways along the gulf coast of Florida. (See NOAA Nautical Chart Nos. 11411, 11425 and 11427.)

Previous projects. For details see page 767 of 1945 Annual Report.

Existing project. The authorized project provides for a channel 9 by 100 feet from Caloosahatchee River to Anclote River; deepening the existing channel at Casey's Pass to 9 feet; a channel 6 by 80 feet (Cats Point Channel) along the southeastern side of Boca Ciega Bay past Frenchman Creek and Gulfport; maintenance of bulkheads, revetments, and two jetties built at Casey's Pass under previous project; and improvement and maintenance of Sunshine Skyway Channel. Plane of reference is mean low water. The project includes about 160 miles of channels.

Mean ranges of tide are 1.7 feet at Punta Rassa, 1 foot at Port Boca Grande, 1.4 feet in Tampa Bay at Anna Maria, and 2 feet at entrance to Anclote River. Extreme ranges are about 4.5 feet at Punta Rassa, about 3 to 4 feet between Port Boca Grande and Corey Causeway over Boca Ciega Bay, and about 5.5 feet at entrance to Anclote River. Southerly winds over the area generally raise water levels by 1 to 1.5 feet; northerly winds lower water levels by 1 to 2 feet. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. Existing facilities include one municipal concrete pier, one railway pier, one freight wharf, one marginal wharf 500 feet long on Terminal

Island, and 11 privately owned landings, all at Sarasota. Municipal pier and freight wharf are open to the public. All piers have highway connections. There are 6 wharves along Boca Ciega Bay and a number of small privately owned piers and wharves at various points along waterway for use by commercial fishing boats and recreational craft. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. $5,063.

Condition at end of fiscal year. Existing project is complete. Shoaling exists in northern Pinellas County around Longboat Pass and Venice Inlet and just south of the Sunshine Skyway Bridge.

14. INTRACOASTAL WATERWAY, JACKSONVILLE TO MIAMI, FL

Location. The Waterway extends from Jacksonville to Miami, Florida, following the St. Johns River to the mouth of Pablo Creek and thence following in general an almost continuous series of protected inside waterways along the Atlantic coast of Florida to Miami. (See NOAA Nautical Chart Nos. 11489, 11485, 11472 and 11467.)

Previous projects. For details, see pages 618-619 of 1938 Annual Report.

Existing project. The authorized project provides for a channel 12 by 125 feet from Jacksonville to Miami, modified by Chief of Engineer's report of July 22, 1960; side channels at Sebastian and Daytona Beach and turning basins at Sebastian and Vero Beach, all to an 8 foot depth, and operation and maintenance of Palm Valley highway bridge. Project is 370 miles long, including 21 miles in Jacksonville Harbor. Mean range of tide is 3.8 feet at St. Johns River, 0.7 foot in Indian River at Fort Pierce, 1.8 feet in Lake Worth at Port of Palm Beach terminals, 2.3 feet at the Port Everglades terminals, and 2 feet in Biscayne Bay. The extreme range is about 7 feet at St. Johns River, 1.5 feet at Fort Pierce, and 3 feet in Biscayne Bay. Plane of reference is mean low water. Tidal effect is imperceptible at points along waterway distant from inlets. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. There are a number of privately owned piers, wharves, and landings at various points along waterway. Terminals with railway connections are available at Jacksonville, Fort Pierce, West Palm Beach, Port Everglades, and Miami. Municipal piers or wharves have been constructed at Titusville, Cocoa, Melbourne, and Vero Beach for handling general freight and at St. Augustine, Daytona Beach, New Smyrna Beach, Eau Gallie, West Palm Beach, Delray Beach, Fort Lauderdale, and Miami for use of recreational craft. Yacht basins, open to the public, have been provided at Jacksonville Beach, Daytona Beach, Titusville, Eau Gallie, Vero Beach, Fort Pierce, West Palm Beach, Fort Lauderdale, Hollywood, and Miami. Facilities are considered adequate for existing commerce. (For further details on facilities at Jacksonville, see Port Series No. 15, 1969, and at Palm Beach, Port Everglades, and Miami, see Port Series No. 16, Revised 1972.)

Operations and results during fiscal year. Maintenance: Real estate management $111,691; Contract dredging, various segments, $3,000,000; bridge operations and maintenance -$41,473, Engineering and design, and contract management costs were $556,279 and $77,515, respectively.

Condition at end of fiscal year. The existing project as modified by the Chief of Engineers is complete. (Construction of the channel and turning basin at Sebastian, Florida, was deauthorized by WRDA of 1988, P.L. 100-676.) (See Table 9-A for total project costs.) Maintenance dredging in the vicinity of Stuart, Fl. Required to provide project depths. Engineering and Design efforts accomplished for maintenance dredging of IWW in vicinity of Jupiter, Fl.; New Smyrna Beach, Fl.; Matanzas Inlet, Fl.; Palm Valley, Fl.; and Nassau Sound, Fl.

15. JACKSONVILLE HARBOR, FL

Location. The authorized project comprises the lower 24.9 miles of St. Johns River, which empties into the Atlantic Ocean near the northeasterly corner of the Florida peninsula. (See NOAA Nautical Chart No. 11491.)

Previous projects. For details, see page 607 of Annual Report, 1938.

Existing project. The authorized project provides for a channel 38 feet deep by 400-1,200 feet wide from ocean to mile 20 via Dame Point-Fulton Cutoff, thence 34 feet to Commodore Point, and thence 30 feet deep to the FEC railway bridge at Jacksonville, including a 30 foot channel in Arlington cut in the old Dames Point-Fulton channel; maintenance of the existing 42 and 40 foot depth entrance channel; widening of channel by 100 feet near mile 5 and by 200 feet near

mile 7; maintenance of jetties at channel entrance; construction of training walls and revetments; a navigation and floodway channel 26 by 200 feet along south side of Commodore Point; on approach and mooring basin 20 feet deep, 1,300 feet long at 20 foot depth contour and 600 feet long at pier head line near Naval Reserve Armory in south Jacksonville; a depth of 24 feet between that depth contour and the pier head line from Hogan Creek to the foot of Laura Street; and a depth of 28 feet to within 60 feet of pier head line between foot of Laura Street and St. Elmo W. Acosta (formerly Upper State) bridge. Length of project is about 26.8 miles. In addition the Navy has provided funds for a deeper Jacksonville Harbor entrance channel 42 feet deep and 800 feet long, intersecting with the Navy's Mayport entrance channel to the Mayport turning basin; also an extension of the existing project to provide 38 foot depth for the Navy fuel depot, at Drummond Creek.

Mean tidal range is 5.3 feet on the bar, 4.9 feet at Mayport, 2.6 feet at Dame Point, and 1.1 feet at Jacksonville. The extreme range varies from about 9 feet on the bar to about 1.5 feet at Jacksonville. Strong northeasterly winds raise the water level about 2 feet at Mayport and Jacksonville. Strong southwesterly winds lower the water about 1.5 feet at Mayport and one foot at Jacksonville. (See Table 9-B for Authorizing Legislation.)

Estimated cost of new work $10,100,000 Federal and $19,700,000 non-Federal.

Local cooperation. Local interests have fully complied with requirements of local cooperation for work performed to date. For work authorized by the 1965 River and Harbor Act, local interests were required to contribute 2.6 percent of the contract price plus supervision and administration for work provided by the Corps; provide all lands and rights-of-way; save the United States free from damages; and provide and maintain public terminal and transfer facilities. Assurances of local cooperation for this work were accepted February 11, 1966. Non-Federal contribution for new work was $1,135,669.

Terminal facilities. Jacksonville Harbor has 84 waterfront facilities. Available at the General Cargo Facilities are 11,140 feet of usable berthing space and 12 transit sheds with a total storage space of 1,009,800 square feet. The Oil Handling Facilities consist of 7,843 feet of usable berthing space and 179 storage tanks providing a total of 8,478,900 barrels of tank storage. Warehouse storage at the port includes 3,266,900 square feet of dry storage and 4,071,100 cubic feet of cold storage. Available open storage is 233 acres.

Four fixed cranes with capacities from 40 to 100 tons are located at the port. Available locally are crawler and truck cranes with capacities up to 100 tons. Various phases of marine repair work are accomplished by 7 waterfront repair facilities and numerous other companies located off water. Dry-dock facilities consist of 6 floating dry-docks with capacities from 800 to 33,000 tons. Floating equipment includes 25 tugs with up to 3,300 horsepower and 16 tank barges with capacities up to 20,700 barrels. Three major railroads furnish rail service from port docks to all points outside of Jacksonville. Facilities are considered adequate for existing commerce (See Port Series No. 15, Rev. 1978.) Navigation cost, $7,700,190; engineering and design, $617,794; and construction management, $241,844.

Operations and results during fiscal year. New Work: Navigation contract $8,169,208; Engineering and design $836,164; Contract management $235,350. Maintenance: Contract dredging cost: Channels $3,309,737 and terminal channel $1,659,250, Engineering and design, and construction management costs were $453,704 and $243,397, respectively.

Condition at end of fiscal year. PED was completed in July 2000. Contract I to deepen the west Blount Island channel from 30 to 38 feet was awarded in July 2001. Contract II to deepen the main ship channel from the ocean up to river mile 14 from 38 to 40 feet was awarded in March 2002. A GRR to deepen the remainder will be submitted for the next WRDA 2002.

16. JACKSONVILLE HARBOR (MILL COVE), FL

Location. The authorized Mill Cove project comprises a 6 square mile body of shallow water on the St. Johns River approximately 10 miles from the Atlantic Ocean near the northeasterly corner of the Florida peninsula. (See NOAA Nautical Chart No. 11491.)

Previous project. None.

Existing project. The authorized project provides improved flow and circulation through Mill Cove to eliminate further shoaling. This large shallow area averages about 2 to 4 feet deep, is about 5.5 miles long, and varies from 0.5 to 2.0 miles wide. It is situated along the St. Johns River near the Dame Point-Fulton Cutoff portion of the Jacksonville Harbor navigation project. The Mill Cove project includes

dredging a 650 foot by 3,600 foot flow channel at the west end to -12 feet MSL; enlarging the weir opening at the eastern end to 1,300 feet wide and -12 feet MSL; and installing flow diversion features at the west and east ends of the cove. Mean tidal range is 4.9 feet at entrance, 4.5 feet at Mayport, 3.0 feet at Dame Point, and 1.2 feet at Jacksonville. Strong northeasterly winds raise the water level about 2 feet at Mayport and Jacksonville. Strong southwesterly winds lower the water about 1.5 feet at Mayport and 1 foot at Jacksonville (See Table 9-B for Authorizing Legislation.)

Local cooperation. In conformance with Section 221, Public Law 91-611, and prior to commencement of construction, the Jacksonville Port Authority, as local sponsor, must provide written agreement to the following local cooperation requirements: provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project; hold and save the United States free from damages that result due to construction and maintenance other than damages due to the fault or negligence of the United States or its contractors; accomplish without cost to the United States such utility and other relocations or alterations as necessary for construction.

Terminal facilities. None.

Operations and results during fiscal year. New work: Engineering and design costs were $8,458.

Condition at end of fiscal year. Project completed November 2002.

17. JOHNS PASS, FL

Location. A natural inlet on the west coast of Florida connecting Boca Ciega Bay with Gulf of Mexico. The pass is located about 8 miles northwest of lower Tampa Bay directly across Boca Ciega Bay from St. Petersburg, Florida. (See NOAA Nautical Chart No. 11411.)

Existing project. Channel 10 by 150 feet in the Gulf, thence 8 by 100 feet inside pass, and 6 by 100 feet to the Intracoastal Waterway, and suitable protective measures over a frontage of approximately 1,000 linear feet of shore along the north end of Treasure Island. Plane of reference is mean low water. Mean range of tide is 1.5 feet. Project is about 2.6 miles long.
Project was authorized December 2, 1964 by the Chief of Engineers under Section 107 of the 1960 River and Harbor Act and by Section 110 of the 1966 River and Harbor Act.

Local cooperation. Fully complied with to date.

Terminal facilities. Only small marinas and repair yards for recreational craft are in the general vicinity. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. $237.

Condition at end of fiscal year. Project was completed in 1968. Authorized project depths were restored as of June 2002.

18. LONGBOAT PASS, FL

Location. Longboat Pass is located on the west coast of Florida about 11 miles northwest of Sarasota and 23 miles south of St. Petersburg. Located in Manatee County, it is one of several natural inlets connecting Sarasota Bay, a tidal estuary, with the Gulf of Mexico. (See NOAA Nautical Chart No. 11425.)

Existing project. The authorized project provides for an entrance channel 12 by 150 feet from the Gulf to Longboat Pass Bridge, thence a channel 10 by 100 feet from Longboat Pass Bridge along a north to northeasterly alignment to the Intracoastal Waterway to Cortez Bridge. The mean tidal range is 2.2 feet and the maximum tidal range is about 5 feet. Currents are predominantly tidal. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date. See 1978 Annual Report for detailed local cooperation requirements.

Terminal facilities. From Sarasota north to Tampa Bay there are about 28 small craft facilities including marinas, boat repair yards, and boat basins along the Intracoastal Waterway. Nine of them are located within 2 miles of Longboat Pass. Numerous private mooring piers and wharves also exist in the area. The marina and repair facilities appear adequate for the general boating needs of the area.

Operations and results during fiscal year. Maintenance: Maintenance dredging contract, $1.

Condition at end of fiscal year. Construction of the project is complete. Authorized project depths were restored as of May 2003. The channel depths are adequate for navigation.

19. MANATEE HARBOR, FL

Location. The project is located in Manatee County on the east side of Tampa Bay 10 miles from the Gulf of Mexico. (See NOAA Nautical Chart No. 11414.)

Existing project. The authorized project provides for maintenance of the existing 40-foot deep draft navigation channel and turning basin, which extends from Tampa Bay Channel to berthing facilities at Port Manatee. Also provide initial construction for a widener at the northwest end of the Manatee Harbor Channel and a repositioned 900 by 1300 foot turning basis adjacent to the northern berthing area to provide a larger turning basin. All material from the project will be placed on upland sites west and northeast of the port slip.

Estimated cost of new work $26,800,000 Federal and $13,300,000 non-Federal.

Local cooperation. Fully complied with to date. A 25 percent contribution and an additional 10 percent reimbursement over 30 years from locals are required. Non-Federal contribution for new work was $2,606,943.

Terminal facilities. Existing facilities at Port Manatee consist of 675 acres of port operational lands, a ship basin 1,500 feet long by 788 feet wide; and an approximately 3 mile access channel, with a design width of 400 feet, which connects with the Federally authorized Tampa Bay Channel. The Manatee project was constructed between August 1968 and February 1970. The required design depth was 40 feet, and the dredging contractor was allowed a pay over depth of 2 feet. Port Manatee also operates its own terminal railroad, which is licensed under the Interstate Commerce Commission, and publishes a switching tariff as a Class III railroad. It also maintains and operates 2 switch engines and about 30,000 feet of track, which connects with the CSX Railroad.

Operations and results during fiscal year. New Work: Navigation costs were $1,797,518; Engineering and design costs were $475,279; construction management costs were $372,607. Maintenance: Engineering and design costs were $55,861.

Condition at end of fiscal year. An updated design document and plans are currently underway for Phase II of the project, which includes the wideners and the turning basin. The GRR presents an evaluation of the South Extension Channel (to provide an additional berthing area) under current policies.

20. MAYAGUEZ HARBOR, PR

Location. The Project is on the west coast of Puerto Rico, about 110 miles by water from San Juan Harbor. (See NOAA Nautical Chart No. 25673.)

Existing project. The authorized project provides for a 30 by 1,000-foot approach channel to the deep-water terminal, decreasing to a 500-foot width opposite the westerly end of terminal, thence the same width to the easterly end of terminal. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. A modern deep water terminal is located in the northeast section of the harbor consisting of a bulkhead wharf about 1,270 feet long with a storage transit shed 800 by 60 feet immediately shoreward. The Puerto Rico Industrial Development Company, an agency of the Commonwealth of Puerto Rico, owns a bulkhead wharf of about 200 feet in line with the existing deep-water terminal plant located within the industrial harbor area. In addition, Bumble Bee Packing Company, Inc., owns and operates a dock of about 200 feet for docking tuna fish boats. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. None.

Condition at end of fiscal year. Project was completed in 1934.

21. MELBOURNE HARBOR, FL

Location. The project is on Indian River about midway of the State of Florida, 179 miles south of Jacksonville Harbor and 171 miles north of Miami Harbor.

Existing project. The authorized project provides for a channel 8 by 100 feet from Indian River to a 400 by 800 foot turning basin in Crane Creek. Project is about 3,150 feet long. Plane of reference is mean low water. The harbor is almost non-tidal.

Terminal facilities. The Municipal Marina on the north end of the turning basin has a 350 foot steel bulkhead with 11 finger piers, each about 40 feet long. There are also 2 privately owned storage and repair facilities and several privately owned boathouses and

docks. The facilities are considered adequate for existing commerce.

Operations and results during fiscal year. None.

Condition at end of fiscal year. The project was completed in 1938. As of September 1984 channel depths as authorized were available throughout the project. Project determined to have inadequate economic benefits to justify further use of operation and maintenance funds. Therefore, no future maintenance is planned for this project.

22. MIAMI HARBOR, FL

Location. Miami is near the northern end of Biscayne Bay, about 71 miles south of the entrance to Palm Beach Harbor. Miami River has its source in the Everglades and flows southeasterly to enter Biscayne Bay at Miami. (See NOAA Nautical Chart No. 11468.)

Existing project. The authorized project provides for a 38 by 500 foot channel from the ocean to the outer end of the north jetty, thence 36 by 400 feet through the entrance and across Biscayne Bay to and including a turning basin at the municipal terminals; a 36 foot depth turning basin at Fisher Island; 2 rubble stone jetties at the entrance; and a channel 15 feet deep in Miami River varying in width from 250 feet at mouth to 90 feet 5.5 miles inland. Plane of reference is mean low water, except for 15-foot channel in Miami River where depths are based on flood conditions. Total length of the project is about 13 miles.

Mean tidal variation is 2.5 feet at entrance and 2 feet in the bay. Extreme variation is about 4.5 feet at entrance and 3 feet in Biscayne Bay. Strong easterly winds raise the water level about 1.5 feet at entrance and 1 foot in the bay. Strong westerly winds lower water level about 1 foot at entrance and about 0.5 foot in the bay. Estimated cost for Miami Harbor Channel is $57,100,000 Federal cost and $36,200,000 non-Federal. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date. See 1978 Annual Report for detailed local cooperation requirements. Non-Federal contribution for new work was $2,300,710. Assurances of local cooperation for the 1968 modification to the project were accepted December 18, 1968.

Terminal facilities. There are 91 commercial waterfront facilities serving the port. The General Cargo Facilities include 21,373 feet of usable berthing space, 13 transit sheds with a total capacity of 474,300 square feet, and 9 freight stations with a total storage capacity of 270,400 square feet. Oil Handling Facilities consist of 2,714 feet of usable berthing space and 36 storage tanks with a total storage capacity of 744,475 barrels. Available share house storage includes dry storage of 1,450,500 square feet and cold storage of 11,204,000 cubic feet. There are 117.1 acres of open storage at the port.

Hoisting Facilities located at the port include two 40 ton cranes and cranes with capacities up to 200 tons available through local rental. Twelve waterfront repair yards and 2 off water yards serve the port. Dry-dock facilities available include 7 marine railways and 4 boat lifts with haul out capacities ranging from 40 to 1,000 tons and lifting capacities ranging from 79 to 500 tons. Nine tugs, with ratings up to 3,000 horsepower, and 13 tank barges, with capacities up to 35,000 barrels, are also available. The CSX and the Florida East Coast Railway serve rail Facilities at the port.

Facilities are considered adequate for existing commerce. (See Port Series No. 16, Rev. 1982.)

Operations and results during fiscal year. New work: Engineering and design costs, $1,079,821. Maintenance: Engineering and design costs were $74,352.

Condition at end of fiscal year. Phase I was completed in August 1994. Phase II is scheduled for completion in November 2005. The remainder of Phase II is being taken over by the Corps of Engineers and a new Project Cooperation Agreement will be executed. A GRR for further deepening is slated for WRDA 2004.

23. NEW PASS, SARASOTA, FL

Location. Sarasota Bay is a tidal lagoon along the west coast of Florida immediately south of Tampa Bay. New Pass is a gulf inlet across the bay from Sarasota, Florida. (See NOAA Nautical Chart No. 11425.)

Existing project. The authorized project provides for an entrance channel 10 feet deep and 150 feet wide in the Gulf of Mexico diminishing to 8 by 100 feet through New Pass and extending across Sarasota Bay to the Intracoastal Waterway with side channels to, and turning basins at, Payne Terminal and city pier. Plane of reference is mean low water. Mean range of tide is 1.3 feet in Sarasota Bay; mean spring range is 1.7 feet.

Project is about 4 miles long. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. Consist of Payne Terminal, a slip 200 by 650 feet, and city pier, 400 feet long with 2 finger piers equipped with adequate facilities at each location.

Operations and results during fiscal year. Maintenance: Maintenance dredging contract $1,069,000, contract management $138,000, engineering and design $103,847.

Condition at end of fiscal year. Project was completed in 1964. Authorized project depths were restored as of May 2003.

24. OKEECHOBEE WATERWAY, FL

Location. The waterway traverses the southern part of the Florida peninsula via the Caloosahatchee River, Lake Okeechobee, and St. Lucie Canal, connecting coastal waterways along the Gulf and Atlantic Shores. (See NOAA Nautical Chart No. 11428.)

Previous project. For details, see page 785 of 1949 Annual Report.

Existing project. The authorized project provides for replacing the old locks on the St. Lucie Canal by a single new lock; a channel 10 by 100 feet from Ft. Myers for about 5 miles upstream, thence 8 by 80-100 feet to the Intracoastal Waterway, Jacksonville to Miami, near Stuart; a side channel at Ft. Myers; operation and care of St. Lucie Lock; and maintenance of features completed under previous projects as follows: a 12 by 200 foot channel from the Gulf of Mexico to Punta Rassa, thence 10 by 100 feet to Ft. Myers with a 10 foot depth basin at Fort Myers; a 6 by 80 foot channel along the south shore of Lake Okeechobee from Clewiston to St. Lucie Canal; a 6 by 60 foot channel in Taylor Creek from the town of Okeechobee to the Lake; and operation and care of Moore Haven and Ortona Locks. (See Table 9-B for Authorizing Legislation.)

For further details see 1962 Annual Report.

Local cooperation. Fully complied with for completed portion of project. Non-Federal contribution amounted to $503,700.

Terminal facilities. There are 3 freight piers, one municipal recreation pier, 4 privately owned piers, and a municipal yacht basin on the Caloosahatchee River near Fort Myers. The Corps has provided a boat basin, launching ramp, and a 120-foot wharf on the Caloosahatchee River about one-quarter mile below Ortona Lock. There are tie-up dolphins above and below all 5 locks. Commercial yacht basins are provided on the south side of the Caloosahatchee River about halfway between Ortona and Moore Haven Locks and about 3 miles east of LaBelle. A commercial/municipal yacht basin is provided on the north side of the St. Lucie Canal at Indiantown.

There are numerous small wooden-pile landings along the Caloosahatchee River, St. Lucie Canal, and on the St. Lucie River, including one railroad terminal pier, municipal pier, and a pier for handling petroleum products at Stuart. Also, 550 feet of wharves have been provided on the west side of Taylor Creek immediately landward of Hurricane Gate No. 6 and 150 feet on the east side of the creek. A yacht basin has been provided on the west side of the creek immediately landward of the hurricane gate. The installations on Taylor Creek are privately owned, but are open to the public. A breakwater-protected harbor is available at Pahokee. There is a 440 foot marginal wharf on the Industrial Canal at Clewiston; a 125 foot wharf at LaBelle; a 150 foot wharf at Belle Glade; a 125 foot wharf at Moore Haven; a 50 foot wharf at Alva; and a 30 foot wharf on Taylor Creek at the town of Okeechobee. A docking facility for loading raw sugar was constructed in 1967 on Herbert Hoover Dike near Belle Glade. All have highway and/or railway connections. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. (See Table 9-L for work accomplished.)

Condition at end of fiscal year. The project is complete. (The 8 foot depth basin at Stuart was deauthorized by WRDA of 1988, P.L. 100-676.)

25. OKLAWAHA RIVER, FL

Location. The river has its source in a system of large lakes in the central part of the Florida peninsula and flows generally northerly, then easterly, and emptying into St. Johns River 22 miles upstream from Palatka. The extreme head of the system is considered to be Lake Apopka, 120 miles above the river's mouth.

Previous projects. For details, see page 613 of 1938 Annual Report.

Existing project. The authorized project provides for clearing a channel to Lake Griffin; maintaining dikes

to obtain a navigable depth of about 4 feet to Leesburg and construction of a lock and dam at Moss Bluff. The project length is about 85.7 miles. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. Several private and public landings and boat-launching ramps are located along the river. Public recreation craft basins and boat launching ramps are near Silver Springs and State Roads 40 and 316 bridges. There is a municipal wharf on Lake Griffin at Leesburg. A dam has created Lake Ocklawaha (13,000 acres) with egress to the St. Johns River through Buckman Lock. Along the lake are 4 launching ramps; Payne's Landing, Orange Springs, Kenwood Landing, and Rodman Recreation Area. Access below the dam is at the Ocklawaha Boat launch ramp and at State Road 19. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Snagging and Clearing, $25,981

Condition at end of fiscal year. The project is complete. (A 6-foot depth channel from the mouth of the river to the head of Silver Springs Run was deauthorized.) The Moss Bluff lock and dam structure was replaced under the Four River Basins, Florida flood control project.

26. PALM BEACH HARBOR, FL

Location. The authorized project is located on the east coast of Florida about 71 miles north of the entrance to Miami Harbor and about 264 miles southeasterly from the entrance to Jacksonville Harbor. (See NOAA Nautical Chart No. 11472.)

Existing project. The authorized project provides for an entrance channel 35 by 400 feet merging with an inner channel 33 by 300 feet to and including a turning basin; tank revetment; and restoring jetties. Plane of reference is mean lower water. The project is about 1.6 miles long.

Mean range of tide in the ocean at the entrance is 2.8 feet and at the turning basin, 2.2 feet. Extreme range of tide is about 4.5 feet at the inlet and 3 feet at the terminals. Seven-foot tidal ranges have occurred during storms. For details, see 1962 Annual Report. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date. For requirements, see 1961 Annual Report.

Terminal facilities. The port has 13 commercial waterfront facilities. The General Cargo Facilities include 5,156 feet of usable berthing space and 6 transit sheds with a total of 118,030 square feet of storage capacity. The Oil Handling Facilities consist of 10 storage tanks with a total capacity of 2,029,600 barrels. Usable berthing space is not available at the Oil Handling Facilities. Dry storage is available at 150,500 square feet, cold storage at 19,200 cubic feet and open storage at 27.1 acres. Seven cranes with capacities from 15 to 230 tons are located at the port. There are no floating cranes, repair facilities or dry-dock facilities located at the port. A 100-ton vertical boatlift is located on the Intracoastal Waterway south of the port for heavy lifts. Two tugs with ratings of 900 and 1,000 horsepower are available. The Palm Beach Belt Line, which connects, with the Florida East Coast Railway serves the port.

Facilities are considered adequate for existing commerce. (See Port Series No.16, Rev. 1982.)

Operations and results during fiscal year. Maintenance: Real estate management $35,887: Contract dredging, $1,953,797; engineering and design, $473,681, contract management, $524,284.

Condition at end of fiscal year. The project was completed in 1967. Jetties and revetment are in need of repair. Maintenance dredging was completed May 2003. Future maintenance dredging will occur yearly as necessary depending on shoaling conditions.

27. PALM VALLEY BRIDGE, FL

Location. Palm Valley Bridge is located over the Intracoastal Waterway on State Road 210 in St. John's County, Florida.

Existing project. The project replaced the existing Palm Valley Bridge with a new high-level bridge that is fixed for navigation. Additional roadway construction was required because of the new bridge alignment. The old bridge was removed and the Intracoastal Waterway in the vicinity of the old bridge will be dredged to its authorized dimensions. (See Table 9-B for Authorizing Legislation).

Local cooperation. Operations and maintenance at an estimated $75,000 per year.

Terminal facilities. None in the immediate area.

Operations and results during the fiscal year. New Work: Real estate cost was $9,652; bridge construction

cost was $750,676; Engineering and design cost was $96,301. Construction management cost was $34,989.

Condition at end of fiscal year. Local sponsor is funding expansion from 2 to 4 lanes. PCA executed in December 1999. Construction contract awarded September 2000. The County Commissioners have approved a betterment to a 4-lane bridge. The new bridge was completed in July 2002.

28. PONCE DE LEON INLET, FL

Location. Ponce de Leon Inlet is on the Atlantic coast of Florida about 65 miles south of St. Augustine Harbor and 57 miles north of Canaveral Harbor. (See NOAA Nautical Chart No. 11485.)

Existing project. The authorized project provides for an entrance channel 15 by 200 feet across the ocean bar, thence 12 by 200 feet and 12 by 100 feet through the inlet; thence southward in Indian River North, 12 by 100 feet, and northward in Halifax River, 7 by 100 feet, each leg continuing to the Intracoastal Waterway; ocean jetties on the north and south of the inlet 4,200 and 2,700 feet long respectively, and weir in the north jetty with an impoundment basin inside the jetty. Plane of reference is mean low water. Mean range of tide is 4.1 feet in the ocean and 2.3 feet inside the inlet. The project is about 5 miles long.

Estimated cost for new work is $3,500,000 Federal and $2,900,000 non-Federal.

Local cooperation. Fully complied with to date. Non-Federal contribution for new work was $2,452,600.

Terminal facilities. None in the immediate area.

Operations and results during fiscal year. New Work: Engineering and design cost was $55,680. Maintenance: Contract management costs were $725.

Condition at end of fiscal year. The north jetty revetment is complete.

29. PONCE HARBOR, PR

Location. Ponce Harbor is an open bay about midway on the south coast of Puerto Rico. From the center of the city of Ponce, the harbor is about 3 miles south. (See NOAA Nautical Chart No. 25677.)

Previous project. For details, see page 12 of Annual Report for 1975.

Existing project. The authorized project provides for a seawall 362 feet long extending northwesterly across the rock reef from near the landward end of the municipal pier, 30 feet deep and containing about 18 acres; a breakwater 2,400 feet long extending southwesterly from Punta Carenero; a channel 36 feet deep by 600 feet wide extending from the Caribbean Sea approximately 2.8 miles up to the port, thence a channel 400 feet wide by 36 feet deep into the harbor, and a 36 foot deep, irregularly shaped turning basin with a diameter of 959 feet. Plane of reference is mean low water. Mean tidal range is 0.6 foot, extreme varies between about 1 foot below and 2 feet above mean low water. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Should provide all lands, easements and rights-of-way; provide and maintain at local expense depths in berthing areas and local access channels; hold United States free from any damages resulting from construction and maintenance of the project; relocate without cost to the United States all cables, sewer mains, water supply, drainage and other utility installations as required; provide adequate public terminal and transfer facilities open to all on equal terms. A letter has been received from mayor of Ponce, assuring compliance with local requirements and to cost share the project. Non-Federal contribution for new work was $717,304. A 25 percent contribution is required and an additional 10 percent reimbursement over 30 years from locals.

Terminal facilities. The municipality of Ponce owns and operates the only deep-draft terminal facilities in Ponce Harbor, which consist of a municipal pier 515 feet long and 108 feet wide, and a bulkhead wharf 3,811 feet long. Both are equipped for transfer and storage of freight. A 40-ton container lift shore crane is available for the handling of loaded containers. The municipal pier has a steel transit shed 386 by 85 feet. The bulkhead wharf has 4 steel transit sheds totaling over 103,000 square feet. Three concrete and steel warehouses are available providing 800,000 square feet for general storage. Open storage areas for structural steel, lumber, and other bulk and package commodities are also provided. Bulk cement is handled and loaded into cement cargo ships by the use of a private pipeline loading facility. A tuna fish processing and canning factory is located on the premises, with direct access to the bulkhead wharf. Existing facilities are open to the public. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: None.

Condition at end of fiscal year. Construction of the project is complete. South and north jetties are in fair condition.

30. PORT EVERGLADES HARBOR, FL

Location. The harbor is on the east coast of Florida about 23 miles north of Miami and about 48 miles south of Palm Beach Harbor, Florida. (See NOAA Nautical Chart No. 11470.)

Existing project. The authorized project provides for an ocean entrance channel 45 by 500 feet through an ocean bar tapering to 42 by 450 feet between rubble stone entrance jetties, and continuing at that depth to an irregularly flared entrance and turning basin of same depth; enlarging Pier 7 channel to 36 by 400 feet for distance of about 1,600 feet; maintenance of the locally dredged channel opposite Berth 18 to 36 feet deep over a length of 700 feet with varying widths of 200 to 150 feet; construction of a south jetty fishing walkway; and, maintenance of the jetties. Plane of reference is mean low water. The project is about 1.9 miles long. Mean range of tide is 2.5 feet at the entrance and 2.3 feet at the terminals; extreme range is about 4.5 feet with storm tides of about 6.5 feet.
Estimated cost of new work is $240,000,000 Federal and $86,000,000 non-Federal.

Local cooperation. Fully complied with for work completed to date. For work under H 144/93/1, local interests must: provide all lands, easements and rights-of-way; save United States free from damages; accomplish utility and other relocations or alterations; provide depths in berthing areas and local access channels serving the terminals commensurate with depths provided in the related project areas; establish regulations prohibiting discharge of pollutants into waters of the channel by users thereof; prohibit erection of any structure within 100 feet of project channel as authorized at time of construction; provide and maintain public terminal and transfer facilities; contribute 50 percent of total first costs of recreational jetty fishing facility; and operate and maintain jetty fishing facility. The local sponsor has furnished assurances of local cooperation for the 1974 authorization.
Terminal facilities. There are 22 commercial waterfront facilities serving the port. The General Cargo Facilities include 13,807 feet of usable berthing space, 7 transit sheds with a total capacity of 393,870 square feet, and 6 container yards with space for 3,965 containers. Oil Handling Facilities consist of 232 storage tanks with a total storage capacity of 9,564,800 barrels. There is no usable berthing space located at the Oil Handling Facilities. Dry storage is available at 225,000 cubic feet and open storage at 100.3 acres.

Hoisting facilities available from a local firm include 8 cranes with capacities from 20 to 155 tons. No floating cranes or derricks for heavy lifts are available at the port. There are 2 marine repair yards. Dry-dock facilities include 2 dry-docks with capacities of 2,200 and 3,200 tons and a 4,270 ton vertical boatlift. Three tugs with ratings up to 4,290 horsepower serve the port. The Port Everglades Belt Line connects with the CSX railroad to serve the port.

Facilities are considered adequate for existing commerce. (See Port Series No. 16, Rev. 1982.)

Operations and results during fiscal year. Maintenance: Engineering and design costs were $143,878.

Condition at end of fiscal year. Feasibility study to expand and deepen the port is scheduled to be completed in October 2005. PED is scheduled to start in May 2006 with an October 2006 completion date at a Federal cost of $750,000.

31.REMOVAL OF AQUATIC GROWTH FROM NAVIGABLE WATERS IN THE STATE OF FLORIDA.

Location. Water hyacinth, hydrilla and water lettuce are found in Federal navigation projects in the Jacksonville District.

Existing project. The authorized project provides for destruction or removal of aquatic growth in Federal navigation projects in Jacksonville District, which threaten or negatively impact navigation. This project is 100% federally funded. No estimate of the final cost of work has been made. (See Table 9-B for Authorizing Legislation.)
For further details, see 1962 Annual Report.

Local cooperation. None required.

Operations and results during fiscal year. Maintenance: Operations continued during the year: $3,957,194. (See Table 9-B for Authorizing Legislation and Table 9-M for spraying operations.)

Condition at end of fiscal year. The project is for maintenance of federal navigation projects. During the year approximately 10,000 acres of floating vegetation (water hyacinth and/or water lettuce) and 5,000 acres of hydrilla were controlled.

32. ST. AUGUSTINE HARBOR, FL

Location. The harbor is on the east coast of Florida, about 35 miles south of the entrance to St. Johns River and about 180 miles north of Fort Pierce Harbor. (See NOAA Nautical Chart No. 11485.)

Previous project. For details see page 412 of Annual Report for 1958.

Existing project. The authorized project provides for a channel 16 by 200 feet along the best natural new inlet bar, thence 12 feet deep to the Intracoastal Waterway; a sand trap groin on the north side of the inlet extending seaward from the shore of Vilano Beach, and a sand-tight jetty on the south side of the channel extending seaward from the shore of Conch Island parallel to and coextensive with the groin; future landward extension of the groin and jetty; and a channel 10 by 100 feet in San Sebastian River from the Intracoastal Waterway to King Street Bridge, with a turning basin near the upper end. Length of the inlet channel is about 1.5 miles and length of the San Sebastian River channel is about 2.6 miles. Plane of reference is mean low water. The mean tidal range is 4.5 feet in the ocean at St. Augustine Inlet and 4.2 feet at the city waterfront. Strong northerly winds, mostly in the winter, lower the water surface about 1 foot. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Fully complied with to date.

Terminal facilities. There are several timber docks on the Matanzas waterfront of St. Augustine. In this area of the harbor is a concrete dock, which serves as a municipal yacht pier. It has fuel facilities, 19 slips and accommodates boats up to 60 feet in length. A large public boat ramp is also available. The principal terminals are the numerous shrimp docks in the San Sebastian River, which flows southward through the city into the Matanzas River south of the bridge. These consist of timber wharves, with frame and corrugated iron warehouses thereon, and 9 marine railways for small boats. There is also a marine supply facility and several boat yards. The present terminals have highway connections and several of the shrimp docks have rail connections. They are considered adequate for existing commerce and recreational craft.

Operations and results during fiscal year. Maintenance: $7.

Condition at end of fiscal year. Project is complete except for the North Jetty, which is in a deferred status. The groin is in good condition except for the 300 feet, which has subsided to about elevation 3.0 feet, mean low water. The jetty is in good condition, but is submerged at high tide. Maintenance dredging at the entrance channel was completed December 2002.

33. ST. JOHNS RIVER, FL, JACKSONVILLE TO LAKE HARNEY

Location. Rises in marshes of Brevard County, Florida, near east coast, and flows northwesterly to Jacksonville, thence easterly into the Atlantic Ocean, 122 miles south of Savannah River. River is about 285 miles long, of which 161.5 miles are included in project. (See NOAA Nautical Chart No. 11492.)
Previous projects. Adopted by River and Harbor Acts of June 14, 1880 and July 5, 1884. For further details see Annual Reports for 1915 and 1938.

Existing project. Channel is 13 by 200 feet from Florida East Coast Railway Bridge at Jacksonville to Palatka, thence 12 by 100 feet to Sanford, and thence 5 by 100 feet to Lake Harney, with side channel to Enterprise and maintenance of two jetties.
Existing project was authorized by River and Harbor Acts of March 2, 1945 (H 445/78/2) and July 24, 1946 (SD 208/79/2). For further details see Annual Report for 1962.

Terminal facilities. There are 36 piers and wharves along project, including municipal piers and wharves at Green Cove Springs and Palatka, 12 Navy piers at Green Cove Springs, a municipal recreational pier at Sanford, and 19 privately owned piers, 5 of which have nearby tank storage facilities for petroleum projects. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. None.

Condition at end of fiscal year. Active portion is complete. Condition of project, as a whole is adequate for present needs of navigation. (For more detailed information refer to 1963 Annual Report.)

34. ST. LUCIE INLET, FL

Location. The inlet is on the east coast of Florida about 19 miles south of the entrance to Fort Pierce Harbor, Florida, and 100 miles north of the entrance to Miami Harbor, Florida. (See NOAA Nautical Chart No. 11472.)

Previous project. For details see page 764 of Annual Report for 1949.

Existing project. The authorized project provides for extending the north jetty about 500 feet and modifying existing jetty to provide a sand bypass weir section about 500 feet long; excavation of a sand impoundment basin adjacent to the bypass weir in the north jetty; construction of a south jetty consisting of a rubble mound structure about 2,400 feet long with a walkway for recreational fishing; channel between existing bar cut and the Intracoastal Waterway 10 by 500 feet through the bar cut, tapering to 150 feet through the inlet, and 7 by 100 feet to the Intracoastal Waterway; and transfer of 380,000 cubic yards of material to the south beach during each two year maintenance period. Total project length is about 1.9 miles. Plane of reference is mean low water. Mean tidal range is 2.6 feet on the ocean side and about one foot on the landside of the inlet. (See Table 9-B for Authorizing Legislation.)

Estimated cost of new work $16,800,000 Federal and $4,400,000 non-Federal.

Local cooperation. Local interests must: contribute 19.9 percent of construction cost allocated to navigation in the combined project, 23.1 percent allocated to beach erosion, and 50 percent of construction cost of jetty fishing walkway; provide 39.8 percent of the annual maintenance cost allocated to navigation and 23.2 percent of the annual costs for maintenance dredging allocated to beach erosion control for periodic beach nourishment and 100 percent of the annual jetty maintenance costs allocated to beach erosion control; maintain jetty fishing walkway; agree that each 5 years the amount of local cost sharing for maintenance is to be adjusted; provide all lands, easements, and rights-of-way; hold United States free from damages; provide marina with mooring facilities and utilities; provide and maintain depths in berthing area and local access and feeder channels commensurate with the depths provided in the project; accomplish such alterations as required to sewer, water supply, drainage, and other utility facilities, and take action to place in effect statutes and/or regulations which will protect water quality for the authorized uses of the project. The local sponsor signed assurances of local cooperation for the 1974 modification on August 24, 1978. Non-Federal contribution for new work was $3,851,383.

Terminal facilities. A municipal pier provides facilities for docking and servicing charter fishing and small recreational craft. At Stuart there is a dock for handling bulk petroleum products and several marinas, which provide facilities for mooring, servicing and minor repair of small craft. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. New Work: Navigation $300,459; engineering and design, $4,006; contract supervision, $4,614. Maintenance: Engineering and design, $98,485.

Condition at end of fiscal year. Work required to complete the project is construction authorized in HD 294/93/1. Improvements to the inlet were authorized in 1974. Due to limited funding during construction, the south jetty was completed 1,000 feet short of the authorized length; the impoundment basin was not constructed to design capacity as a shallow subsurface rock was encountered. Sufficient commercial benefits were identified in the economic update study to reclassify the inlet from a predominately recreational usage inlet to a commercial usage inlet. Construction of impoundment basin was completed August 2002. Construction of remaining jetty elements scheduled for summer 2005. Authorized project depths were restored as of August 2002.

35. SAN JUAN HARBOR, PR

Location. San Juan Harbor is on the north coast of Puerto Rico and about 35 miles from the east end of the island and 1,100 miles southeast of Miami, Florida. (See NOAA Nautical Chart No. 25670.)
Previous projects. For details see Annual Reports for 1915, 1916, and 1938.

Existing project. The authorized project to provide the deepening of the Bar Channel to 48 feet and shifting its alignment 350 feet west; deepening Anegado and Army Terminal to 40 feet; deepening Graving Dock Channel, the Cruise Ship Basin, Puerto Nuevo Channel, and San Antonio Channel to 36 feet; and deepening Anchorage Area E to 38 feet while reducing its size and constructing 6 mooring dolphins within its limits. The Sabana approach channel deepened to 32 feet. Estimated cost of new work $45,300,000 Federal and $16,400,000 non-Federal.

Local cooperation. Should provide all lands, easements and rights-of-way; hold the United States free from any damages; provide and maintain depths in berthing areas and local access and feeder channels; provide alterations as required to sewer, water supply, and other utility facilities. It is further recommended that local interests be reimbursed for work performed by them on the project subsequent to project authorization. A 25 percent contribution and an additional 10 percent reimbursement over 30 years from locals are required. Non-Federal contribution for new work was $16,128,708.

Terminal facilities. There are 28 piers and bulkhead wharves in the harbor capable of docking deep-draft vessels, which have an aggregate berthing length of about 23,700 feet. Eleven piers and bulkhead wharves are on the north shore, 2 piers and a three-level ramp facility for roll-on/roll-off operations at Front Graving Dock turning basin and channel, 9 at the eastern side and 3 at the western side of the Army Terminal basin and channel, and 3 on the south shore of San Antonio Channel. One pier and bulkhead wharf are privately owned, 7 are U.S. Government property, and the Commonwealth of Puerto Rico owns 24. Twenty piers and wharves are equipped with mechanical crane transfer facilities. Five wharves are equipped with a special crane for handling loaded containers. Twenty-four are open to the general public. Pier No. 6 was repaired and improved in 1985.

There is an aggregate length of about 1,339 feet of berthing space at Catano Point used principally by small vessels within the 18-foot draft range. This space is also open to the public. In addition, there are 10 piers and bulkhead wharves with approximately 6,910 feet of berthing space owned and operated by different agencies of the Federal Government. This space is not open to the public.

Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. New Work: Real estate cost was $41,482; channels and canal cost was $3,247,058. Navigation cost was $856,056; engineering and design cost was $379,955. Construction management cost was $68,761. Maintenance: Dredging contract cost were $108,833, engineering and design $353,101.

Condition at end of fiscal year. The PED phase was completed in September 1995. Revisions to the plans and specifications were accomplished in FY 97. Execution of PCA was completed June 1998. Authorized in WRDA 1996. Contract II (navigation improvements for the Bar, Anegado, and Army Terminal Channel) has been completed. Plans and specifications for Mitigation contract are ongoing and contract is scheduled for award in FY 04.

Existing project includes the entrance channel and turning basin to Army Terminal, which cost $1,543,712 (this expenditure was made from military appropriations and is not included in Table 9-A costs).

36. TAMPA HARBOR, FL

Location. Tampa Harbor is in a large natural indentation of the Gulf of Mexico about midway of the west coast of Florida. The entrance is about 220 miles north of Key West and about 330 miles southeast of Pensacola. (See NOAA Nautical Chart Nos. 11413 and 11414.)

Previous projects. For details see page 665 of 1938 Annual Report.

Existing project. The authorized project provides for a channel from the Gulf of Mexico to Port Sutton and Tampa; 46 by 700 feet from the Gulf of Mexico to Mullet Key; 44 by 600 feet in Mullet Key Cut Channel; 44 by 500 feet in Tampa Bay from Mullet Key Cut to Hillsborough Bay and Port Tampa Channels; 44 by 500 feet in Hillsborough Bay from junction with Tampa Bay and Port Tampa Channels to the junction with Port Sutton entrance channel, thence 42 by 400 feet to the junction with Seddon and Garrison Channels; 44 by 400 feet in Port Sutton entrance channel; 42 by 400 feet in Sparkman Channel; 40 by 300 feet in Ybor Channel; 42 by 400 feet in Port Tampa Channel; 44 by 400-500 feet in East Bay entrance channel; 44 by 300 feet in East Bay approach channel; 12 by 200 feet in Seddon and Garrison Channels; 32 by 200 feet in Alafia River; 9 by 100 feet in Hillsborough River to a point 2,000 feet above Columbus River bridge; a breakwater; a 42 by 290 foot Port Sutton Terminal Channel 3,700 feet long; turning basins at Ybor Channel, Port Tampa, East Bay, mouth of Hillsborough River, and in Alafia River; and maintenance of a channel 12 by 200 feet in Hillsborough River, and 34 by 300 feet in East Bay Channel. (The 46-foot and 44 foot depth portions of the project include a 5-foot under keel clearance. Special studies on the project concluded that 4 feet under keel is sufficient. Therefore, a one-foot over depth has been placed in an inactive status, resulting in active project depths of 45 and 43 feet respectively.)

Plane of reference is mean low water. The project is about 67 miles long, including 10 miles in Hillsborough River and 3.6 miles in Alafia River. Mean range of tide is 1.3 feet at the lower end of the bay, 1.6 feet at Port Tampa, and 1.8 feet at Tampa. Extreme range is about 3.8 feet at the lower end of the bay and 4.8 feet at Tampa. Strong southwesterly winds raise the water level about 1.5 feet. Strong northerly winds, which usually occur in the winter, lower the water level about 2 feet. (See Table 9-B for Authorizing Legislation.)

Estimated cost for Big Bend Channel $9,100,000 Federal and $6,400,000 non-Federal. Estimated cost for Alafia River is $39,000,000 Federal and $15,000,000 non-Federal. Estimated cost for Port Sutton is $7,000,000 Federal and $4,800,000 for non-Federal.

For further details, see 1962 Annual Report.

Local cooperation. Local cooperation has been fully complied with for work completed to date. See 1978 Annual Report for requirements for work authorized by the River and Harbor Act of 1970, H 401/91/2 and H 150/91/1. The Secretary of the Army approved assurances of local cooperation for the 1970 authorization on January 10, 1973. The LCA for branch channels was signed June 20, 1986. An amendment to the LCA reflecting cost sharing requirements of WRDA of 1986 for section 6 was signed August 31, 1987. Non-Federal contribution for new work was $4,971,144. A 25 percent contribution and an additional 10 percent reimbursement over 30 years are required from locals.

Terminal facilities. There are 102 commercial waterfront facilities serving Tampa Harbor. The General Cargo Facilities consist of 7,226 feet of usable berthing space and 15 transit sheds with a total of 585,200 square feet of storage space. The Oil Handling Facilities include 16,440 feet of usable berthing space and 316 storage tanks for a total capacity of 11,610,350 barrels. Dry storage is available at 1,904,750 square feet, cold storage at 14,309,000 cubic feet, and open storage at 59.4 acres. There are 2 wharves available for coal storage at 750,000 tons total storage and grain elevators with a 3,400,000-bushel total capacity. One elevator on Ybor Channel has a 1,000,000-bushel capacity.

Hoisting Facilities include 13 cranes, fixed and mobile, with capacities from 45 to 150 tons and other crawler and mobile cranes available locally. Marine repair yards include 9 waterfront repair facilities and numerous other off water companies engaged in various phases of marine repair. There are 4 floating and 4 graving docks available at the port with capacities ranging from 548 to 5,400 long tons. Floating equipment includes 24 tugs with up to 3,350 horsepower and 4 companies with tank barges of capacities up to 14,000 barrels. The CSX Railroad serves the port.

Facilities are considered adequate for existing commerce. (See Port Series No. 17, Rev. 1979.)

Operations and results during fiscal year. New work: Alafia River Engineering and design, $67,914. Port Sutton: Engineering and design cost was $12,849. East Bay Channel: Real estate cost was -$4,571. Big Bend: Engineering and design cost was $48,837. GRR: Engineering and design cost was $436,747. Maintenance: Dredging for cuts A, C, J, and K $4,599,784; engineering and design $1,274,599; and construction management $323,466.

Condition at end of fiscal year. Big Bend Channel Chief's report signed in October 1998. PED agreement executed February 1998. PED currently underway. Feasibility report for Alafia River completed October 2000. Final feasibility report is expected to be approved by HQUSACE and underway by December 2003. Port Sutton is on hold awaiting completion of bulkhead/stabilization work by sponsor. Plans and specifications will begin after sponsor work nears completion.

37. NAVIGATION PROJECTS ON WHICH RECONNAISSANCE AND CONDITION SURVEYS ONLY WERE CONDUCTED DURING PERIOD

Total cost was $751,406. (See Table 9-H.)

38. OTHER AUTHORIZED NAVIGATION PROJECTS

(See Table 9-C.)

39. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation Activities Pursuant to Section 107, Public Law 86-645 (Preauthorization)

Fiscal year costs for Section 107 Coordination Account, $33,124; Salt Run, St. Augustine, FL, $30,277; Hernando Beach Channel, FL $43,904; Canaveral Harbor (West Turning Basin), FL -$28; Palm Beach Harbor, FL $352,566; Ponce de Leon, FL $39,197; Port Everglades Harbor, IWW $45,406.

Snagging and clearing for navigation (Section 3 of 1945 River and Harbor Act, Public Law 14, 79th Congress.)

No costs incurred.

Mitigation of shore damages attributed to navigation projects (Sec 111).

Stohl Road, Aguadilla Harbor, PR $2,291; Virginia Beach Key, FL $147,983; Aguadilla Coast Line, PR $4,845.

Beach Erosion Control

40. BREVARD COUNTY, FL

Location. The project is on the east coast of Florida at approximately the midpoint of the peninsula. (See NOAA Nautical Chart Nos. 11484 and 11476.)

Existing project. The authorization provides for a protective and recreational beach with a berm 50 feet wide at elevation 10 feet above mean low water and a natural seaward slope as would be shaped by wave action, along 9.4 miles from the Canaveral harbor south jetty to Patrick Air Force base, (North Reach) and 3.4 miles of beach at Indialantic and Melbourne beach, and for periodic nourishment of the restored beach at Indialantic and Melbourne beach limited initially to a period of 6 years. Nourishment of the restored beach at the city of Cape Canaveral would be provided by the authorized sand-transfer plant for construction at Canaveral Harbor. The project also provides for improvement of the Federally owned shores for beach erosion control or hurricane protection to be accomplished by the Federal agencies involved, subject to their own determination of economic justification. Mean tidal range in the area is 3.5 feet. (See Table 9-B for Authorizing Legislation.) Estimated cost for new work $142,600,000 Federal and $98,600,000 non-Federal.

Local cooperation. Local interests must contribute 50 percent of all first costs of the work and 50 percent of the nourishment cost at Indialantic and Melbourne beach for the first 10 years of the project life; provide lands and rights-of-way; provide, after the first 10 years of project life, periodic nourishment of the restored beach at Indialantic and Melbourne beach during project life; maintain continued public ownership of the shore upon which the amount of Federal participation is based; control water pollution; and hold the United States free from damages. The Secretary of the Army approved assurances of local cooperation on July 9, 1973. Non-Federal contribution for new work was $15,411,026.

Operations and results during fiscal year. New work: Lands and damages cost was $65. Beach replenishment cost was $2,627,725. Engineering and design cost was $142,785. Construction management cost was $128,327.

Condition at end of fiscal year. Feasibility report was completed in September 1996, approved in December 1996, and authorized by Section 101(b) of WRDA 1996. PED completed in September 1999. PCA was signed April 2000 and North Reach contract was awarded September 2000. A continued construction contract was awarded for South Reach in December 2001 and completed in April 2003. A GRR will be initiated in FY04 for the mid reach, which consists of 7.6 miles south of Patrick Air Force base. The GRR is scheduled to be completed by September 2007.

41. BROWARD COUNTY, FL BEACH EROSION CONTROL AND HILLSBORO INLET, FL NAVIGATION PROJECT

Location. Broward County is on the lower east coast of Florida, 300 miles south of Jacksonville and about 30 miles north of Miami. Hillsboro Inlet is in the northern part of Broward County. (See NOAA Nautical Chart No. 11466.)

Existing project. The authorization provides for Federal participation in cost sharing of a shore restoration and protection project and a project to maintain a channel adequate for small craft navigation. The authorized plan provides for restoration of a shoreline protection and recreational beach at 4 locations generally 100 feet wide with berm elevation of 10 feet above mean low water; a navigation channel 8 by 100 feet from the Intracoastal Waterway to a point 1,500 feet ocean ward in Hillsboro Inlet, thence

10 by 150 feet in the ocean; jetties on north and south sides of ocean entrance; a permanently based floating dredge; and on a deferred basis, a trestle-mounted sand-transfer plant, if needed. Navigation portion of the project is in an inactive status. Mean range of tide in areas is 2.5 feet. Plane of reference is mean low water.

Cost estimate for Broward County is $112,200,000 Federal and $100,800,000 non-Federal contribution. For Hillsboro Inlet, $3,400,000 and $1,100,000 non-Federal. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Local interests must contribute 90.5 percent of the first cost beach restoration in the reach between north county line and Hillsboro Inlet, Seg. II, 90 percent of first cost allocated to beach restoration, and 50 percent of first cost allocated to navigation for reach between Hillsboro Inlet, Seg. III, and Port Everglades and 72.4 percent of beach restoration in reach between Port Everglades and south county line; provide all lands and rights-of-way; obtain approval of Chief of Engineers of plans and specifications if local interests construct beach erosion features; and furnish assurances that they will hold the United States free from damages; provide and maintain adequate public landing or wharf at Hillsboro Inlet; establish a public body to cooperate financially and to provide and operate local facilities for navigation, control water pollution, maintain ownership of publicly owned shores, and maintain all project works except the jetties (maintenance of the channel to revert to the United States if sand-transfer plant is constructed). Assurances of local cooperation were accepted November 22, 1968. Non-Federal contribution for new work was $3,460,990.

Operations and results during fiscal year. New work: Broward County BEC: Hillsboro Inlet: Lands and damages, $5,471; beach re-nourishment contract $1,456,000; engineering and design $203,861.

Condition at end of fiscal year. The GRR for re-nourishment of Segments II and III, prepared by Broward County, is under Washington level review. The County intends to award a contract for re-nourishment of Segment III in the summer of 2004. The City of Deerfield Beach has recently indicated a desire to initially construct Segment I. The FEIS is scheduled to be filed by January 2004. A GRR will be initiated in 2004 by USACE for segment I based upon funding appropriated by congress in FY03 and FY04

42. DUVAL COUNTY, FL

Location. On upper east coast of Florida, within 20 miles of Florida-Georgia line. Ocean shoreline is about 16 miles long. (See NOAA Nautical Chart No. 11488.)

Existing project. Provides for Federal participation toward cost of construction with artificial fill, a beach 60 feet wide at elevation 11 feet above mean low water with a natural slope seaward, and for periodic nourishment for 10 years. Federal participation to be 100 percent of the first cost of construction applicable to the Federal shore and 50 percent applicable to the other publicly owned shore and 55.5 percent of periodic nourishment cost for first 10 years of project life. Mean tidal range at south jetty in St. Johns River is 4.9 feet.

Estimated cost of new work $117,200,000 Federal and $76,700,000 non-Federal.

Project was authorized by River and Harbor Act of 1965 (H 273/89/1).

Local cooperation. Local interests must contribute 50 percent of first cost of constructing non-Federal publicly owned shores; contribute 44.5 percent of periodic nourishment costs for first 10 years of project life; provide all lands, rights-of-way, and relocations; hold the United states free from damages; control water pollution; and furnish assurances that they will maintain continued public ownership of the shore upon which the amount of federal participation is based during economic life of project. Assurances of local cooperation were accepted on November 29, 1973. Non-Federal contribution for new work was $19,595,567.

Operations and results during fiscal year. New work: Engineering and design cost was $258,062; beach re-nourishment contract $3,073,887; contract management $136,979.

Condition at end of fiscal year. Re-nourishment of the shore protection project was combined with the contract for dredging the Jacksonville Harbor navigation project. The shore protection project paid the additional costs to dispose of 200,000 cubic yards of sand along 5 miles of the project area. The work was completed in January 2003.

43. FORT PIERCE BEACH, FL

Location. Fort Pierce Beach Erosion Control Project extends 1.3 miles south of Fort Pierce Inlet, on the east coast of Florida about 120 miles north of Miami.

Existing project. The project fill was initially completed by local interests in 1971, using offshore borrow material. Prior to the nourishment, severe shorefront recession had destroyed a private residence and threatened other residences and a state road. Local interests were reimbursed the federal share of the initial project construction cost. Federal participation in re-nourishment was authorized for an initial 10-year period and subsequently extended five years under the discretionary authority of the Chief of Engineers until 1985. The project was re-nourished in 1980 and 1999.

A Section 111 project authorized in 1982 provides that 60 percent of the cost of material required to nourish 1.3 miles south of Fort Pierce Inlet should be reallocated to the navigation project. A section 934 reevaluation report authorized the extension of federal participation in cost sharing to 50 years from date of initial construction to 2020. A GRR is under preparation to modify cost sharing to reflect inlet impacts and address a critically eroded area of the project. Estimated cost is $36,100,000 Federal and $15,100,000 non-Federal.

Local cooperation. Non-Federal contribution is 53%. Sponsor is fully complying with local requirements.

Operations and results during fiscal year. New work: Lands and damages $28,440, Beach replenishment contract cost was $2,603,111. Engineering and design and construction management cost was $309,510 and $157,141 respectively.

Condition at end of fiscal year. Final EIS addressing bryozoans in borrow completed and approved. Third Re-nourishment completed spring 2003. Engineering and design efforts for fourth re-nourishment completed. Construction of an artificial reef was initiated in June 2003. This reef is to mitigate for impacts to hard bottoms associated with the 1999 re-nourishment.

44. INDIAN RIVER COUNTY, FL

Location. Indian River County is on the east coast of Florida, midway between Jacksonville and Miami. The authorized project comprises 2.65 miles of beach along the ocean shore of Vero Beach and 1.7 miles along the Sebastian Inlet State Park. (See NOAA Nautical Chart Nos. 11474 and 11476.)

Existing project. The authorized project provides nourishment for 8,870 feet (1.68) miles) of the State Park, south of Sebastian inlet. The initial beach fill would consist of 202,000 cubic yards of nourishment material. An estimated 202,000 cubic yards of periodic nourishment at 5-year intervals would be required. The Federal share of the first cost was estimated to be 65 percent of this segment.

The plan also provided for nourishment of 9,180 feet (1.74 miles) of Vero Beach. The initial beach fill consisted of 572,000 cubic yards of material, including advance nourishment. The restored beach would have a 20-foot wide level berm at an elevation of 15 feet above mean low water. The beach fill as designed would provide protection against a 10-year return interval storm. An estimated 120,000 cubic yards of periodic nourishment would be required at 5-year intervals. In addition to the beach fill a "Sabecon" reef breakwater was recommended. The structure would be placed 500 feet offshore of the new beach and would be 400 feet in length, with a zero mean low water crest elevation. The Federal share of the first cost was estimated to be 43.7 percent for this segment.
The project was authorized on November 17, 1986 (Public Law 99-662) by the 1986 Water Resource Development Act.

Local cooperation. The authorization of a beach erosion control project for Indian River County, Florida was made with the provision that the State and local interests will, in addition to the general requirements, agree to comply with the following requirements: provide all necessary lands, easements and rights-of way; including borrow areas and disposal areas for excavated material, and relocations; hold and save the United States free from claims for damages; assure continued conditions of public ownership and public use of the shore; assure maintenance and repair during the economic life of the project; provide and maintain as necessary access roads, parking areas and other public use facilities; provide a cash contribution for periodic nourishment's for the life of the project; provide an additional cash contribution for the Sebastian Inlet State Park Beach. The project, as authorized, provides that the work may be accomplished in separate units or features and that the written agreement with non-Federal interests be obtained. The Indian River County Board of Commissioners, by letters dated December 21, 1984 and January 15, 1987, affirmed their support for the project and their willingness and ability to share in project costs.

Operations and results during fiscal year. New work: None.

Condition at end of fiscal year. No work is currently scheduled.

45. LEE COUNTY, FL

Location. Lee County is on the lower Gulf coast of Florida, about 90 miles south of the entrance to Tampa Bay and 130 miles north of Key West.

Existing project. The project provides for the Federal participation in restoration and protection of Lee County, Florida, as follows: On Gasparilla Island, restore beach along 2.7 miles of shore and provide revetment along 2,400 feet of shore and a 500-foot terminal groin; on Captiva Island, restore beach along 4.7 miles of shore; and on Estero Island, restore beach along 4.6 and provide a 5-year advance supply of beach nourishment material and periodic nourishment of the restored beaches, as needed, with Federal aid for nourishment limited to the first 10 years of project life after completion of the initial fill placement on each island. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $189,100,000 Federal cost and $138,200,000 non-Federal cost.

Local Cooperation. Local interest must: contribute in cash) including contract price, engineering and design, and supervision and administration) 65.8 percent of first cost at Gasparilla Island, 91.3 percent of first cost at Captiva Island, and 87.5 percent of first coast at Estero Island; contribute toward beach nourishment for the first 10 years of project life, 95.5 percent for Gasparilla Island; 91.3 percent for Captiva Island, and 96.9 percent for Estero Island; and contribute 50.9 percent of the annual maintenance costs of the terminal groin on Estero Island; provide after 10 years of project life periodic nourishment of the restored beaches; provide lands, easements, rights-of-way, and relocations; assure continued public ownership for public use of the shore upon which the amount of Federal participation is based; control water pollution; save the United States free from damages; and provide an adequate width of beach with acceptable access and other facilities necessary for public use.

Operations during the year. New work: Lands and damages $4,966, Engineering and design cost was $63,729.

Condition at end of fiscal year. GRR for Estero and Gasparilla Islands is currently under review for initial construction. The County intends to award the contract for initial construction of both islands in summer 2004 under the authority of Section 206 of WRDA 92. Captiva Island second re-nourishment scheduled for summer 2005.

46. MANATEE COUNTY, FL

Location. Manatee County is on the west coast of Florida, just south of the entrance to Tampa Bay. The county's 14-mile gulf shoreline consists of 2 barrier islands, Anna Maria Key and the northern half of Longboat Key, separated from the mainland by Tampa and Sarasota Bays and from each other by Longboat Pass. Project consists of about 7.5 miles of gulf shoreline.

Existing project. Provides for Federal participation in the shore protection project for Manatee County, which includes the entire 7.5-mile, gulf shoreline of Anna Maria Key. The project consists of restoration of 3.2 miles of gulf shore beach to an elevation 6 feet above mean low water with a level berm 50 feet wide and a natural slope seaward as would be shaped by wave action. The project also provides for periodic nourishment of the restored beach and such adjacent shoreline as may be and justified for the project life. Mean tidal range is 2.3 feet. (See Table 9-B for Authorizing Legislation.)
Estimated cost is $53,800,000 Federal and $45,200,000 non-Federal.

Local cooperation. The authorization of a shore protection project for Manatee County, Florida was made with the provision that Federal cost sharing would be in accordance with policy established by existing law, and the percentages based on conditions of shore ownership and use existing at the time of construction: Provided that, prior to construction, local interests furnish assurances satisfactory to the Secretary of the Army that they will: (a) Provide without cost to the United States all lands, easements, and rights-of-way, including borrow areas, and relocations necessary for construction of the improvements; (b) Provide a cash contribution equal to 47 percent of the first cost of construction, subject to any credit for eligible construction costs incurred by local interests, and exclusive of costs for lands, easements, rights-of-way, relocations, and alterations, and exclusive of the cost of fill placed behind the Corps construction line, the final percentage to be based on shore ownership and use existing at the time of construction; (c) Provide all costs of construction for nourishment landward of the Corps construction line; (d) Provide a cash contribution for periodic nourishment equal to 41 percent of the cost of each nourishment, such contribution to be made prior to

each nourishment operation, and the final percentage to be based on shore ownership and use existing at the time of construction; (e) Hold and save the United States free from damage due to the construction works, except for damages due to the fault or negligence of the United States or its contractors; (f) Assure continued public ownership and administration of the shore upon which the amount of Federal participation is based; (g) Provide without cost to the United States appropriate access and facilities, including parking and sanitation, necessary for realization of the public benefits upon which Federal participation is based; (h) Adopt appropriate ordinances, or provide other means, to insure the intended use of the beach fill areas; (i) Control water pollution to the extent necessary to safeguard the health of bathers; and (j) Agree to pay 100 percent of the operation, maintenance, and replacement and rehabilitation's costs of the project, or functional element thereof. Non-Federal contribution for new work is $3,337,348.

Operations and results during fiscal year. New work: Beach Re-nourishment cost was $1.516,586.

Condition at end of fiscal year. Manatee County awarded a contract in December 2001 for the first re-nourishment of the project following initial construction by USACE in 1993 for $8.4 million and completed the contract in May 2002. ASA(CW) approved the use of Section 206 (WRDA 92) authority to allow the County to conduct the first re-nourishment with reimbursement of the Federal share of the costs. The audit of non-federal costs for the re-nourishment is scheduled to be completed in January 2004.

47. MARTIN COUNTY, FL

Location. Martin County is located on the east coast of Florida about 300 miles south of Jacksonville and 70 miles north of Miami. (See Table 9-B for Authorizing Legislation.)

Existing project. The recommended plan of improvement for Martin County provides for restoration of a protective beach along 3.75 miles of shoreline. The plan includes restoration of the primary dune as needed and a 35-foot wide protective berm. The recommended plan was designed to reduce environmental impacts. Of primary importance is the impact of project construction on sea turtle nesting. In order to avoid these impacts, project construction has to occur between November 1st and April 15th. Only one island segment is authorized for this project, which is located on Hutchinson Island in Martin County. The project begins at the St. Lucie/Martin County line and proceeds south 4 miles. The actual project to be constructed is 3.75 miles. The project was shortened 0.25 miles to avoid impacting sensitive hard-grounds. The borrow area is approximately 3,000 feet offshore of the southern end of the project area. (See Table 9-B for Authorizing Legislation.)

Estimated cost of new work is $37,800,000 Federal and $43,300,000 non-Federal.

Local cooperation. Martin County Board of Commissioners is the local sponsor.

Operations and results during fiscal year. New Work: Beach replenishment cost was $254,979; Engineering and design cost was $308,857; Construction management cost was $60,189.

Condition at end of fiscal year. Initial nourishment was completed April 1996. Southern half of project re-nourished spring 2001 and 2002. Northern half to be re-nourished spring 2005 and complies with project requirements and PCA.

48. NASSAU COUNTY, FL

Location. Nassau County is on the east coast of Florida, north of Jacksonville and adjoins the state of Georgia. The authorized project comprises 4.3 miles of beach along the ocean shore of northern Amelia Island, and tightening 1,500 feet of the shoreward end of the existing south jetty at the entrance to Fernandina Harbor.

Existing project. The authorized project would provide initial restoration of 3.6 miles of eroded beach, starting at a point about .7 mile south of the Fernandina Harbor south jetty and extending south to Sadler Road; sand tightening about 1,500 feet of the shoreward end of the south jetty; and periodic nourishment of 4.3 miles of shore between the south jetty and Sadler Road. The restored beach would have a 20-foot wide level berm at an elevation of 13 feet above mean low water. The initial beach fill would consist of an estimated 1,100,000 cubic yards of nourishment material. An estimated 240,000 cubic yards of nourishment at 2-year intervals would be required. Sand tightening would require about 16,700 tons of stone. The Federal share of the first cost was estimated to be 77%. (Sand tightening, accomplished as part of the Navy's effort to deepen and widen the navigation channel was deleted from the plan.)

Estimated cost of new work $13,000,000 Federal and $3,500,000 non-Federal contributed funds.

Local cooperation. The authorization of a shore protection project for Nassau County, Florida was made with the provision that the State and local interests will, in addition to the general requirements, agree to comply with the following requirements: provide without cost to the United States all necessary lands, easements, and rights-of-way, including borrow areas and disposal areas for excavated material and relocations required for construction of the project, including that required for periodic nourishment; hold and save the United States free from claims for damages which may result from construction and subsequent maintenance, operation and public use of the project, except damages due to the fault or negligence of the United States or its contractors; assure continued conditions of public ownership and public use of the shore upon which the amount of Federal participation is based during the useful life of the project; assure maintenance and repair during the useful life of the project as required to serve the project's intended purpose; provide and maintain clearly marked beach access, nearby parking areas, and other public use facilities, open to all on equal terms, and as required to realize the benefits upon which Federal participation is based; provide a cash contribution for beach erosion control equal to the appropriate percentage of the final construction cost allocated to this function, exclusive of lands, easements, rights-of-way, alterations, and relocations, the percentage to be in accordance with existing law and based on shore ownership at the time of implementation; provide a cash contribution for periodic nourishment during the useful life of the project, such contribution to be made prior to each nourishment, with the actual amount to be based on existing law and conditions of ownership at the time of each nourishment; and at least annually inform affected interests of the limitations of the protection afforded by the project.

Operations and results during fiscal year. New work: Engineering and design cost: $191,197.

Condition at end of fiscal year. Currently addressing higher authority on GRR.

49. PALM BEACH COUNTY, FL

Location. Palm Beach County is on the east coast of Florida about 300 miles south of Jacksonville and 70 miles north of Miami. (See NOAA Nautical Chart No. 11466.)

Existing project. Project authorization, the River and Harbor Act of 1962, provides for Federal participation toward the cost of local shore project for restoration of beaches to a general width of 100 feet with a berm elevation of 10 feet above mean low water, and periodic nourishment for 10 years from the year of initial nourishment, as follows: 62.1 percent of the cost for Martin County line-Jupiter Inlet segment; 55.8 percent of cost for Jupiter Inlet-Lake Worth Inlet segment; and 50 percent for south Lake Worth Inlet-Delray Beach; and 53 percent of cost for Delray Beach-Boca Raton inlet segment. Mean range of tide is 2.8 feet in the Atlantic Ocean at Palm Beach and 2.3 feet at Boca Raton Inlet. (See Table 9-B for Authorizing Legislation.)

Estimated cost for Palm Beach County is $66,700,000 Federal and $140,600,000 non-Federal cash contributions.

Local cooperation. Federal participation is subject to the conditions that responsible local authorities will: (a) obtain approval by the Chief of Engineers, prior to commencement of work on the project, of detailed plans and specifications and arrangements for prosecution of the work on the project; (b) provide at their own expense all necessary lands, easements, and rights-of-way; (c) furnish assurances satisfactory to the Secretary of the Army that they will: (1) assure maintenance of the protective measures during their economic life as may be required to serve their intended purpose, and periodic nourishment of the protective beach at suitable intervals; (2) control water pollution to the extent necessary to safeguard the health of bathers; and (3) maintain continued public ownership of the publicly owned shores upon which a part of the recommended Federal participation is based and their administration for public use during the economic life of the project.

Operations and results during fiscal year. New work: Palm Beach County BEC: Real estate cost was $1,132; beach replenishment cost was $1,629,359; engineering and design cost was $57,815. Lake Worth Inlet STP: Engineering and design cost was $28,106.

Condition at end of fiscal year. The County completed the first periodic nourishment for the Jupiter/Carlin segment in Spring 2002. Reimbursement of the costs is anticipated in March 2004 subject to availability of funds.

50. PALM BEACH ISLAND, FL

Location. Palm Beach Island is on the east coast of Florida about 300 miles south of Jacksonville and 70 miles north of Miami. (See NOAA Nautical Chart No. 11466).

Existing project. The River and Harbor Act of 1958 authorization provides for Federal participation in the costs of a plan for protection of the shore of the Palm Beach Island, comprising restoration of a protective beach with berm elevation of 10 feet above mean high water from Lake Worth Inlet to a point about 1,000 feet south of Southern Boulevard extended, thence with a general width of 100 feet to South Lake Worth Inlet, construction and operation of a sand-transfer plant at Lake Worth Inlet, and additional periodic nourishment from Lake Worth or other suitable source, substantially in accordance with the plan developed by the district engineer, with such modifications thereof as may be considered advisable by the Chief of Engineers. Federal assistance would entail contribution of funds in the amount of 4.7 percent of the initial construction cost of the beach restoration and appurtenant drainage work, and of the expenditures for periodic nourishment from Lake Worth for a period of 10 years from the year of the initial placement, plus 19.3 percent of the expenditures for construction, and for operation, maintenance, and current replacements of parts of the sand-transfer plant for the same period. Mean tidal range is 2.8 feet in the Atlantic Ocean at Palm Beach and 2.3 feet at Boca Raton Inlet. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Federal participation is subject to the conditions that responsible local authorities will: (a) obtain approval of the Chief of Engineers, prior to commencement of work on the project (except the sand-transfer plant already under contract), of detailed plans and specifications and arrangements for prosecution of the work on the project; (b) make appropriate modification of the location of the end of the discharge line of the sand-transfer plant to accomplish satisfactory dispersion of bypassed material; (c) provide at their own expense all necessary lands, easements, and rights-of-way; (d) furnish assurances satisfactory to the Secretary of the Army that they will: (1) assure maintenance of the protective measures during their economic as may be required to serve their intended purpose, and periodic nourishment of the protective beach at suitable intervals, including operation of the sand-transfer plant; (2) control water pollution to the extent necessary to safeguard the health of bathers; and (3) maintain continued public ownership of the publicly owned shores upon which a part of the recommended Federal participation is based and their administration for public use during the economic life of the project.

Operations and results during fiscal year. New Work: None.

Condition at end of fiscal year. A LRR is under preparation by Palm Beach County for the first periodic nourishment of the Ocean Ridge segment scheduled for FY2004.

51. PINELLAS COUNTY, FL

Location. Pinellas County is on the Gulf coast of Florida, about midway of the peninsula. It extends northerly about 39 miles from the main entrance to Tampa Bay to the vicinity of the mouth of Anclote River. (See NOAA Nautical Chart No. 11411.)

Previous project. For details see page 429 of Annual Report for 1965.

Existing project. The authorized project provides for Federal participation in preserving and protecting the shores of Pinellas County, Florida, by: restoration of 5,000 feet of beach at Clearwater Beach Island; restoration of 49,000 feet of beach at Sand Key; restoration of 9,200 feet of beach at Treasure Island; construction of 600 feet of revetment at Long Key; and advance nourishment of Long Key and periodic nourishment of each island. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $169,300,000 Federal and $113,100,000 non-Federal.

Local cooperation. Local interests must (a) contribute in cash the required percentages of the first costs of work provided by the Corps of Engineers, the percentages varying with the type of beach ownership; 94.1 to 50 percent of the beach restoration at Clearwater Beach; 98.1 to 50 percent of the improvement at Sand Key; 94.3 to 50 percent of the improvement at Treasure Island; and 50 percent of the first cost of the revetment at Long Key; (b) contribute in cash an amount computed in accordance with the cost sharing provision contained in P.L. 826, 84th Congress as amended by P.L. 87-874, for beach nourishment cost for the first 10 years of the project life; (c) provide lands, easements, and rights-of-way; (d) assure maintenance and repair of the stone revetment of Long Key; (e) assure periodic nourishment of the restored beaches; (f) assure public ownership of beaches; (g) assure against water

pollution; (h) hold the United States free from damages; and (i) provide beach for public use. Assurances of local cooperation were accepted March 22, 1967. Non-Federal contribution for new work is $33,729,772.

Operations and results during fiscal year. New work: Beach replenishment cost was $2,053,713, engineering and design and construction management cost $909,488 and $44,933 respectively.

Condition at end of fiscal year. Preparation of plans and specifications for next re-nourishment of Long Key and treasure Island underway. Re-nourishment scheduled for spring/summer 2004.

52. ST. JOHNS COUNTY, FL

Location. St. John's County is located about 100 miles south of the Florida/Georgia border.

Existing project. The project consists of restoration of 2.5 miles of shoreline, beginning approximately 2.7 miles south of St. Augustine Inlet, and including the City of St. Augustine Beach. The authorized project provides for initial restoration of the beach to a width of 60 feet +12 feet elevation relative to mean low water. The initial fill consisted of placement of 3,580,000 cubic yards of beach quality sand, includes six years of advanced nourishment. The project would replace sand lost due to frequent northeasters and provide storm protection to upland development. The borrow area is located at the ebb tidal shoal south of St. Augustine. The project was authorized with a 50-year project life from the start of construction. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $195,800,000 Federal and $47,400,000 Non-Federal.

Local cooperation. The sponsor of this project is the St. John's County Board of Commissioners. Cost sharing for this project is 80 percent Federal and 20 percent Non-Federal. The cost sharing reflects the higher Federal percentage required to mitigate for erosion caused by the Federal navigation project at St. Augustine Harbor. PCA will be executed following completion and approval of the General Reevaluation Report. Non-Federal contribution for new work is $1,216,200.

Operations and results during fiscal year. New work: Beach replenishment cost was $5,947,901; engineering and design cost was $288,012; construction management cost was $153,346.

Condition at end of fiscal year. Contract for initial construction completed January 2003.

53. SARASOTA COUNTY, FL

Location. Sarasota County is on the Gulf coast of Florida about 30 miles south of Tampa Bay. The northern most portion of the project adjoins the Manatee County Beach Erosion Control Project on Longboat Key. The total project consists of about 5.7 miles of gulf shoreline on Longboat Key and Venice Beach.

Existing project. The authorized project provides for Federal participation in the construction of a protective beach 12,600 feet long at Longboat Key and a protective beach 29,400 feet long at Manasota Key at the City of Venice, Florida. Two borrow areas will be required. The first is located within 2 shoal areas located between 1 to 2 miles offshore of Manasota Key south of the project area. This borrow area will be supplemented by material located within the ebb tidal shoal of Big Sarasota Pass which is about 13 nautical miles north of the project beach at Venice. The project also provides periodic nourishment of the restored beach and such adjacent shoreline as may be needed and justified for life of the project. The mean tidal range is 2.1 feet. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $55,200,000 Federal and $28,500,000 non-Federal. The Federal share of each periodic nourishment is 72.55 percent for Venice, and 15.4 percent for Longboat, of applicable nourishment costs.

Local cooperation. Federal participation is subject to the conditions that responsible local authorities will: (a) provide without cost to the United States all lands, easements, and rights-of-way, including borrow areas, and relocations necessary for construction of the improvements; (b) provide a cash contribution equal to 29.3 percent of the first cost of construction, subject to any credit for eligible construction costs incurred by local interests, and exclusive of costs for lands, easements, and rights-of-way, relocations, and alterations, and exclusive of the cost of fill placed behind the Erosion Control Line (ECL), the final percentage to be based on shore ownership and use existing at the time of construction; (c) provide all costs of construction for nourishment of private lands and share in the costs of construction for public lands landward of the Erosion Control Line (ECL); (d) provide a cash contribution for periodic nourishment

equal to 29.3 percent of the cost of each nourishment, such contribution to be made prior to each nourishment operation, and the final percentage to be based on shore ownership and use existing at the time of construction; (e) hold and save the United States free from damage due to the construction works, except for damages due to the fault or negligence of the United States or its contractors;(f) assure continued public ownership and administration of the shore upon which the amount of Federal participation is based; (g) provide without cost to the United States appropriate access and facilities, including parking and sanitation, necessary for realization of the public benefits upon which Federal participation is based; (h) adopt appropriate ordinances, or provide other means, to insure the intended use of the beach fill areas; (i) control water pollution to the extent necessary to safeguard the health of bathers; and (j) agrees to pay 100 percent of the operation, maintenance, and replacement and rehabilitation costs of the project, or functional element thereof. Non-Federal contribution for new work is $5,020,605.

Operations and results during fiscal year. New work: Engineering and design cost was $373,346.

Condition at end of fiscal year. The City of Venice desires re-nourishment of the project in FY 04 due to project conditions resulting from recent storms. Plans and specifications are near completion.

54. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

Key West, FL; Lido Key, FL; Mullet Key, FL; Virginia Key and Key Biscayne, FL were deauthorized January 1, 1990 by the WRDA of 1988, P.L. 100-676. (See Table 9-D.)

55. BEACH EROSION CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to section 103, Public Law 87-874 (Preauthorization) Reports incurring costs during the fiscal year were Fort San Geronimo, PR $5,361; Hwy 187 Pinones, PR $19,665; Puerto Nuevo Beach, PR $64,013; Tarpon Springs, FL $22,114; Veteran's Drive Shoreline, St. Thomas, VI $53,254; Boca de Cangrejos, Carolina, PR $25,154; Hwy 102, Mayaguez, PR $31,463.

Beach erosion control activities pursuant to section III, Public Law 90-433, Mitigation of Shore Damages Attributable to Navigation Projects.

No costs were incurred under the above authorization.

Shoreline Erosion Control Development and Demo Program pursuant to Section 227, Public Law104-303.

Cost this fiscal year: $26,869.

Beach erosion control activities pursuant to Shoreline Erosion Control Act of 1074, Public Law 93-251.

No costs were incurred under the above authorization.

Flood Control

56. CEDAR HAMMOCK (WARES CREEK), FL

Location. The project area is located in Bradenton and unincorporated Manatee County on the southwest side of Peninsular Florida.

Existing project. The project provides for clearing and snagging from approximately 500 feet upstream of Manatee Avenue bridge and extending 17th Avenue West; trapezoidal grass-lined channel, 1V:2H side slopes, 26-foot-bottom width from 17th Avenue West to 21st Avenue West; Vertical Sheet Pile Wall channel from just upstream of 21st Avenue West to 14th Street West (B.R. 41) with a 40-foot-bottom; and trapezoidal grass-lined channel, 1V:2H side slopes, 26-foot-bottom width from upstream of the 14th Street West (B.R. 41) and extending to just downstream of 44th Avenue West (Cortez Road) bridge. (See Table 9-B for Authorizing Legislation.)
Estimated cost is $12,600,000 Federal and $6,700,000 non-Federal.

Local cooperation. In accordance with the cost sharing and financing concepts reflected in WRDA 1986, the sponsor must provide lands, easements, rights of way, and borrow and excavated or dredged material disposal sites; modify or relocate utilities, roads, bridges, and other facilities where necessary for the construction of the project; and pay 10.06 percent of the costs allocated to flood damage reduction during

construction. Non-Federal contribution for new work is $227,901.

Operations and results during fiscal year. New Work: Engineering and design cost was $530,395.

Condition at end of fiscal year. The sponsor has decided to proceed with the real estate surveys prior to signing PCA.

57. DADE COUNTY, FL

Location. Dade County is on the southeast coast of Florida. Project area consists of that part of the Atlantic shoreline of the county from Government Cut north to Bakers Haulover Inlet and at Haulover Beach Park. (See NOAA Nautical Chart No. 11466.)

Existing project. Project provides for a protective and recreational beach having a dune at elevation 11.5 feet and a level berm 50 feet wide at elevation 9 feet, mean low water, for beach erosion control and hurricane protection between Government Cut and Bakers Haulover Inlet; a protective and recreational beach with a berm elevation of 9 feet for beach erosion control at Haulover Beach Park; and Federal participation in the initial construction and in periodic nourishment of both the above reaches for the first 10 years of project life. Plane of reference is mean low water. Mean range of tide in the area is 2.5 feet. Project was authorized by Flood Control Act of 1968 (H 335/90/2).

Estimated cost of the project is $173,400,000 Federal cost and $157,700 non-Federal cost.

Local cooperation. Local interests must (a) contribute for the first cost of the work: between Government Cut and Bakers Haulover Inlet amounts ranging from 60.2 percent of the cost of the fill within the project limit with existing shorefront ownership, and 100 percent of the cost of fill required landward of the project limit; and for the work at Haulover Beach Park, contribute 21.3 percent of the entire first cost excluding costs for lands, easements, rights-of-way, relocations, and pre-project work, but including credit for pre-project work; (b) contribute in cash for the first 10 years of project life, amounts ranging from 88.9 percent of the nourishment cost for the beach, with existing ownership, to 60.7 percent with public ownership, and the entire maintenance cost for dune, all between Government Cut and Bakers Haulover Inlet; (c) provide all lands and rights-of-way; (d) hold United States free from damages; (e) assure continued public ownership and use of the shore upon which the amount of Federal participation is based; (f) assure maintenance of the groin, and after 10 years of project life, periodic nourishment of the protective beach and maintenance of the dune during the economic life of the project; (g) assure that water pollution will not be permitted; (h) prevent removal or relocation by man of fill from the beach berm and dune; (i) prevent the erection of barriers to the littoral movement of material that would interfere with the nourishment of the beach; (j) maintain at the parks qualifying for 70 percent Federal participation a zone that excludes permanent human habitation; (k) at least annually inform interests affected that the project will not provide complete protection from a hurricane tide level equal to or higher in elevation than that of the hurricane of September 1926; and (1) establish in public ownership for public use the beaches within project limits as a requirement for Federal participation in the allocated beach erosion control costs of improvement of shores presently in private ownership. Assurances of local cooperation were accepted January 16, 1973. A supplemental agreement for Bal Harbour portion was approved June 30, 1976. Non-Federal contribution for new work was $52,552,842.

Operations and results during fiscal year. New work: Lands and damages $74,252, re-nourishment contract cost was $1,966,674. Engineering and design and construction management cost $487,416 and $108.360, respectively.

Condition at end of fiscal year. The contract for construction of the Sunny Isles Modification was awarded in September 2000 and completed in spring 2003 at a cost of $19,224,000. The contract consisted of construction of two offshore breakwaters, a transitional beach fill along 1,500 feet of Golden Beach, and re-nourishment of about 2.5 miles at Sunny Isles. An option for that contract was awarded for North Miami Beach in January 2001. Engineering and design is continuing for preparation of plans and specifications for award of a re-nourishment contract for North Miami Beach (Test Beach) in fall 2005. A request for proposals for this contract will allow domestic upland and domestic offshore sources of beach fill to provide bids.

58. DADE COUNTY, NORTH OF HAULOVER BEACH, FL

Location. On the southeast coast of Florida. Project area consists of that part of the Atlantic shoreline

extending 2.5 miles north of Haulover Beach Park. (See NOAA Nautical chart No. 11466.)

Existing project. The existing shore protection project for Dade County provides for Federal participation in the cost of construction of a beach fill for the purpose of erosion control and hurricane protection along 9.3 miles of shore between Government Cut and Bakers Haulover Inlet and for the construction of a beach fill for the purpose of erosion control along the 1.2 miles of shore fronting Haulover Beach Park and provides for protection and nourishment of 2.5 miles of beach shore north of Haulover Beach Park and for extension of the period of Federal participation from 10 years to the life of the project. (See Table 9-B for Authorizing Legislation.)

Local cooperation. Consistent with the cost-sharing and financing concepts agreed to by the administration and Senate Majority Leadership, local interests will be required to: provide lands, easements, and rights-of-way and relocations; pay 50 percent of the separable and joint costs allocated to recreation; pay 35 percent of the cost allocated to storm damage prevention; hold the United States free from damages; control water pollution; and furnish assurances that they will maintain continued public ownership of the shore upon which the amount of Federal participation is based during economic life of project. Assurances of local cooperation have been requested from local sponsors. Non-federal contribution for new work was $8,082,927.

Operations and results during fiscal year. New work: None.

Condition at end of fiscal year. No new work scheduled.

59. FOUR RIVER BASINS, FL

Location. The Four River Basins area covers about 6,000 square miles within 14 counties in central and southwest peninsular Florida. Project includes all or part of the four mainstream basins -- the Hillsborough, Oklawaha, Withlacoochee, and Peace Rivers -- and all of three smaller coastal basins north of Tampa, Florida, drained by the Pithlachascotee and Anclote Rivers and Lake Tarpon.

Existing project. The authorized project provided for improvements for control of floods and drainage, and for conservation through construction of necessary canals, levees, reservoirs, and control structures. More specifically, the project provided for: *Green Swamp Area* -- a conservation area and 3 storage reservoirs with necessary canals and control structures; *Hillsborough River* -- 4 flood-storage reservoirs, with necessary channels, control structures and levees; *Oklawaha River* --a levee on the north shore of Lake Apopka, improvement of parts of the river channel and a west bank levee below Moss Bluff lock and dam, and replacement of the lock and dam; *Withlacoochee River* -- one flood-storage reservoir with outlet canals and control structures; *Peace River* -- Peace Creek canal and control structures and improvements to the existing water control and drainage features; *Gulf Coastal Areas*-Lake Tarpon; outlet canal and control structure; Pithlachascotee River: reservoir with outlet canals and control structures. (See Table 9-T on Moss Bluff Lock.) (See Table 9-B for Authorizing Legislation.)

Estimated cost for new work is $192,500,000 Federal and $169,800,000 non-Federal.

Local cooperation. Local interests must furnish all lands, and rights-of-way; provide all alterations or replacements of public and private utilities, roads, bridges (except railroad bridges), etc.; hold the United States free from damages; operate and maintain all project works after completion; construct and maintain such associated works as are necessary to realize benefits made available by the project works; and contribute in cash 17 percent of the first cost of construction and 50 percent of recreation costs. Non-Federal contribution for new work is $14,095,058.

Operations and results during fiscal year. New work: None.

Condition at end of fiscal year. Construction of the project commenced April 18, 1966 and the scheduled work is 98 percent complete. Flatwoods Phase II has not been funded.

60. PORTUGUES AND BUCANA RIVERS, PR

(This project authorized as Lago de Cerrillos, Lago de Portugues, and Channel Improvement at Ponce.)

Location. Portugues and Bucana Rivers originate on the southern slopes of Cordillera Central divide of

Puerto Rico and flow from this central ridge of the island to the Caribbean Sea. Their drainage areas are 22.6 and 31.4 square miles, respectively. Ponce, the second largest city in Puerto Rico, is located in the lower coastal area along Portugues River and is the only urban community in the two basins.

Existing project. The authorized project provides for 2 multiple-purpose reservoirs for flood control, water supply, general recreation, and fish and wildlife enhancement -- one on Portugues River and the other on Cerrillos River, a tributary to the Bucana River; enlargement of about 5.7 miles of the Bucana River, with an additional 0.2 mile long tieback levee at the upstream terminus of the improvement; enlargement of 2.1 miles of the Portugues River, with an additional 0.5 mile of tieback levee at the upstream terminus of the improvement; and a 1.3 mile diversion channel connecting Portugues River to lower Bucana River. (See Table 9-B for Authorizing Legislation.)

Estimated cost of the project is $434,000,000 Federal and $145,500,000 non-Federal.

Local cooperation. Local interests must provide all lands, easements, and rights-of-way; hold the United States free from damages; operate and maintain all project works after completion; repay construction cost allocated to water supply in accordance with Water Supply Act of 1958; pay one-half of the separable cost allocated to recreation and fish and wildlife enhancement; prohibit discharge of inadequately treated sewage and other pollutants into the reservoir; and prevent encroachment on downstream channels. Assurances of local cooperation have not been completed, except for Cerrillos Reservoir, which was signed March 15, 1982. Non-Federal contribution for new work was $10,293,201.

Operations and results during fiscal year. New work: Real estate cost was $669. Construction contract for channels and canals $-222,704,Recreation cost was $1,500,691. Buildings, grounds, and utilities cost was $449,172. Engineering and design and construction management cost $4,033,856 and $208,441, respectively.

Condition at end of fiscal year. Partial Cerrillos Dam Lake Recreation Notice to Proceed contract granted in FY 2001, and the new completion schedule is June 2004. Remaining Lake Recreation is scheduled for an FY 2005 award. Portugues Schoal Removal Phase II new schedule for award is FY 2006. New Portugues Dam contract schedule for re-advertisement in January 2005 with an award date in April 2005. Post authorization change report is scheduled for approval by April 2004. Cost allocation report for Cerrillos dam is scheduled for completion and possible approval by September 2004.

61. RIO DE LA PLATA, PR

Location. The Rio de La Plata basin is located about 11 miles west of the San Juan metropolitan area along the north coast of Puerto Rico. The Rio de la Plata basin drains an area of 240 square miles through several towns and villages into the Atlantic Ocean.

Existing project. The Water Resources Development Act of 1990 authorized the project. It would provide 100-year protection upstream of PR Highway 2 and SPF protection down stream and calls for construction of 7.6 miles of levees. The plan includes the replacement of 3 bridges, recreation facilities, and mitigation for the loss of environmental habitats. The benefit-cost ratio is 1.6. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $69,000,000 Federal and $31,800,000 Non-Federal.

Local cooperation. The project cooperation agreement was executed on 7 June 1995. The Commonwealth of Puerto Rico, Department of Natural and Environmental Resources, is the body authorized to represent the local interest and is responsible for complying with the following requirements: (1) provide a cash contribution equal to five percent of total project costs; (2) provide all lands, easements, rights-of-way, relocations, and dredged material disposal areas; (3) provide an additional cash payment when the sum of both items (1) and (2) are less than 25 percent of total project costs; (4) operate and maintain the project after completion, including accomplishment of any needed repairs or rehabilitation's of any of its components; (5) hold and save the United States free from damages due to the construction or subsequent maintenance of the project, expect due to damages due to the fault or negligence of the United States or its contractors; (6) prevent future encroachments which might interfere with proper functioning of the project; (7) participate in and comply with applicable Federal flood plain management and flood insurance programs; and (8) (a) Provide guidance and leadership to prevent unwise future development in the flood plain; and (b) recreation local cooperation requirements: (1) provide one-half of the separable first cost of post authorization planning and construction of recreation facilities and provide all land required for recreation; and (2) all costs and full responsibility for the operation,

maintenance, replacement, and management of recreation lands and facilities. Non-Federal contribution for new work was $834,088.

Operations and results during fiscal year. New work: Engineering and design cost was $529,325.

Condition at end of fiscal year. PED was completed September 1994 with approval of plans and specifications for first contract. Land acquisition process has been initiated and will continue through FY04. Award of the first contract for the lower reach of the channel is scheduled for award in September 2004.

62. RIO GRANDE DE ARECIBO, PR

Location. The city of Arecibo is located on the northern coast of Puerto Rico, approximately 40 miles west of San Juan. The Rio Arecibo Basin covers a 272 square mile area and includes towns of Utuado, Jayuya, and Adjuntas.

Existing Project. The authorized project for flood control includes channel improvements, a floodwall, and a levee along the Arecibo River; a levee along the Tanama River; and a plug, channel improvements, and a diversion channel along the Santiago River. (See Table 9-B for Authorizing Legislation.)

Estimated cost of the project is $15,800,000 Federal and $12,100,000 non-Federal.

Local cooperation. Local interests must provide lands, easements, rights of way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project; pay one-half of the separable costs allocated to recreation and bear all costs of operation and maintenance, and replacement of recreation facilities; pay 8.52 percent of the first costs allocated to flood control, and bear all cost of operation, maintenance, and replacement of flood control structures; and has also agreed to make all required payments concurrently with project construction. Non-Federal contribution for new work is $0.

Operations and results during fiscal year. New work: Engineering and design cost was $1,302,885.

Condition at end of fiscal year. Plans and specifications are being finalized. Land acquisition by sponsor is ongoing. Award of the first construction contract is scheduled for August 2004.

63. RIO GRANDE DE LOIZA, PR

Location. The Rio Grande De Loiza basin, located in the eastern central part of Puerto Rico, is the island's largest basin. It comprises the coastal plain of Carolina and the metropolitan area of Caguas in the interior valley. The project area consists of 530 square kilometers draining into Lake Loiza. It includes the city of Caguas and the town of Gurabo where over 4,100 families and numerous public buildings and commercial facilities are affected by flooding.

Existing project. The authorized project would provide channels, levees, and floodwalls for flood protection for the highly urbanized areas of the city of Caguas and the town of Gurabo. It consists of 1.8 kilometers of gabion-lined channel, 1.9 kilometers of concrete channels, and a debris basin for Rio Caguitas; 1.3 kilometers of concrete channels, 1.0 kilometers of earth channel, 0.6 kilometers of gabion-lined channel, 1.0 kilometers of levees, and a debris basin for Rio Bairoa; 2.8 kilometers of levees and floodwalls for Rio Grande De Loiza; and 0.7 kilometers of pilot channel and 1.8 kilometers of levees for Rio Gurabo. It also provides for recreation bikeway/pedestrian trails at Rio Grande De Loiza and Rio Gurabo levees. The average level of protection at Rio Caguitas and Rio Bairoa is estimated at 70 years and 220 years, respectively. The average level of protection for the remaining reaches is estimated at 100 years. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $157,600,000 Federal and $55,900,000 non-Federal.

Local cooperation. In accordance with the cost sharing and finance concepts reflected in the Flood Control Act of 1970 and the WRDA 1986, the sponsor must provide lands, easements, and rights-of-way; modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project; pay 6.32 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operations, maintenance, and replacement of flood control facilities; and pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.

Operations and results during fiscal year. New work: Engineering and design cost was $222,894.

Condition at the end of fiscal year. Completed the LRR for entire project and initiated plans and specifications for the first construction contract, the lower reach of the Caguitas segment. PCA package is also being developed.

64. RIO MANATI, BARCELONETA, PR

Location. The project area consists of the Rio Grande De Manati basin, which is located in the north-central coastal region of Puerto Rico at the town of Barceloneta.

Existing project. The recommended plan consists of providing a 5,300-meter long ring levee, two pilot channels totaling 1,620 meters in length, and minimum interior drainage facilities. Project implementation requires acquisition of seven residential structures, relocation of one boat ramp, three highway ramps, and one agricultural road ramp, and relocation of existing utilities impacted by the levee at four locations. The project is designed to protect against the 100-year flood and would reduce 92 percent of the total annual flood damages for the flood prone areas of the town of Barceloneta. The recommended plan maximizes the net national economic development benefits. (See Table 9-B for Authorizing Legislation.)

Estimated cost is $10,700,000 Federal and $5,600,000 non-Federal.

Local cooperation. In accordance with the cost sharing and financing concepts reflected in the Chief of Engineers Reported dated 22 January 1999 and WRDA '99, the non-Federal sponsor must provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project; and pay 15.95 percent of the first costs allocated to flood control, and bear all cost of operation, maintenance, and replacement of flood control structures. The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

Operations and results during fiscal year. New work: Real estate cost was $18,624; Levees and floodwalls $4,483,903; Engineering and design cost was $554,259; Construction Management cost was $568,282.

Condition at the end of fiscal year. Construction contract was awarded September 2001 and is scheduled for completion April 2004.

65. RIO PUERTO NUEVO, PR

Location. The Rio Puerto Nuevo drainage basin is located within the San Juan Metropolitan Area along the northern coast of Puerto Rico. The basin joins the southeast side of San Juan Harbor and extends south and up into the foothills of the central mountains of Puerto Rico. The Rio Piedras, Rio Puerto Nuevo, Quebrada Margarita, Quebrada Josefina, Quebrada Dona Ana, Quebrada Vista, and Quebrada Guaracanal traverse the basin.

Existing project. The authorized project for flood control includes improvements to 11.2 miles of the existing channel of Rio Puerto Nuevo and Rio Piedras and five tributaries of the Rio Puerto Nuevo drainage basin. The 25 square mile drainage basin drains into San Juan Harbor. (See Table 9-B for Authorizing Legislation.)

Estimated cost of the project is $338,300,000 Federal and $118,500,000 non-Federal.

Local cooperation. Local interests must provide cash contribution equal to five percent of the total project costs; provide LERRD (except railroad bridge alterations); provide an additional cash payment when the sum of cash and LERRD are less than 25 percent of the total project costs; operate and maintain project works after completion; hold and save the United States free from damages; prevent future encroachments; participate and comply with Federal flood plain management and flood insurance programs; provide guidance and leadership to prevent unwise future development in the flood plain; provide one-half of the separable first cost of post authorization planning and construction of recreation facilities; and all costs and full responsibility for operations, maintenance, replacement, and management of the recreation lands and facilities. Non-Federal contribution for new work was $4,019,000.

Operations and results during fiscal year. New work: Real estate cost was $83,449. Roads, Railroads, and Bridge costs were $4,427,758. Channels and canals cost was $10,970,181. Engineering and design cost was $1,796,281. Construction management cost was $843,810.

Condition at end of fiscal year. Contract No.1 (first 1.7 miles of channel) is scheduled for completion in January 2004. Contract #2A (Margarita Earthen Channel, next 1.3 miles of channel) was terminated and will be re-advertised as resumption of 2A October 2006 with award in November 2006. Contract 1A was awarded in April 2002 and is scheduled for completion in FY 2004. Contract 2AA (Margarita Levee and Bechara Drainage Works) was awarded in FY03 and work is underway. Funding limitation will impact completion date by two years. Contract 2D1 was awarded in FY03 and is underway

66. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Features transferred to the Central and Southern Florida Flood Control District and Southwest Florida Water Management District were inspected quarterly during the fiscal year at a total cost of $89,523.

67. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 9-E.)

68. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to section 205, Public Law 685, 84th Congress, as amended (Preauthorization).

(See Table 9-V.)

Emergency flood control activities -- repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Federal costs for the fiscal year were $511,857 for the Disaster Preparedness Program. Rehabilitation cost was $325,641.

Emergency stream bank and shoreline protection activities pursuant to Section 14, Public Law 526, 79th Congress as amended (Preauthorization).
Federal cost for the fiscal year was Coordination Account $6,037; Los Carolinas Bridge, Caguas, PR $781; Police Station and Sewer line, Trujillo Alto, PR $106,479; Rio Matilde, PR $172,489.

General Investigations

69. SURVEYS

Costs during the fiscal year were: navigation studies $658,956; flood damage prevention studies $883,548; shoreline protection studies $267,170; special studies $25,965; miscellaneous activities $34,928 and coordination with other agencies and non-Federal interests $322,536 for a total cost of 2,193,103.

70. COLLECTION AND STUDY OF BASIC DATA

The requirement for preparation of regular flood plain information studies has been rescinded. FPI studies that deal with land use changes will continue to be prepared. Flood Plain Management Services $21,585; Technical Services $36,162; Quick Responses $2,963; Florida Statewide Evacuation $39; Seminole Floodway $20,295 SS – Mass Management Tool for the Islands $7,446; Southeast Florida Hurricane Evacuation studies $20,000; SS – MMT Caribbean Hurricane Evacuation Studies Management Support $9,695; SS MMT Caribbean Hurricane Evacuation Studies $68,110; SS – American Samoa $11,658, for a total cost of $197,953.

71. CONTINUATION OF PLANNING AND ENGINEERING

Navigation cost was Ponce de Leon Inlet $729. Beach erosion cost was Brevard County $2,109. Local protection cost was Rio Nigua de Salinas, PR $4,001. Total cost for Continuation of Planning and Engineering was $6,839.

72. ADVANCE ENGINEERING AND DESIGN

Navigation cost was, Nassau County $2,647, St. Petersburg Harbor, FL $44,634 and Tampa Harbor Big Bend, FL $48,837. Flood control cost was Guanajibo River, PR $28,873, Rio Nigua at Salinas, PR $32,746 and Cedar Hammock (Wares Creek), Fl $1,368. Total cost for Advance Engineering and Design was $159,105.

General Regulatory

73. PERMIT EVALUATION (R&H ACT of 1899; CWA of 1977; MPRSA of 1972)

Location. Navigable waters of the United States, including tributary systems, headwaters and isolated waters, and ocean waters to the limits of the territorial seas.

Existing Program. The program evaluates permit applications for work in navigable waters (dredging, filling, and other structures) of the United States, and the transportation of dredged material to the oceans for ocean disposal. Geographic coverage includes Florida, Puerto Rico, and the U.S. Virgin Islands. Decision making criteria consist of the public interest review, Section 404(b)(1) Guidelines, and ocean dumping criteria.

Local Cooperation. The joint application arrangements with Florida, Puerto Rico, and the U.S. Virgin Islands continue in place. The Florida State Programmatic General Permit is also still in place, but its usefulness is severely diminished by manatee litigation. We continue to participate in interagency coordination with our state and commonwealth regulatory counterparts. We are working to reinitiate regular federal agency coordination meetings to improve communications and partnering. We are in the final stages of implementing a transportation streamlining process with FDOT and FHWA. We are currently restructuring our workforce to emphasize the evaluation of permit applications on a watershed basis.

Operations and results during fiscal year. Permit evaluation cost was $9,808,400.

74. ENFORCEMENT (R&H ACT of 1899; CWA of 1977; MPRSA of 1972)

Existing program. The program takes appropriate enforcement action against both unauthorized work requiring a permit and noncompliance findings on issued permits. Operation of the program is continuing to make increased use of alternative dispute resolution processes to remediate violations. Close coordination with and cooperation of Department of Justice continues, with development of consent orders and fines as appropriate.

Local cooperation: We have re-opened discussions with EPA to get some of their staff co-located with us to take advantage of their administrative order authority.

Operations and results during fiscal year. Cost incurred this fiscal year for enforcement was $885,779.

75. STUDIES (R&H Act of 1899)

Location. Navigable waters of the United States in Florida, Puerto Rico, and the U.S. Virgin Islands.

Existing program. This program conducts studies to determine geographic extent of navigable waters of the United States, and establishment of danger or restricted zones in these waters.

Local cooperation. Additional activity in identifying and establishing restricted zones, in light of increased terrorist concerns. We have also been working closely with FWS, USCG, and FFWCC to establish standard manatee speed zones and sanctuary areas.

Operations and results during fiscal year. Studies cost was $700; Environmental inspection statement cost was $41,711; other Navigation Regulations $346; Administrative Appeals $1,958.

Environmental Improvement Projects

76. CENTRAL AND SOUTHERN FLORIDA, INCLUDING COMPREHENSIVE EVERGLADES RESTORATION PLAN

Location. The C&SF project is generally located within the southeastern 18 counties of Florida covering an area of about 15,200 square miles. It is comprised of the Upper St. Johns River basin in the northeastern section of project, Kissimmee River basin in central section north of the Lake Okeechobee-Everglades area in the central and southwestern section, and the east coast Everglades area in southeastern section. The CERP area consists of the lands and waters within the boundary of the South Florida Water Management District, including the Everglades, the Florida Keys, and the contiguous near-shore coastal waters of South Florida.

Previous projects. Completed works for control of Lake Okeechobee were included in and constructed under the navigation project for Okeechobee Waterway, FL (formerly Caloosahatchee River and Lake Okeechobee drainage area, FL) and under provisions of River and Harbor Acts of July 3, 1930 and August 30, 1935. For further information, see Annual Reports for 1948 and 1949.

Existing projects. The authorized project is for flood relief and water conservation and provides principally for: an east coast protective levee extending from the Homestead area north to the eastern shore of Lake Okeechobee near the St. Lucie Canal; three conservation areas for water impoundment in the Everglades area west of the east coast protective levee with control structures to effect transfer of water as necessary; local protective works along the lower east coast; encirclement of the Lake Okeechobee agricultural area by levees and canals; enlargement of portions of Miami, North New River, Hillsboro, and West Palm Beach Canals; enlargement of the existing Lake Okeechobee levees and construction of new levees on the northeast and northwest shores of the lake; increased outlet capacity for improved control of Lake Okeechobee; floodway channels in the Kissimmee River basin, with suitable control structures to prevent over-drainage; an interrelated system of canals, levees, pumping stations, and structures in southwest Dade County to control water levels; and facilities for regulating floods in Upper St. Johns River basin; a system of canals and control structures for gravity drainage of Martin County and distribution of available water supplies to portions of Martin and St. Lucie Counties; and works to improve the supply, distribution, and conservation of water resources in central and southern Florida, including the Lake Okeechobee agricultural area, Everglades National Park, and other related areas. The project will provide water control and protection from recurrence of the devastating floodwaters from the Everglades and local sources, for the highly developed urban area along the lower east coast of Florida and for the productive agricultural areas around Lake Okeechobee (including towns around the lake), in the Upper St. Johns and Kissimmee River basins, and in South Dade County. The project includes a total of 990 miles of levees, 978 miles of canals, 30 pumping plants, 212-floodway control and diversion structures, 56 railroad bridge relocations, and 2 highway bridge relocations. The project also provides that upon completion, local interests assume operation and maintenance of all completed works except levees, channels, locks, and control works for regulation of Lake Okeechobee and the main control structures of conservation areas, which will be operated and maintained by the United States. The principal features of the hurricane gates, constructed under previous projects for Okeechobee Waterway and maintained under existing project since July 1, 1950, are set forth in Table 9-Q. Also, see Table 9-N for principal features of locks and dams. (See Table 9-B for Authorizing Legislation.)

Estimated cost for new work is $2,409,100,000 Federal and $1,742,500,000 Non-Federal, exclusive of river and harbor funds expended on previous projects.

The Comprehensive Everglades Restoration Plan is the ecosystem restoration component of the Central and Southern Florida Project. The authorized project shall develop a comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida Ecosystem. The comprehensive plan shall provide for the protection of water quality in, and the reduction of the loss of fresh water from the Everglades. The comprehensive plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and Southern Florida Project. The comprehensive plan shall be developed in consultation with the Task Force.

Projects identified for design and construction of any Central and Southern Florida Project that are authorized may use funds that are available, provided that they will accelerate the restoration, preservation, and protection of the South Florida ecosystem; will be generally consistent with the conceptual framework specified in the report entitled "Conceptual Plan for the Central and Southern Florida Project Restudy"; and be compatible with the overall authorized purposes of the Central and Southern Florida Project.

Local Cooperation. (See Table 9-R for local cash contribution.) Local interests must also: provide lands, rights-of-way, and spoil disposal areas; hold the United States free from damages; bear the cost of maintenance and operation of all works except those having to do with regulation of Lake Okeechobee and the main control structures of conservation areas; construct and maintain lateral drainage facilities; prohibit encroachment on flood-carrying capacity of the improved channels; and assume cost of all new highway bridges, relocations of existing bridges and alterations to utilities incident to construction of the project. In addition, for small boat navigation channels, local interests must provide, maintain, and operate adequate public landings, sanitary and access facilities, and establish regulations prohibiting discharge of pollutants into the waters of the locks and channels by users thereof. Assurances of local cooperation have been accepted by the District Engineer for all items of work authorized to date.

The Comprehensive Plan shall be developed in cooperation with the non-Federal sponsor and in consultation with the Task Force. The non-Federal

cost share is 50%, except for water quality, which is 100% with the exclusion of that needed for Everglades restoration, for which the share is 50%. The value of lands or interests in land acquired by non-Federal interests will be included in the total cost of the activity and credited against the non-Federal share of the cost of the activity.

Operations and results during fiscal year. (See Table 9-S for work accomplished.)

Operations and care.

a. Features completed under previous navigation project for Okeechobee Waterway and being maintained under this project are: a levee about 70 miles long following in general the south shore of Lake Okeechobee and a north shore levee 15.8 miles long; spillways at Ortona and St. Lucie Locks; 5 hurricane gates; and 16 spillways along St. Lucie Canal.

b. Features completed under existing project that are to be maintained with operation and maintenance funds are: (1) Levees 47, 48, 49 and 50 -- total length 63 miles and enlargement of existing levees L-D1, L-D2, L-D3, L-D4, and L-D9, (2) spillway structures S-10, S-11, S-12, S-18C, S-77, and S-78 (3) C-43, Section 4 (Caloosahatchee River), and (4) W.P. Franklin Lock and Dam.

In addition to the actual facilities listed above it is necessary under operation and maintenance to continue meteorological studies, water level records, stream gauging stations, etc., for proper regulation of the level of Lake Okeechobee and storage of water in Conservation Areas 1, 2 and 3.

Corps of Engineers - The Corps of Engineers operates and maintains the major outlets to Lake Okeechobee and Water Conservation Area Nos. 1, 2A and 3A in central and southern Florida.

South Florida Water Management District - SFWMD is responsible for operation and maintenance of the project facilities, including major pumping stations, spillways, locks (except on Okeechobee Waterway), levees and culverts.

Condition at end of fiscal year. Continuing preparation of the Water Preserve Area, Indian River Lagoon, Southwest Florida, and Florida Bay/Florida Keys feasibility studies. Engineering and design is underway for Upper St. Johns, South Dade, C-51, and Manatee Pass Gates. Several PMP have been initiated and are ongoing under the Comprehensive Everglades Restoration Plan (CERP). PIR and PPDR will be continued under CERP in FY 04. The CERP RECOVER efforts are also underway. (For status of work under construction at the end of the fiscal year see Table 9-P.)

77. EVERGLADES & SOUTH FLORIDA ECOSYSTEM RESTORATION

Location. The area consisting of the lands and waters within the boundary of the South Florida Water Management District, including the Everglades, the Florida Keys, and the contiguous near-shore coastal waters of South Florida.

Existing Project. This project is called the Critical Restoration Projects Program. If the Secretary of the Army determines, in cooperation with the non-Federal sponsor and the Task Force, that a restoration project for the South Florida ecosystem will produce independent, immediate, and substantial restoration, preservation, and protection benefits, and will be generally consistent with the conceptual framework specified in the "Conceptual Plan for the Central and Southern Florida Project Study" published by the Governor's Commission for a Sustainable South Florida, the Secretary shall proceed expeditiously with the implementation of the restoration project. (See Table 9-B for authorizing legislation.)

Estimated cost of the project $75,000,000 Federal and $140,000,000 non-Federal.

Local Cooperation. The non-Federal share of the cost of work performed under this program is 50%. Congress has authorized $75 million to be appropriated to the Department of the Army to pay the Federal share of the cost. The Federal share of the cost of carrying out any 1 project is limited to $25 million. The cost of features to improve water quality essential to Everglades restoration will be cost shared as above; the cost to improve water quality for other purposes will be solely the responsibility of the local sponsor. Credit may be provided to a non-Federal sponsor for the reasonable costs of any work that has been performed or will be performed in connection with a study or activity if the non-Federal sponsor's work is necessary, will substantially expedite completion of a critical restoration project, and is granted pursuant to a project-specific agreement that prescribes the terms and conditions of the credit or reimbursement.

Regardless of the date of acquisition, the value of lands or interests in land acquired by non-Federal interests

shall be included in the total cost of the activity and credited against the non-Federal share of the cost of the activity, given that the lands proposed for credit are compatible with a specific project in this program. The operation and maintenance of projects will be a non-Federal responsibility with the exception of the Seminole Big Cypress Water Conservation Plan, for which the operations and maintenance costs will be split 50-50 between the Seminole Tribe and the U.S. Army Corps of Engineers. Non-Federal contributions amount to $4,285,110.

Operations and results during fiscal year. New work: Lands, -$1,988,000; reservoirs $1,327,000; channels and canal cost was $355,000. Engineering and design cost was $2,916,000. Construction management cost was -$4,000.

Condition at end of fiscal year. This program consists of the following nine projects:

- East Cost Canal Structures: Complete
- Tamiami Trail Culverts: Design is complete. The sponsor is preparing to advertise the first construction contract.
- Western C-11 Water Quality Treatment: The Phase 1 pump station construction is complete. The Phase 2 spillway construction Notice to Proceed has been issued.
- Florida Keys Carrying Capacity Study: Complete.
- Seminole Big Cypress Water Conservation Plan: The Phase 1 Canal System construction is complete. The Phase 2 design is 60% complete. The Corps plans to award the Phase 2 construction contract in Summer 2004.
- Southern CREW: Under construction.
- Lake Okeechobee Water Retention Areas: The design is complete. The Corps is preparing to advertise for construction bids.
- Ten Mile Creek: The Corps has awarded the construction contract.
- Lake Trafford: The design is complete. The Sponsor is preparing to advertise the first construction contract

78. FLORIDA KEYS WATER QUALITY IMPROVEMENTS

Water Quality Improvements pursuant to Section 109, Public Law 106-554.

Location. The Florida Keys Water Quality Improvements Program study area lies within the Florida Keys National Marine Sanctuary, which includes 2,800 square nautical miles of near shore waters beginning just south of Miami, Florida and extending to the Dry Tortugas. The Sanctuary is part of a complex ecosystem that includes the Everglades, Florida Bay and adjacent areas. The Keys themselves are a chain of more than 800 islands that extend approximately 220 miles southwest from the southern tip of the Florida peninsula and through the sanctuary. The Florida Keys Water Quality Improvements Program is targeting the portion of the Keys from Key Largo to Key West, approximately 110 miles.

Existing Project. Under the authority of Public Law 106-554, date December 21, 2000, the Corps of Engineers is authorized to provide technical and financial assistance to carry out projects for planning, design, and construction of treatment works to improve water quality in the Florida Keys As a result of concerns regarding the water quality in the Florida Keys, the Monroe county Year 2010 Comprehensive Plan mandated that nutrient loading be reduced in the Keys marine ecosystem by the year 2010. In 1998, The Governor issued Executive Order 98-309, which directed both local and state agencies to coordinate with Monroe County to implement the Year 2010 Comprehensive Plan. This includes the elimination of cesspits, failing septic systems and other substandard on-site sewer systems.

Estimated cost: The total cost of the program is in excess of $600M. However, the Federal Government has been authorized to spend up to $100M. The non-Federal share will be $53.8M.

Local Cooperation. The South Florida Water Management District, an agency of the State of Florida, is the project sponsor and cost-sharing partner, and has expressed its intent to be the project sponsor. However it should be noted that they will not be directly funding the non-Federal portion of the project. They will be coordinating with the various municipalities in Monroe County who will be paying for the non-Federal share.

Operations and results during fiscal year. $531,726
Condition at the end of the fiscal year. Currently, the Draft Programmatic Environmental Impact Statement is being readied for distribution and public review. By the end of the fiscal year we will have a Record of Decision on the EIS and will be poised to move forward with the construction of the first sewer project.

79. KISSIMMEE RIVER, FLORIDA

Location. The Kissimmee River Basin comprises 3,013 square miles, and extends from Orlando southward to Lake Okeechobee, the second largest freshwater lake in the United States. The area is bounded on the north by the lakes of the Orlando area, on the west by the Peace River Basin, on the south by Lake Okeechobee, and in the east by the Upper St. John's and the Taylor Creek-Nuddin Slough Basins. The watershed is about 105 miles long and has a maximum width of 35 miles.

Existing Project. The purpose of this project is to implement the Level II Back-filling plan, as developed by the South Florida Water Management District, for restoration of the Kissimmee River and flood plain ecosystem. It is expected that this restoration project will restore the ecological integrity of the river system and provide for environmental improvements through modification of operations for Lake Kissimmee, Cypress, and Hatchineha. The project will include canal and/or structure improvements and real estate acquisition. Construction will include the backfilling of approximately 22 miles of C-38. This will result in the restoration of almost 29,000 acres in the floodplain. Two structures will be removed and two bridges and associated utilities will be relocated. Real estate interests will be acquired for effected portions of the floodplain. (See Table 9-B for Authorizing Legislation.)

Estimated cost of the project for Kissimmee River (Upper and Lower Basins) $286,200,000 Federal and $286,200,000 non-Federal.

Local Cooperation. The South Florida Water Management District, an agency of the State of Florida, is the project sponsor and cost-sharing partner, and has expressed its intent to be the project sponsor. Local cost for the Headwater Revitalization is to be credited towards the total project cost. The authorization calls for the restoration to be cost-shared 50%-50% and that the lands be credited toward the total cost of the Kissimmee River Restoration. A draft Project Cooperation Agreement (PCA) was executed on 22 March 1994.

Operations and results during fiscal year. New work: Lands, $211,000. Fish and wildlife cost was $7,000. Channels and canal cost was $1,000. Floodway control structure cost was $2,050,000. Engineering and design cost was $3,154,978. Construction management cost was $922,000. Buildings, grounds, and utilities were $672,000. Relocations cost was $3,140,000.

Condition at the end of the fiscal year. Currently developing/finalizing plans and specifications for contracts to be awarded in FY 2004. Those contracts include: C-37 channel enlargement; S-650, S-83A & S-84A spillway addition; Avon Park Air Force Bombing Range Security fence installation; and S-65B radio tower.

80. RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Restoration Activities Pursuant to Section 1135, Public Law 99-662.

Fiscal year costs were: AIWW Sebastian Inlet, FL $-9419; C102/103 Restoration, Dade County, FL $189,227; C-7 Miami Dade, FL $95,006; C-8 Miami Dade, FL $47,162; C-9 Miami Dade, FL $50,335; Chicopit Bay Wetland, FL $14,408; Coordination Account Funds $116,064; Johns Island Habitat Preservation $79,993; Lake Jessup, FL $74,237; Mill Cove, FL $179,107; Ocklawaha Prairie Restoration $108,637; Palm River Restoration Hillsborough $29,715; Peanut Island Restoration $4,652,784; Ponce de Leon Inlet, FL $265,246; Ponce de Leon – AIWW Inlet, FL $273,381; Preliminary Restoration Plan $20,399; Restore La Esperanza $1,428,289; Sarasota Bay Restoration $52,910; Virginia Key Beach, FL $87,095; Wetland Restoration Oklawaha $194,857; White Shell Bay $25,081; Total FY Cost $7,974,514.

Restoration Activities Pursuant to Sec 206, Public Law 104-303.

Fiscal year costs were: Sec 206 Coordination Accounts $58,214; Preliminary Restoration Accounts $66,565; Big Fishweir Creek, FL $8,641; Aquatic Ecosystem Restoration, Rose Bay, FL $220,673; C-1 Rediversion/Lagoon Restoration $215,349; Dinner Key, FL $71,735; Stevenson Creek Estuary, FL $187,405; Sawgrass Lake/Hell N Blazes $56,386; Lake Osborne, FL $299,909; Homosassa Springs Manatee Habitat Restoration $110,992; Boqueron Refuse, PR $250,774; Oleta River, Miami, FL $27; Bootheel Creek, FL $27,630; Myakkahatchee Creek at North Port, FL $6,297; Hogan's Creek, FL $209,423; Kitching Creek, Martin County, FL $10,764; total fiscal year cost $1,800,784.

81. WETLAND AND OTHER AQUATIC HABITAT CREATION UNDER SPECIAL AUTHORIZATION

Wetland Activities Pursuant to Sec 204 Public Law 102-560.

Fiscal year costs were: Cockroach Bay Habitat, FL $11,140; Condado Lagoon, PR $14,821; Sec 204 Coordination Accounts $19,935; total fiscal year cost $45,896.

TABLE 9-A COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY-03	Total Cost To Sep. 30, 2003
1.Aquatic Plant	New Work:					
Control (R&H	Approp.	-	-	1,600	-	39,414,100
Act of 1965	Cost	(13,744)	3,652	3,894	2,146	39,405,041
2.Arecibo Harbor,	New Work:					
PR	Approp.	-	-	-	-	1,128,075 [1]
(Federal Funds)	Cost	-	-	-	-	1,128,075 [1]
	Maint:					
	Approp.	2,033,000	968,400	(19,400)	55,000	7,528,431
	Cost:	2,022,434	988,826	(19,225)	55,493	7,528,431
3.Atlantic	New Work:					
Intracoastal	Approp.	-	-	-	-	361,225 [2]
Waterway	Cost	-	-	-	-	361,225 [2]
between	Maint:					
Norfolk, VA and	Approp.	118,000	1,526,430	-	-	12,422,472
St. Johns River, FL	Cost:	113,428	1,537,753	365	45	12,422,472
4.Bakers Haulover	New Work:					
Inlet, FL	Approp.	-	-	-	-	243,235 [3]
(Federal Funds)	Cost	-	-	-	-	243,235 [3]
	Maint:					
	Approp.	-	-	-	-	185,688
	Cost:	-	-	-	-	185,688
5.Canaveral	New Work:					
Harbor, FL	Approp.	1,354,000	1,909,000	1,217,600	735,695	44,662,605 [4]
(Federal Funds)	Cost	673,809	2,606,557	1,257,438	738,833	44,661,028
	Maint:					
	Approp.	6,182,000	3,438,603	4,429,947	5,819,000	103,008,916
	Cost:	6,300,263	3,416,184	4,327,947	5,731,116	102,786,772
(Contrib. Funds)	New Work:					
	Approp.	-	77,712	-	-	2,635,845
	Cost	201,540	99,126	-	-	2,635,845

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
6.Channel from	New Work:					
Naples to Big	Approp.	-	-	-	-	305,290
Marco Pass, FL	Cost	-	-	-	-	305,290
(Federal Funds)	Maint:					
	Approp.	-	10,000	66,390	1,085,100	3,404,862
	Cost	-	9,004	66,126	1,086,360	3,404,862
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	159,975
	Cost	-	-	-	-	159,975
7.Charlotte	New Work:					
Harbor, FL	Approp.	-	-	-	-	533,169 [5]
(Federal Funds)	Cost	-	-	-	-	533,169 [5]
	Maint:					
	Approp.	-	-	-	-	22,835,644
	Cost:	4,246	-	-	-21,324	22,814,206
8.Eau Gallie	New Work:					
Harbor, FL	Approp.	-	-	-	-	9,627
(Federal Funds)	Cost	-	-	-	-	9,627
	Maint:					
	Approp.	-	-	-	-	2,137
	Cost:	-	-	-	-	2,137
9.Fernandina	New Work:					
Harbor, FL	Approp.	-	-	-	-	4,639,040 [6]
(Federal Funds)	Cost	-	-	-	-	4,639,040 [6]
	Maint:					
	Approp.	1,692,700	3,659,183	1,678,000	1,878,200	48,763,093
	Cost:	1,736,138	3,657,964	1,681,706	1,883,763	48,762,509
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	935,000
	Cost	-	-	-	-	935,000
10.Fort Myers Beach	New Work:					
Channel, FL	Approp.	-	-	-	-	158,140 [7]
(Federal Funds)	Cost	-	-	-	-	158,140 [7]
	Maint:					
	Approp.	146,500	1,650,000	(71,500)	-	3,371,131
	Cost	154,686	1,641,383	(57,744)	178	3,371,131

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
11.Fort Pierce	New Work:					
Harbor, FL	Approp.	-	-	-	-	5,424,500
(Federal Funds)	Cost	-	-	-	-	5,417,853
	Maint:					
	Approp.	1,623,900	387,740	998,000	284,400	11,563,278
	Cost:	1,619,208	398,108	995,178	287,759	11,563,206
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	2,503,387
	Cost	-	-	-	-	2,498,659
12.Horseshoe	New Work:					
Cove, FL	Approp.	-	-	-	-	347,521
(Federal Funds)	Cost	-	-	-	-	347,521
	Maint:					
	Approp.	-	-	899,581	-	908,256
	Cost:	-	-	908,156	100	908,256
13.Gulf Intracoastal	New Work:					
Waterway	Approp.	-	-	-	-	8,112,557[8]
Caloosahatchee	Cost	-	-	-	-	8,112,557[8]
River to Anclote	Maint:					
River, FL	Approp.	151,600	99,684	10,000	5,000	7,882,543[9]
(Federal Funds)	Cost	187,078	105,482	11,607	5,063	7,882,543[9]
14.Intracoastal	New Work:					
Waterway	Approp.	-	-	-	-	19,251,598[10]
Jacksonville to	Cost	-	-	-	-	19,251,598[10]
Miami, FL	Maint:					
(Federal Funds)	Approp.	3,025,000	4,829,323	3,162,000	3,692,100	71,416,805[11]
	Cost:	3,155,634	4,857,996	3,172,736	3,704,012	71,415,902[11]
(Contrib. Funds)	Maint:					
	Approp.	-	-	-	-	61,000
	Cost	-	-	-	-	61,000

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
15.Jacksonville	New Work:					
Harbor, FL	Approp.	50,000	1,073,000	8,260,023	9,251,396	68,628,990[12]
(Federal Funds)	Cost	357,931	1,075,410	8,559,828	9,240,942	68,616,622[12]
	Maint:					
	Approp.	3,275,800	7,253,324	5,386,000	5,653,500	121,871,622[13]
	Cost:	3,333,365	7,228.972	5,406,409	5,666,088	121,871,157[13]
	Rehab:					
	Approp.	-	-	-	-	102,813
	Cost	-	-	-	-	102,813
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-654	1,135,015[14]
	Cost	188,264	11,956	3,271	-220	1,135,015[14]
	Maint:					
	Approp.	-	-	-	-	25,000
	Cost	-	-	-	-	25,000
16.Jacksonville Hbr.	New Work:					
(Mill Cove), FL	Approp.	-	-	-	-	4,104,000
(Federal Funds)	Cost	-	4,791	1,597	2,871	4,104,000
(Contrib. Funds)	New Work:					
	Approp.	250,000	1,750,000	285,400	-162,751	2,122,649
	Cost	174,782	68,530	1,873,750	5,587	2,122,649
17.Johns Pass, FL	New Work:					
(Federal Funds)	Approp.	-	-	-	-	82,098[15]
	Cost	-	-	-	-	82,098[15]
	Maint:					
	Approp.	521,200	-	-	-	2,466,912
	Cost	521,177	3,019	-	237	2,466,912
18.Long Boat	New Work:					
Pass, FL	Approp.	-	-	-	-	1,020,233
(Federal Funds)	Cost	-	-	-	-	1,020,233
	Maint:					
	Approp.	90,000	-	(1,390)	-	3,841,796
	Cost:	60,222	20,937	7,475	1	3,841,796
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	172,324
	Cost	-	-	-	-	172,324
19.Manatee	New Work:					
Harbor, FL	Approp.	755,000	525,000	607,000	2,206,053	10,175,153
(Federal Funds)	Cost	745,126	412,200	901,758	2,206,269	10,167,544
	Maint:					
	Approp.	10,000	43,377	19,000	55,400	5,448,777
	Cost:	9,913	45,123	18,704	55,861	5,448,777
(Contrib. Funds)	New Work:					
	Approp.	-	-	20,000	2,683,189	5,290,132
	Cost	-	-	-	439,135	3,026,078

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
20.Mayaguez	New Work:					
Harbor, PR	Approp.	-	-	-	-	168,187
(Federal Funds)	Cost	-	-	-	-	168,187
	Maint:					
	Approp.	-	-	-	-	1,061,561
	Cost	-	-	-	-	1,061,561
21.Melbourne	New Work:					
Harbor, FL	Approp.	-	-	-	-	17,696
(Federal Funds)	Cost	-	-	-	-	17,696
	Maint:					
	Approp.	-	-	-	-	634,864
	Cost:	-	-	-	-	634,864
22.Miami	New Work:					
Harbor, FL	Approp.	874,000	4,113,000	1,115,377	1,075,141	57,799,143[16]
(Federal Funds)	Cost	428,487	4,447,374	1,274,519	1,079,821	57,796,139[16]
	Maint:					
	Approp.	673,500	54,555	212,000	74,100	7,385,792
	Cost	663,022	104,008	211,109	74,352	7,383,983
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	2,300,710[17]
	Cost	-	-	-	-	2,300,710[17]
23.New Pass	New Work:					
Sarasota, FL	Approp.	-	-	-	-	45,811[18]
(Federal Funds)	Cost	-	-	-	-	45,811[18]
	Maint:					
	Approp.	65,000	20,000	142,000	1,304,900	8,277,826
	Cost:	51,365	33,782	137,134	1,310,847	8,277,826
24.Okeechobee	New Work:					
Waterway, FL	Approp.	-	-	-	-	21,756,418[19]
(Federal Funds)	Cost	-	-	-	-	21,756,418[19]
	Maint:					
	Approp.	6,188,500	5,214,504	3,529,000	3,178,023	95,504,448[20]
	Cost:	6,222,474	5,219,459	3,290,275	3,248,357	95,332,735[20]
25.Oklawaha	New Work:					
River, FL	Approp.	-	-	-	-	315,264[21]
(Federal Funds)	Cost	-	-	-	-	315,264[21]
	Maint:					
	Approp.	38,900	-	-	26,000	2,923,976[22]
	Cost:	37,926	1,703	-	25,981	2,923,914[22]

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
26.Palm Beach	New Work:					
Harbor, FL	Approp.	-	-	-	-	6,924,021[23]
(Federal Funds)	Cost	-	-	-	-	6,924,021[23]
	Maint:					
	Approp.	2,173,000	1,779,158	3,315,350	2,958,700	37,569,554[24]
	Cost	2,270,202	1,762,438	3,313,946	2,987,649	37,566,805[24]
27.Palm Valley	New Work:					
Bridge, Fl	Approp.	3,334,000	9,093,000	6,126,500	38,917	20,659,517
(Federal Funds)	Cost	3,557,469	9,375,536	6,198,873	154,399	20,659,376
(Contrib. Funds)	New Work:					
	Approp.	-	-	1,750,000	265,403	2,015,403
	Cost			324,438	737,219	1,061,657
28.Ponce de Leon	New Work:					
Inlet, FL	Approp.	25,000	(1,904)	25,000	64,367	2,212,117
(Federal Funds)	Cost	57,854	15,598	26,726	54,939	2,202,580
	Maint:					
	Approp.	5,825,400	2,859,901	1,932,000	-	33,232,721
	Cost	5,870,546	2,888,463	1,950,816	725	33,232,721
(Contrib. Funds)	New Work:					
	Approp.	37,000	-	-	-	2,452,600
	Cost	2,004	27,805	6,450	741	2,452,600
	Maint:					
	Approp.	-	-	-	-	1,379,000
	Cost	-	-	-	-	1,112,663
29.Ponce Harbor,	New Work:					
PR	Approp.	-	-	-	-	2,227,260[25]
(Federal Funds)	Cost	-	-	-	-	2,227,260[25]
	Maint:					
	Approp.	-	-	-	-	1,779,270
	Cost:	-	-	-	-	1,779,270
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	717,304
	Cost	-	-	-	-	717,304
30.Port Everglades	New Work:					
Harbor, FL	Approp.	-	-	-	-	54,429,666[26]
(Federal Funds)	Cost	-	-	-	-	54,429,666[26]
	Maint:					
	Approp.	50,000	201,000	38,000	143,800	2,795,678
	Cost:	58,858	190,485	55,395	143,878	2,795,637

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
31.Removal of	Maint:					
Aquatic Growth	Approp.	3,658,856	5,080,323	3,385,740	3,961,600	89,025,656
(Federal Funds)	Cost	3,792,390	5,114,829	3,453,294	3,957,194	88,997,723
32.St Augustine	New Work:					
Harbor, FL	Approp.	-	-	-	-	1,476,434[27]
(Federal Funds)	Cost	-	-	-	-	1,476,434[27]
	Maint:					
	Approp.	376,000	-	-	7	9,717,107
	Cost:	375,028	7,424	917	7	9,717,107
33.St. Johns	New Work:					
River, FL	Approp.	-	-	-	-	1,171,243[28]
Jacksonville to	Cost	-	-	-	-	1,171,243[28]
Lake Harney	Maint:					
(Federal Funds)	Approp.	-	-	-	-	1,300,299[29]
	Cost	-	-	-	-	1,300,299[29]
34.St. Lucie	New Work:					
Inlet, FL	Approp.	162,000	138,659	6,693,900	299,022	16,062,450[30]
(Federal Funds)	Cost	171,379	181,924	6,708,267	309,078	16,060,970[30]
	Maint:					
	Approp.	2,496,500	669,000	3,572,000	50,000	16,949,456
	Cost:	2,504,209	669,623	3,572,523	45,417	16,943,966
(Contrib. Funds)	Maint:					
	Approp.	-	-	-	-	3,851,383
	Cost	-	-	-	-	3,851,383
35.San Juan	New Work:					
Harbor, PR	Approp.	14,215,146	18,467,000	417,700	177,660	54,377,474[31]
(Federal Funds)	Cost	14,615,441	17,534,743	1,544,382	181,650	54,367,661[31]
	Maint:					
	Approp.	1,416,100	479,000	442,000	94,000	24,936,929[32]
	Cost:	1,453,384	469,690	461,934	98,485	24,936,065[32]
(Contrib. Funds)	New Work:					
	Approp.	6,000,000	4,000,000	4,028,708	-	16,128,708
	Cost	6,043,974	3,106,644	3,048,930	26,258	14,008,797

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
36.Tampa Harbor, FL	New Work:					
(Main Channel)	Approp.	-	-	-	-	173,767,440[33]
(Federal Funds)	Cost	-	-	-	-	173,767,440[33]
	Maint:					
	Approp.	3,997,000	6,560,435	6,391,103	6,184,200	80,404,970 [34]
	Cost	4,055,048	6,577,776	6,404,892	6,197,850	80,399,424 [34]
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	1,038,711
	Cost	-	-	-	-	1,038,711
36.Tampa Harbor, FL (East Bay- Branch Channels)	New Work:					
(Federal Funds)	Approp.	234,000	8,400,000	436,000	-4,693	11,080,120
	Cost	249,462	5,882,345	2,998,142	-4,571	11,080,120
(Contrib. Funds)	New Work:					
	Approp.	500,000	600,000	-	-	4,359,000
	Cost	-	851,306	223,727	-	3,976,477
36.Tampa Harbor, FL	New Work:					
(Port Sutton)	Approp.	75,000	50,000	-	12,922	692,922
(Federal Funds)	Cost	156,729	55,057	1,357	12,849	692,804
36.Tampa Harbor	New Work:					
(Big Bend)	Approp.	-	-	-	11,000	221,000
(Federal Funds)	Cost	23,105	3,862	-	15,416	217,102
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	48,333
	Cost:	5,394	7,398	284	33,421	46,497
(Alafia River)	New Work:					
(Federal Funds)	Approp.	125,000	418	(125,000)	69,341	69,759
	Cost	-	-	-	67,913	67,913
36.Tampa Harbor, FL	New Work:					
(GRR)	Approp.	-	85,000	572,700	431,798	1,089,498
(Federal funds)	Cost	-	72,871	577,341	436,747	1,086,959
40.Brevard County,	New Work:					
FL	Approp.	1,868,000	14,470,000	6,377,500	1,844,455	27,496,828
(Federal Funds)	Cost	439,949	15,277,502	7,005,165	1,863,424	27,480,659
	Maint:					
	Approp.	-	-	-	-	29,001
	Cost	-	-	-	-	29,001
(Contrib. Funds)	New Work:					
	Approp.	-	7,970,026	4,979,000	800,000	16.211,026
	Cost	15,034	6,922,276	5,760,188	1,035,177	16,170,984

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
41.Broward	New Work:					
County,	Approp.	290,349	150,000	61,700	1,661,471	21,690,620
FL Beach Erosion	Cost	257,528	150,493	142,946	1,665,333	21,690,620
Control & Hillsboro	Maint:					
Inlet, FL	Approp.	-	-	-	-	26,884
Navigation Proj.	Cost	-	-	-	-	26,884
(Federal Funds)	New Work:					
(Contrib. Funds)	Approp.	-	-	-	-	3,460,990[35]
	Cost	-	-	-	-	3,460,990[35]
41.Hilsboro Inlet,	New Work:					
FL	Approp.	25,000	114,000	23,100	-71	706,717
(Federal Funds)	Cost	84,977	153,038	38,172	-	706,717
42.Duval County,	New Work:					
FL	Approp.	370,000	435,000	(-21,300)	1,993,460	22,951,060
(Federal Funds)	Cost	457,125	351,828	97,941	2,007,949	22,946,481
(Contrib. Funds)	New Work:					
	Approp.	-	5,200,000	(2,500,000)	-	19,595,567
	Cost	-	-	-	1,460,982	18,356,549
43.Ft. Pierce Beach,	New Work:					
FL	Approp.	1,139,000	518,000	535,900	1,670,946	10,091,249
(Federal Funds)	Cost	1,023,668	744,844	627,647	1,677,392	10,087,959
(Contrib. Funds)	New Work:					
	Approp.	431,180	-	-	2,070,000	7,124,180
	Cost:	-	271,314	221	1,420,811	6,220,557
44.Indian River	New Work:					
County, FL	Approp.	38,000	(13,004)	-	-	523,677
(Federal Funds)	Cost	62,737	679	-	-	523,677
45.Lee County, FL	New Work:					
(Federal Funds)	Approp.	40,000	100,000	(6,900)	67,998	3,681,098
	Cost	95,005	49,581	60,602	68,695	3,680,473
46.Manatee	New Work:					
County,	Approp.	150,000	168,000	658,700	1,516,388	8,608,688
FL	Cost	95,482	25,560	867,619	1,516,586	8,608,688
(Federal Funds)	New Work:					
(Contrib. Funds)	Approp.	-	-	-	-	3,337,348
	Cost:	-	-	-	-	3,337,320

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
47.Martin County,	New Work:					
FL	Approp.	216,000	1,361,000	800,000	29,778	8,062,378
(Federal Funds)	Cost	202,898	1,130,102	1,057,327	30,900	8,058,709
(Contrib. Funds)	New Work:					
	Approp.	-	1,410,000	1,000,000	-	7,440,000
	Cost	-	838,524	364,331	593,125	6,812,732
48.Nassau County,	New Work:					
FL	Approp.	-	(16,659)	-	195,307	2,054,201
(Federal Funds)	Cost	43,543	3,392	-	191,197	2,044,051
49.Palm Beach	New Work:					
County, FL	Approp.	132,113	2,868,000	815,300	1,689,000	19,861,847
(Federal Funds)	Cost	18,353	2,581,843	1,250,247	1,688,306	19,853,840
	Maint:					
	Approp.	-	-	-	-	13,621
	Cost	-	-	-	-	13,621
49.Lake Worth	New Work:					
Transfer Plant, FL	Approp.	824,289	(673,081)	37,900	28,969	499,577
(Federal Funds)	Cost	175,032	45,418	47,803	28,106	498,624
50.Palm Beach	New Work:					
Island, FL	Approp.	-	-	-	-	1,793,000
(Federal Funds)	Cost	-	-	-	-	1,793,000
51.Pinellas County,	New Work:					
FL	Approp.	4,765,000	3,629,004	1,365,700	601,587	52,765,984
(Federal Funds)	Cost	5,225,357	3,436,924	1,719,645	601,913	52,762,171
	Maint:					
	Approp.	-	-	-	-	5,625
	Cost	-	-	-	-	5,625
(Contrib. Funds)	New Work:					
	Approp.	1,030,000	-	2,285,599	183,077	33,912,849
	Cost	3,075,340	116,897	-	2,406,221	33,850,018
52.St. Johns County,	New Work:					
FL	Approp.	202,000	2,796,000	6,194,600	3,778,701	14,770.587
(Federal Funds)	Cost	219,696	1,089,290	7,895,028	3,821,619	14,770,587
(Contrib. Funds)	New Work:					
	Approp.	-	642,693	544,521	3,100,500	4,316,700
	Cost:	-	-	1,160,834	2,567,640	3,728.474

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See **Total Cost To**

Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Sep. 30, 2003
53.Sarasota County,	New Work:					
FL	Approp.	(94,462)	370,000	481,200	347,534	15,418,071
(Federal Funds)	Cost	(94,762)	86,927	807,228	348,492	15,416,538
(Contrib. Funds)	New Work:					
	Approp.	-	-	-	-	5,020,605
	Cost	170,158	-	-	24,854	5,020,355
56.Cedar Hammock	New Work:					
(Wares Creek), FL	Approp.	-	468,000	(87,800)	377,856	1,318,056
(Federal Funds)	Cost	85,245	158,796	133,923	519,446	1,302,675
(Contrib. Funds)	New Work:					
	Approp.	-	139,901	-	-	227,901
	Cost	6,584	80,775	111,008	10,949	209,316
57.Dade County,	New Work:					
FL	Approp.	1,511,000	9,144,000	3,837,800	1,207,284	71,789,636 [37]
(Federal Funds)	Cost	1,136,923	9,788,857	4,356,707	1,247,945	71,787,928 [37]
(Contrib. Funds)	New Work:					
	Approp.	7,817,599	912,891	3,906,075	8,254,391	60,807,233 [38]
	Cost	(139,502)	8,216,946	2,419,059	1,388,757	51,595,631 [38]
58.Dade County,	New Work:					
N. of Haulover	Approp.	-	-	-	-	6,801,611
Beach, FL	Cost	-	-	-	-	6,801,611
(Federal Funds)	New Work:					
(Contrib. Funds)	Approp.	-	-	-	-	8,082,927
	Cost	-	-	-	-	8,082,927

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See **Total Cost To**

JACKSONVILLE, FL DISTRICT

Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Sep. 30, 2003
59.Four River	New Work:					
Basins, FL	Approp.	(100,000)	-	-	-156,000	75,999,095[39]
(Federal Funds)	Cost	(183,910)	18,390	-	-	75,993,302[39]
(Contrib. Funds)	New Work:					
	Approp.	185,857	-	-	-	14,095,058
	Cost	194,767	-	-	-	14,095,058
60.Portugues and	New Work:					
Bucana Rivers, PR	Approp.	5,460,000	3,937,000	4,814,000	5,277,057	398.928,025
(Federal Funds)	Cost	5,715,802	3,901,361	5,167,219	5,322,632	398,917,414
(Contrib. Funds)						
	New Work:					
	Approp.	2,435,000	435,000	(290,000)	660,000	10.953,201
	Cost	1,341,221	1,122,894	878,330	647,493	10,104,506
61.Rio de la	New Work:					
Plata, PR	Approp.	658,000	427,000	110,300	280,600	7,362,898
(Federal Funds)	Cost	599,517	363,019	272,194	281,215	7,362,889
(Contrib. Funds)	New Work:					
	Approp.	681,088	-	153,000	-	834,088
	Cost	40,173	59,645	-	248,110	347,928
62.Rio Grande de	New Work:					
Arecibo, PR	Approp.	444,000	1,027,000	382,000	1,089,826	4,801,041
(Federal Funds)	Cost	501,387	925,762	504,521	1,087,272	4,797,726
(Contrib. Funds)	New Work:					
	Approp.	-	-	882,000	-	882,200
	Cost	-	-	569,115	215,613	785,628
63.Rio Grande de	New Work:					
Loiza, PR	Approp.	10,000	629,000	283,000	198,484	3,833,625
(Federal Funds)	Cost	4,927	490,761	401,901	222,894	3,833,624
64.Rio Manati,	New Work:					
Barceloneta, PR	Approp.	-	1,000,000	3,713,100	4,105,652	8,818,752
(Federal Funds)	Cost	-	431,567	4,261,963	4,087,522	8,791,052
(Contrib. Funds)	New Work:					
	Approp.	-	-	1,784,275	1,379,369	3,163,644
	Cost	-	-	1,079,936	1,537,545	2,617,481
65.Rio Puerto	New Work:					
Nuevo, PR	Approp.	10,524,000	11,914,000	5,201,400	14,135,263	96,949,759
(Federal Funds)	Cost	11,932,705	13,003,164	5,416,018	14,167,828	96,944,746
(Contrib. Funds)	New Work:					
	Approp.	5,250,000	4,271,396	4,400,000	-	26,341,396
	Cost	5,818,149	4,186,745	2,557,903	3,953,651	25,121,001

TABLE 9-A (Cont.) COST AND FINANCIAL STATEMENT

See Sect. PROJECT	FUNDING	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
74.General Regulatory	New Work:					
(Federal Funds)	Approp.	8,283,000	9,483,437	9,208,600	9,560,000	106,311,237[40]
	Cost	7,811,478	8,551,271	9,483,591	10,739,005	105,813,336[40]
76.Central and	New Work:					
Southern Florida	Approp.	34,586,854	43,886,000	86,749,000	89,912,035	725,912,202[36]
(Federal Funds)	Cost	31,870,918	41,765,085	90,248,587	93,116,144	725,835,239[36]
	Maint:					
	Approp.	18,789,900	13,838,884	16,945,335	16,219,577	218,401,236
	Cost	18,757,847	13,474,483	17,330,406	16,286,643	218,360,762
(Contrib. Funds)	New Work:					
	Approp.	6,440,167	2,298,063	5,991,578	5,348,098	85,933,008
	Cost	6,081,434	2,311,046	4,447,884	4,244,240	81,428,095
76.Herbert Hoover	New Work:					
Dike, FL	Approp.	-	1,340,000	1,350,000	150,000	2,840,000
(Federal Funds)	Cost	-	590,662	1,479,010	434,295	2,503,967
77.Everglades South	New Work:					
Florida Ecosystem	Approp.	5,435,700	7,201,000	6,939,000	555,234	25,948,934
Restoration, FL	Cost	4,368,378	6,932,407	9,341,975	946,639	25,941,146
(Federal Funds)						
(Contrib. Funds)	New Work:					
	Approp.	2,672,000	1,113,110	5,537,723	7,201,406	17,024,239
	Cost	38,269	2,105,675	3,448,904	1,660,525	7,253,373
78.Florida Keys	New Work:					
Water Quality	Approp.	0	0	120,000	271,000	391,000
	Cost	0	0	72,680	260,726	333,406
79.Kissimmee River,	New Work:					
FL	Approp.	25,244,000	13,499,000	4,300,000	5,608,512	89,886,512
(Federal Funds)	Cost	24,065,361	13,680,792	5,775,585	6,047,364	89,886,501
(Contrib. Funds)	New Work:					
	Approp.	494,000	-	4,539,000	1,537,881	8,163,881
	Cost	1,089,598	(101,942)	400,834	4,110,614	5,879,954

[1]Excludes $288,000 for contributed funds for new work.
[2]Includes $97,566 for previous project.
[3]Excludes $243,235 contributed funds for new work.
[4]Excludes $700,000 contributed by NASA in connection with construction of lock.
[5]Includes $113,000 for new work on previous project; excludes $15,563 expended for new work on existing project in Boca Grande entrance channel from contributed funds.
[6]Includes $905,221 expended for recreation facilities.
[7]Includes $10,128 cost for reconnaissance and detailed project report prepared under Section 107 modification to the project. Excludes $1,095 contributed funds for new work.
[8]Includes $515,479 for new work for previous projects: $8,472 for new work on Sunshine Skyway Channel; and $9,707 for new work for Cats Point Channel. Excludes $14,473 contributed funds for new work for Sunshine Skyway and Boca Ciega Bay channels.
[9]Includes $450,749 for maintenance for previous project.
[10]Includes $94,776 for work for previous projects. Excludes $2,199,842 expended from public works funds for new work.
[11]Includes $213,222 for maintenance on previous projects and $3,179 operating and care under provisions of permanent indefinite appropriation.
[12]Includes $3,520,137 new work on previous project and $290,013 for new work expended from public works funds.
[13]Includes $543,399 maintenance on previous projects.
[14]Includes unused contributed funds of $64,136 returned to local interests.
[15]Project authorized December 2, 1964, by Chief of Engineers under Section 107 of 1960 R&H Act and by Section 110 of the 1966 R&H Act. Cost of new work excludes $53,732 contributed funds.
[16]Includes $5,502,126 expended from public work funds for new work. Includes costs of $6,777,906 for recreation facilities.
[17]Includes $381,479 work-in-kind and $172,314 in costs for north jetty recreation facility.
[18]Excludes $45,811 contributed funds for new work.
[19]Includes $21,101,919 for new work under previous project, $626,925 for recreational facilities (Code 710), and $27,574 for reconnaissance and detailed project report prepared under Section 107 modification to the project.
[20]Includes $7,581,150 for maintenance for previous projects. Excludes $1,000 for maintenance.
[21] Includes $3,912 for new work for previous projects.
[22]Includes $11,414 for operating and care under provisions for permanent indefinite appropriation.
[23]Includes $80,000 new work from public works funds. Excludes $509,506 contributed funds.
[24]Includes $30,000 for maintenance from public works funds.
[25]Includes $11,588 expended for restudy, but excludes $21,960 expended for new work from contributed funds.
[26]Excludes $1,033,069 contributed funds.
[27]Includes $71,303 for new work on previous project. Excludes $137,500 contributed funds.
[28]Baresford cutoff and completion of cutoffs and easing of bends in Putnam Lake and Volusia Counties in inactive status were deauthorized by Public Law 93-251 section 12. Includes $29,566 for new work under previous project.
[29]Includes $25,838 under previous project.
[30]Includes $26,689 for new work under previous project.
[31]Includes $747,684 for new work under previous project. Excludes $100,000 expended for new work from contributed funds.
[32]Includes $44,730 for maintenance from public works funds under previous project.
[33]Includes $853,050 for new work from public works funds under previous project and $1,463,000 from emergency relief funds. Excludes $270,466 for new work for Hillsborough River and $13,939 for new work from contributed funds.
[34]Includes $17,107 for maintenance under previous project.
[35]Includes work-in-kind.
[36]Excludes $15,543 for property received without reimbursement and R&H Funds, expended on previous projects (see cost and financial statement for Okeechobee Waterway, FL, project for these costs). Excludes $100,000 advanced by local interests toward federal costs. Includes $175,000 appropriation and $175,000 cost for new work at C&SF St. Johns Water Management District.
[37]Includes $2,294,134 for reimbursement costs to Bal Harbor.
[38]Excludes unused contributed funds of $17,969 returned to local interests.
[39]Includes costs of $89,691 for recreation facilities at Moss Bluff and $2,638,272 at Lake Tarpon.
[40]Funds appropriated under General Regulatory Functions 96X3126.

TABLE 9-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	AQUATIC PLANT CONTROL (See Section 1 of Text)	
Oct. 27, 1965	Control and progressive eradication of obnoxious aquatic plants, and continued research to develop best method of control.	H.Doc. 251, 89th Cong., 1st sess.
	LOWER ST. JOHNS RIVER BASIN, FL	
WRDA Aug. 17, 1999	May apply the computer model developed under the feasibility study to assist non-Federal interests in developing strategies for improving water quality at 50 percent cost share.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
	TAMPA, FL	
WRDA Oct. 12, 1996	May enter into a cooperative agreement under section 229 with the Museum of Science and Industry, Tampa, Fl to provide technical, planning, and design assistance to demonstrate the water quality functions found in wetlands, at an estimated total Federal cost of $500,000.	P.L. 104-303, Oct. 12, 1996 104th Cong.
	WEST DADE, FL	
WRDA Oct. 12, 1996	Conduct a reconnaissance study to determine the Federal interest in using the West Dade, FL, reuse facility to improve water quality in, and increase the supply of surface water to, the Everglades in order to enhance fish and wildlife habitat.	P.L. 104-303, Oct. 12,1996 104th Cong.
NAVIGATION PROJECTS	**ARECIBO HARBOR, PR (See Section 2 of Text)**	
Aug. 26, 1937	Construction of breakwater 1,200 feet long and dredging channel 25 feet deep and 400 feet wide with flare at entrance and widening at inner end to form a maneuvering area.	Rivers and Harbors Committee Doc. 43, Cong., 75th 1st sess.
	ATLANTIC INTRACOASTAL WATERWAY, ST. JOHNS COUNTY, FL	
WRDA Oct. 12, 1996	Project for navigation. Operation, maintenance, repair, replacement and rehabilitation shall be a non-Federal responsibility, and the non-Federal interest shall assume ownership for the bridge.	P.L.104-303, Oct. 12, 1996 104th Cong.
	ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK, VA AND THE ST. JOHNS RIVER, FL (See Section 3 of Text)	
Mar. 4, 1913	Channel 7 x 100 feet.	H.Doc. 898, 62nd Cong., 2d sess.
Jun. 20, 1939	Channel 12 feet deep and 90-150 feet wide with cutoffs.	H.Doc. 618, 75th Cong., 3d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	BAKERS HAULOVER, FL (See Section 4 of Text)	
Jul. 14, 1960	Channel 11 x 200 feet in ocean entrance, thence 8 x 100 feet to Intracoastal Waterway; Marina basin 8 x 200 feet; reconstruction of jetties and protection of inlet shores.	H.Doc. 189, 86th Cong., 1st sess.
	CANAVERAL HARBOR, FL (See Section 5 of Text)	
Mar. 2, 1945	Entrance channel jetties, a turning basin enclosed by a dike, and a barge canal with a lock.	H.Doc. 367, 77th Cong., 1st sess.
Oct. 23, 1962	Maintain improved channel, turning basin, enlarge barge channel and lock, relocate dike, provide channel and turning basin west of 35-foot turning basin, construct and operate sand-transfer plant.	S.Doc. 140, 87th Cong., 2d sess.
Report of the Chief of Engineers Oct. 1985	Mitigation of fish and wildlife losses at Port Canaveral West Turning Basin Project.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess
Report of the Chief of Engineers Jul. 24, 1991	Project for navigation, Canaveral Harbor, FL, as modified by the letter of the Secretary dated Oct. 10, 1991	P.L. 102-580, Oct. 13, 1992 102nd Cong., 2d sess.
WRDA Oct. 12, 1996	Modification of navigation project to reclassify the removal and replacement of stone protection on both sides of the channel as general navigation features.	P.L. 104-303, Oct. 12, 1996 104th Cong.
	CHANNEL FROM NAPLES TO BIG MARCO PASS, FL (See Section 6 of Text)	
Jun. 20, 1938	Interior channel 6 x 70 feet.	H.Doc. 596, 75th Cong., 3d sess.
Jul. 14, 1960	Channel 12 x 150 feet from the Gulf to Gordon Pass, thence 10 x 100 feet to a point 400 feet south of U.S. Highway 41 Bridge, thence 10 x 70 feet to bridge and two turning basins.	H.Doc. 183, 86th Cong., 1st sess.
	CHARLOTTE HARBOR, FL (See Section 7 of Text)	
Jul. 25, 1912	Channel 24 x 300 feet through Gulf through Boca Grande entrance.	H.Doc. 699, 62nd Cong., 2d sess.
Mar. 3, 1925	Depth of 27 feet at entrance and width of 500 feet at bend.	H.Doc. 113, 66th Cong., 1st sess.
Jul. 3, 1930	Channel 10 x 100 feet to Punta Gorda and a turning basin.	Rivers and Harbors Committee, Doc. 1, 70th Cong., 1st sess.
Aug. 26, 1937	Depth of 30 feet at entrance and width of 700 feet at bend.	Rivers and Harbors Committee Doc.95, 74thCong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
May 17, 1950	Depth of 32 feet in entrance channel.	H.Doc. 186, 81st Cong., 1st sess.
	EAU GALLIE HARBOR, FL (See Section 8 of Text)	
Jun. 20, 1938	Channel 8 x 100 feet and a turning basin.	H.Doc. 497, 75th Cong., 3 sess.
	FERNANDINA HARBOR, FL (See Section 9 of Text)	
Jun. 14, 1880	Entrance jetties.	Annual Report 1879
Jul. 13, 1892	Raising and extending jetties to provide a 19-foot depth.	Annual Report 1891 & 1896
Mar. 2, 1907	Improvement of inner harbor to obtain 20 to 24-foot depth and 400 to 600-foot channel width.	H.Doc. 388, 59th Cong., 1st sess.
Jun. 25, 1910	Combining improvement of Fernandina Harbor and Cumberland Sound under the general heading of Fernandina Harbor.	
Mar. 3, 1925	Provided for a 26-foot channel.	H.Doc. 227, 68th Cong., 1st sess.
Jun. 20, 1938	Provided for the 28-foot channel and turning basin.	H.Doc. 548, 75th Cong., 3d sess.
Mar. 2, 1945	Provided for reducing the maximum width of turning basin from 1,000 to 800 feet, for shifting channel line in this vicinity vicinity 50 feet northwesterly and for including in authorized project small area dredged by Rayonier, Inc.	H.Doc. 284, 87th Cong., 1st sess.
May 17, 1950	Provided for 32-foot channel and turning basin.	H.Doc. 662, 80th Cong., 2d sess.
WRDA Nov. 28, 1990	Re-designated location of turning basin until Section 107 (R&H Act of 1960) study is completed and the resulting. project constructed	P.L. 101-640, Nov. 28, 1990 101st Cong.? sess.
WRDA Jan. 24, 2000	Realign the access channel in the vicinity of the Fernandina Beach Municipal Marina 100 feet to the west and cost shall be a non-Federal expense.	P.L. 106-541, Jan. 24, 2000 106th Cong., 2nd sess.
	FORT MYERS BEACH, FL (See Section 10 of Text)	
Jul. 14, 1960	12 x 150 foot channel in San Carlos Bay, thence 11 x 125 feet in Matanzas Pass to upper shrimp terminals.	H.Doc. 183, 86th Cong., 1st sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Auth. by Chief of Engineers Dec. 6, 1968 under Sec. 107 of 1960 R&H Act	Extension of 11 x 125 foot channel easterly about 2,000 feet to and including a turning basin adjacent to natural deep water in Matanzas Pass.	
	FORT PIERCE HARBOR, FL (See Section 11 of Text)	
Def. Act of Mar. 4, 1931	Expenditure of $20,000 for dredging channel, maintenance by local interests.	Specified in Act
War Dept. Approp. Act, Mar. 4, 1933	Expenditure of up to $30,000 for dredging channel.	Specified in Act
Aug. 30, 1935	Maintaining channels, jetties, and revetments, and enlarging channels and turning basin to existing project dimensions.	H.Doc. 252, 72nd Cong., 1st sess. and Rivers and Harbors Committee Doc. 21, 74th Cong., 1st sess.
Report of the Chief of Engineers Dec. 14, 1987	Deepening and enlarging channels and turning basin. Total cost of $6,742,000.	P.L. 100-676, Nov. 17, 1988 100th Cong., 2d sess.
	HORSESHOE COVE, FL (See Section 12 of Text)	
May 17, 1950	A channel 6 feet deep and 75 feet wide and a turning basin 6 feet deep and of an irregular shape.	River and Harbor Act H.Doc. 106, 81st Cong., 1st sess.
	INTRACOASTAL WATERWAY, CALOOSAHATCHEE RIVER TO ANCLOTE RIVER, FL (See Section 13 of Text)	
Mar. 2, 1945	9 x 100 foot channel; deepening channel at Casey's Pass to 9 feet and construction of Highway Bridge at Venice.	H.Doc. 371, 76th Cong., 1st sess.
Jun. 30, 1948	Original route may be modified at no excess cost to U.S.	Specified in Act
May 17, 1950	Any route in Venice-Lemon Bay area may be used.	Specified in Act
Sep. 3, 1954	Use of alternate Route C-1 in Venice-Lemon Bay area.	Specified in Act
May 10-16, 1957	Local interests to bear costs of Venice Avenue highway bridge and any other necessary crossing over Route C-1.	H.Doc. 109, 85th Cong., 1st sess.
Auth. Mar. 1, 1962 by Senate and House Public. Works Comm	Sunshine Skyway Channel to be improved and maintained to. 9 x 100 feet	

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Auth. by Chief of Engineers, Mar.1, 1963, under Sec 107 of 1960 R&H Act	6 x 80 foot channel in Boca Ciega Bay.	
	INTRACOASTAL WATERWAY, JACKSONVILLE TO MIAMI, FL (See Section 14 of Text)	
Jan. 21, 1927	Channel 8 x 75 feet from Jacksonville to Miami.	H.Doc. 586, 69th Cong., 2d sess.
Jul. 3, 1930	Channel width of 100 feet.	S.Doc. 71, 71st Cong., 2d sess.
PARA Jun. 26, 1934	Operation and care of Palm Valley Bridge.	Specified in Act
Aug. 26, 1937	Turning basin at Jacksonville Beach.	H.Doc. 180, 75th Cong., 1st sess.
Mar. 2, 1945	Channel 12 x 125 feet.	H.Doc. 740, 79th Cong., 2d sess.
Mar. 2, 1945	Side channel and turning basin at Sebastian (deauthorized).	H.Doc. 336, 76th Cong., 1st sess.
Mar.2, 1945	Turning basin at Vero Beach.	H.Doc. 261, 76th Cong., 1st sess.
Jul. 3, 1958	Maintenance of side channel at Daytona Beach.	H.Doc. 222, 85th Cong., 1st sess.
Chief of Engineers Report of Jul. 22, 1960,Mod. 12-foot Channel	Channel 10 x 125 feet from Ft. Pierce to Miami.	
	JACKSONVILLE HARBOR, FL (See Section 15 of Text) ST. JOHNS RIVER, FL OPPOSITE THE CITY OF JACKSONVILLE	
Mar. 2, 1907	The 24-foot area from Hogan Creek to Florida East Coast Railroad Bridge.	H.Doc 663, 59th Cong., 1st sess.
Nov. 17, 1986	Deauthorized the 24-foot area from Hogan Creek to Florida East Coast Railroad bridge.	P.L. 99-662, Nov. 28, 1986 99th Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Aug. 17, 1999	Project for navigation.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
	JACKSONVILLE HARBOR (MILL COVE), FL (See Section 16 of Text)	
Report of the Chief of Engineers Feb. 12, 1982	Enlarge weir structure and west opening controlling flow into Mill Cove, to reduce shoaling and improve navigation as well as circulation.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess
WRDA Oct. 12, 1996	Modification to carry out a project for mitigation consisting of measures for flow and circulation improvement within. Mill Cove.	P.L. 104-303, Oct. 12, 1996 104th Cong.
	JOHN'S PASS, FL (See Section 17 of Text)	
Auth. by Chief of Engineers Dec. 2, 1964 under Sec. 107 of 1960 R&H Act and Sec. 110 of 1966 R&H Act	Channel 10 x 100 feet in gulf, 8 x 100 feet inside pass, 6 x 100 feet to IWW, 2.6 miles long.	
	LAKE WORTH INLET, FL	
WRDA Oct. 12, 1996	Project for navigation and shoreline protection subject to final report to be completed not later than December 31, 1996.	P.L. 104-303, Oct. 12, 1996 104th Cong.
	LONGBOAT PASS, FL (See Section 18 of Text)	
Auth. by Chief of Engineers, Apr. 20, 1976 under Sec. 107 of 1960 R&H Act, as amended	12 x 150 foot entrance channel from Gulf of Mexico to Longboat Bridge; 10 x 100 foot channel from Longboat Bridge northeasterly to IWW; channel from north channel to Cortez Bridge.	
	MANATEE HARBOR, FL (See Section 19 of Text)	
Report of the Chief of Engineers May 12, 1980	Provide for maintenance of the existing 40-foot deep draft navigation channel and turning basin from Tampa Bay to Port Manatee. Initial construction of a widener at Manatee Harbor and deepen area adjacent to berthing area.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess.
WRDA Nov. 28, 1990	Modified the project for navigation authorized by the WRDA of 1986 to construct substantially in accordance with the post authorization change report dated April 1990.	P.L.101-640, Nov. 28, 1990, 101st Cong.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	MAYAGUEZ HARBOR, PR (See Section 20 of Text)	
Aug. 30, 1935	Approach channels 30 feet deep to and along deep-water terminal.	H.Doc. 215, 72nd Cong., 1st sess. & River and Harbor Committee Doc. 1,73rd Cong., 1st sess.
	MELBOURNE HARBOR, FL (See Section 21 of Text)	
Aug. 26, 1937	Channel 8 x 100 feet and a turning basin.	H.Doc. 390, 74th Cong., 2d sess.
	MIAMI HARBOR, FL (See Section 22 of Text)	
	MIAMI RIVER	
Jul. 3, 1930	The 15-foot channel in Miami River, 150 feet wide at the mouth.	Specified in Act
PWA Program Sep. 6, 1933	The channel at Dinner Key Airport.	S.Doc. 95, 72nd Cong., 1st sess. and Specified in Act
Jun. 13, 1902	An 18-foot channel in a land cut across the peninsula and construction of the north jetty.	H.Doc. 622, 56th Cong., 1st sess. (Annual Report 1900, p. 1987)
Mar. 2, 1907	Construction of the south jetty and increase of channel width to 100 feet.	Specified in Act
Mar. 4, 1913	Modification of local cooperation requirements imposed by the Act of July 25, 1912.	Specified in Act
Mar. 3, 1925	A channel 25 feet deep with present widths from the ocean to Biscayne Bay, thence 200 feet wide across the bay to but not including the municipal turning basin, and extension of both jetties.	H.Doc. 516, 67th Cong., 4th sess.
Jul. 3, 1930	A channel width of 300 feet across the bay and enlarging the municipal turning basin, with expenditures thereon limited. to $200,000	Rivers and Harbors Committee Doc. 15, 71st Cong., 2d sess.
Aug. 30, 1935	A depth of 30 feet from the ocean to and in the turning basin, with the existing authorized project widths, including the 300-foot width in the channel across the bay.	Sen. Comm. Print. 73rd Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Aug. 26, 1937	Extending the turning basin 200 feet to the southward.	Rivers and Harbors Committee Doc. 86, 74th Cong., 2d sess.
Mar. 2, 1945	The Virginia Key improvement.	S.Doc. 251, 79th Cong., 2d sess.
Mar. 2, 1945	For incorporation of the project for Miami River in that for Miami Harbor, the widening at the mouth of Miami River to existing project widths; the channels from the mouth of Miami River to the turning basin and to Government Cut; and the channel from Miami River to the harbor of refuge, provided that local interests contribute one-third of the cost.	H.Doc. 91, 79th Cong., 1st sess.
Jul. 14, 1960	Deletion of Virginia Key development and the Dinner Key, approach channel widening the existing ship channel by easing the ocean bend and increasing the width of the 300-foot wide section to 500 feet, enlarging the existing turning basin 300 feet along both the south and northeasterly sides, and dredging a turning basin along the north side of Fisher Island about 39 acres in extent and 30 feet in depth.	S.Doc. 71, 85th Cong., 2d sess.
Aug. 13, 1968	Enlarging existing entrance channel to 38 x 500 feet, deepening existing 400-foot wide channel across Biscayne Bay to 36 feet; deepening existing turning basins at Biscayne Boulevard terminal and Fisher Island to 36 feet.	S.Doc. 93, 90th Cong., 2d sess.
WRDA Nov. 17, 1986	Deauthorized the widening at the mouth of Miami River to existing project widths; and the channels from the mouth of Miami River to the turning basin, to Government Cut, and to a harbor of refuge in Palmer Lake.	P.L. 99-662, Nov. 17, 1986, 99th Cong., 2d sess
Report of the Chief of Engineers Sep. 25, 1989	The project for navigation, Miami Harbor Channel.	P.L. 101-640, Nov. 28, 1990, 101st Cong
WRDA Oct. 12, 1996	The project for navigation, Miami Harbor Channel subject to a final report to be completed no later than 31 December 1996.	P.L. 104-303, Oct. 12, 1996 104th, Cong
WRDA Aug. 17, 1999	Miami Harbor Channel project modified to include construction of artificial reefs and related environmental mitigation.	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	NEW PASS, SARASOTA, FL (See Section 23 of Text)	
Auth. by Chief of Engineers Apr. 20, 1964 under Sec. 107 of 1960 R&H Act	10 x 150 foot entrance channel; 8 x 100 foot inner channels; and 8-foot deep turning basins at Payne Terminal and City Pier.	
	OKEECHOBEE WATERWAY, FL (See Section 24 of Text)	
PARA Jun. 26, 1934	Operation and care of locks and dams provided for with funds from R&H appropriations.	Specified in Act
Aug. 26, 1937	New lock and weir structure in St. Lucie Canal.	Rivers and Harbors Committee Doc. 28, 75th Cong., 1st sess.
Mar. 2, 1945	Deepening to 8 feet from Ft. Myers to Jacksonville-Miami waterway near Stuart via channel across lake from Clewiston.	H.Doc. 696, 76th Cong., 3d sess.
Mar. 2, 1945	Channel to yacht basin at Ft. Myers and a basin at Stuart.	H.Doc. 736, 79th Cong., 2d sess.
WRDA Nov. 17, 1986	Deauthorized basin at Stuart.	PL 99-662, Nov. 17, 1986 99th Cong., 2d sess.
Auth. by Chief of Engineers Nov. 5, 1968, under Sec. 107 of 1960 R&H Act	Enlarge existing 8 x 90 foot section of Okeechobee Waterway for about 5 miles upstream from Ft. Myers to 10 x 100 feet.	
	OKLAWAHA RIVER, FL (See Section 25 of Text)	
Sep. 19, 1890	Clearing obstructions for channel 4 feet deep from mouth to Leesburg.	Annual Report 1889, p.1360
Mar. 2, 1907	Channel 6 feet deep from mouth to head of Silver Springs Run.	H.Doc. 782, 59th Cong., 1st sess.
Jun. 25, 1910 Jul. 25, 1912	Maintenance of levels in the lakes at head of river.	Specified in Acts
Jul. 27, 1916	Acceptance of certain artificial waterways in lieu of portions of natural riverbed.	Specified in Act

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
PARA Jun. 26, 1934	Operation and care of lock and dam provided for with funds from appropriations for rivers and harbors.	Specified in Act
WRDA Nov. 17, 1986	Deauthorized channel 6 feet deep from mouth to head of Silver Springs Run	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess.
	PALM BEACH HARBOR, FL (See Section 26 of Text)	
Mar. 13, 1934	Maintenance of improvement previously constructed by local interests.	H.Doc. 185, 73rd Cong., 2d sess.
Dec. 10, 1934	Deepening the channels and turning basin, as constructed by local of interests, to 20 feet.	Recommended by Chief Engineers to Public Works Administration Oct. 17, 1934
Aug. 30, 1935	Authorized the work previously approved by Public Works Administration, and widening the channels to existing project dimensions, enlarging the 700-foot square turning basin eastward removing the obstructive point on south side of the and inlet, revetting the banks of the inlet restoring existing jetties.	H.Doc. 185, 73rd Cong., 2d sess. and Rivers and Harbors Comm. H. Doc. 42, 74th Cong., 1st sess.
Mar. 2, 1945	Deepening the channels and turning basin to 25 feet.	H.Doc. 530, 78th Cong., Cong., 2d sess.
May 17, 1950	Extending the turning basin 550 feet southward over a 900-foot width, with a flare to the east; provided that local interests may be reimbursed not to exceed $305,000 for work done by them on this modification subsequent to July 1, 1949.	H.Doc. 704, 80th Cong., 2d sess.
Jul. 14, 1960	An entrance channel 35 feet deep, 400 feet wide, and 0.8 mile long merging with an inner channel 33 feet deep, 300 feet wide and 0.3 mile long, thence flaring into a turning basin, 1,400 feet north-south by a minimum of 1,200 feet east-west.	H.Doc. 283, 86th Cong., 1st sess. (contains latest published map)
Report of the Chief of Engineers Dec. 10, 1985	Assume maintenance of locally expanded turning basin to a depth of 25 feet on north side of existing basin.	P.L. 99-662, Nov.17, 1986, 99th Cong., 2d sess.
WRDA Oct. 12, 1996	**PALM VALLEY BRIDGE, FL (See Section 27 of Text)** Replacement of a two lane bridge.	P.L.104-303 Oct. 12, 1996 104th Cong.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PONCE DE LEON INLET, FL (See Section 28 of Text)	
Oct. 27, 1965	Widening and deepening channels; jetties on north and south sides of inlet; a weir in the north jetty and an impoundment. basin inside the weir	H.Doc. 74, 89th Cong., 1st sess.
WRDA Aug. 17, 1999	Project for navigation and related purposes.	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.
	PONCE HARBOR, PR (See Section 29 of Text)	
Mar. 3, 1925	Dredging 3 continuous areas, aggregating 153 acres, to depths of 30, 18, and 9 feet, and construction of a seawall, costs to be shared by U.S. and local interests.	H.Doc. 532, 67th Cong., 4th sess.
Aug. 30, 1935	Modified conditions of local cooperation to provide that U.S. undertake all dredging at Federal expense and return local funds previously contributed for dredging, all other portions of the improvement hereafter to be at the expense of local interests.	Rivers and Harbors Committee Doc. 18, 72nd Cong., 1st sess.
Mar. 2, 1945	Eliminate previously authorized 9-foot dredging area, and provided for dredging 30-foot depth area and 18 acres off the municipal pier and for construction of the breakwater off Punta Carenero.	H.Doc. 745, 79th Cong., 2d sess.
H.R. Sep. 23, 1976, S.R. Oct. 1, 1976	Eliminate previously authorized 18-foot and a portion of the 30-foot project outside the proposed 36-foot and a portion adjacent to the municipal bulkhead. Channel 36 x 600 feet from Caribbean Sea to harbor; channel 36 x 400 feet into harbor; and a 36-foot turning basin.	H.Doc. 532, 94th Cong., Cong., 2d sess.
	PORT EVERGLADES HARBOR, FL (See Section 30 of Text)	
Jul. 3, 1930	Maintenance of harbor constructed by local interests.	Cong., 2d sess.
Aug. 30, 1935	Enlarge entrance channel and complete turning basin to 1,200 feet square.	Rivers and Harbors Committee Doc. 25, 74th Cong., 1st sess.
Jun. 20, 1938	Widen turning basin 350 feet on north side.	H.Doc. 545, 75th Cong., 3d sess.
Jul. 24, 1946	Widen turning basin 200 feet on north side, 500 feet on south side and enlarge flare at entrance channel.	H.Doc. 768, 78th Cong., 2d sess.
Jul. 3, 1958	Deepen and widen entrance channel on a new alignment and increase turning basin in size and depth.	H.Doc. 346, 85th Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
H.R. May 9, 1974; S.R. May 31, 1974	Deepen and widen entrance channel, enlarge turning basin, widen Pier 7 channel, maintenance of Berth 18 channel, and planning for a south jetty fishing walkway with construction contingent upon need as developed by detailed post authorization studies.	H.Doc. 144, 93rd Cong., 1st sess.
WRDA Jan. 24, 2000	Reimbursement of the non-Federal interest for the project for navigation, $15,003,000 for the Federal share of costs incurred by the non-Federal interest in carrying out the project and determined by the Secretary to be eligible for reimbursement under the limited reevaluation report dated April 1998.	P.L. 106-541, Jan. 24, 2000 106th Cong., 2d sess.
Report of the Chief of Engineers Sep. 23, 1991	Project for navigation.	P.L. 102-580, Oct.31, 1992 102nd Cong., 2d sess.
	REMOVAL OF AQUATIC GROWTH FROM NAVIGABLE WATERS IN THE STATE OF FLORIDA (See Section 31 of Text)	
Mar. 3, 1899	Construction and operation of a suitable vessel and use of log booms for removal of water hyacinths in the navigable waters of the State.	Annual Report 1899
Jun. 13, 1902	Extermination and removal of water hyacinths by any mechanical, chemical or other means.	Specified in Act
Mar. 3, 1905	Prohibits use of any chemical process injurious to cattle.	Specified in Act
	ST. AUGUSTINE HARBOR, FL (See Section 32 of Text)	
Jun. 20, 1938	Channel 27 x 200 feet protected by a groin.	H.Doc. 555, 75th Cong., 3d sess.
May 17, 1950	Channel 16 x 200 feet across bar, and thence 12 feet deep to Intracoastal Waterway; jetty on south side of inlet; future landward extension of groin and jetty; and channel 10 x 100 feet in San Sebastian River.	H.Doc. 133, 81st Cong., 1st sess.
	ST. JOHNS RIVER, FL, JACKSONVILLE TO LAKE HARNEY (See Section 33 of Text)	
Mar. 3, 1899	A channel 13 feet deep and 200 feet wide from Jacksonville to Palatka.	H.Doc. 523, 55th Cong., 2d sess. and Annual Report 1899 p. 1343
Mar. 2, 1919	The improvement of Deep Creek.	H.Doc. 699, 63rd Cong., 2d sess.
Jun. 14, 1880	Two jetties at Volusia Bar (Maintenance only; new work completed under previous project).	Annual Report for 1879, pp. 795-798

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Jun. 25, 1910	A channel 100 feet wide, 8 feet deep from Palatka to Sanford with a side channel to Enterprise, and thence 5 feet deep to Lake Harney.	H.Doc. 1111, 60th Cong., 2d sess.
Jul. 3, 1930	Cutoffs at Butcher Bend, Shake Creek, and Starks Landing, and easing bends at other points.	H.Doc. 691, 69th Cong., 2d sess.
Mar. 2, 1945	A channel 10 feet deep and 100 feet wide from Palatka to Sanford, with a side channel to Enterprise and with cutoffs and easing of bends. (Cutoffs deauthorized)	H.Doc. 603, 76th Cong., 3d sess.
Mar. 2, 1945	Combining the two projects above into a single project for St. Johns River, FL, Jacksonville to Lake Harney, and for a cutoff 5 feet deep and 75 feet wide between Lake Monroe and the vicinity of Osteen Bridge (Woodruff Creek Cutoff).	H.Doc. 445, 78th Cong., 2d sess.
Jul. 24, 1946	A channel 12 feet deep and 100 feet wide from Palatka to Sanford, and in the branch to Enterprise.	S.Doc. 208, 79th Cong., 2d sess.
	ST. LUCIE INLET, FL (See Section 34 of Text)	
Mar. 2, 1945	Channel 10 x 200 feet.	H.Doc. 391, 77th Cong., 1st sess.
Nov. 7, 1966	Modification to maintain existing channel 6 x 100 feet.	H.Doc. 508, 89th Cong., 2d sess.
H.R. May 9, 1974 S.R. May 31, 1974	Extending north jetty and modifying existing jetty to provide a sand bypass weir section; excavation of sand impoundment basin; construction of south jetty with a walkway for recreational fishing; channel 10 x 500 feet through bar cut, tapering to 150 feet through the inlet, and 100 feet and 7 feet deep to the Intracoastal Waterway; and transfer of 380,000 cubic yards of material to the south beach during each two-year maintenance period.	H.Doc. 294, 93rd Cong., 1st sess.
	SAN JUAN HARBOR, PR (See Section 35 of Text)	
Aug. 8, 1917	Anchorage (inner harbor) area of 206 acres and San Antonio Channel to 30-foot depth.	H.Doc. 865, 63rd Cong., 2d sess.
Sep. 22, 1922	Substitution of a 68-acre area 30 feet deep along southeasterly side of anchorage area, for one 25 acres in extent and of same depth extending easterly from eastern end of the San Antonio project channel.	Specified in Act

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Jul. 3, 1930	Modified condition of local cooperation.	H.Doc. 45, 71st Cong., 2d sess.
Aug. 30, 1935	Entrance channel across outer bar 38 feet deep and 800 feet wide, and thence across bay to anchorage area (Anegado Reach Channel) 30 feet deep and 700 feet wide and increasing anchorage area to 239 acres to 30-foot depth.	R&H Comm. Doc. 38, 74th Cong., 1st sess.
Aug. 26, 1937	Widening Anegado Reach Channel and increasing anchorage. area to 329 acres	R&H Comm. Doc. 42, 75th Cong., 1st sess.
Oct. 17, 1940	Removal to 8-foot depth of Anegado, Largo, and Capitanejo Shoals, and dredging to 30-foot depth the entrance channel and turning basin to the Graving Dock.	H.Doc. 364, 76th Cong., 1st sess.
Mar. 2, 1945	Maintenance of the 30-foot depth entrance channel and turning basin to the Army Terminal.	Specified in Act
Jul. 3, 1958	Deepening portions of entrance and approach channels and basins to Army Terminal and San Antonio Pier areas to 35-45 feet; new 32-foot depth Puerto Nuevo Channel; new 36-foot depth anchorage.	H.Doc. 38, 85th Cong., 1st sess.
Aug. 4, 1976	A bar channel 48 x 800 feet, shifting the centerline 350 feet west; deepening Anegado Channel in steps from 46 to 40 feet while reducing width to 800 feet; deepening Army Terminal Channel and turning basin to 40 feet while widening the channel to 450 feet; deepening Puerto Nuevo Channel to 40 feet and widening it to 400 feet; deepening Graving Dock Channel to 40 feet at existing 400-foot width; deepening San Antonio Channel to 38 feet at varying widths, minimum of 500 feet; deepening cruise ship basin at 30 x 250 feet; provide a 38-foot depth in Anchorage Area "E" with irregular width; six mooring dolphins for vessels using the area.	H.Doc. 574, 94th Cong., 2d sess.
Report of the Chief of Engineers Dec. 23, 1982	Modification of the authorized project to provide the deepening of the Bar Channel to 48 feet and shifting its alignment 350 feet to the west; deepening Anegado, and Army Terminal to 40 feet; deepening Graving Dock Channel, and Cruise Ship Basin, Puerto Nuevo Channel, and San Antonio Channel to 36 feet; and deepening Anchorage Area "E" to 38 feet while reducing its size and constructing six mooring dolphins within its limits. A 1,500-foot long extension to San Antonio Channel would be added to the Federal project and Sabana approach deepened to 32 feet.	P.L. 99-662 Nov. 17, 1986 99th Cong., 2d sess

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Oct. 12, 1996	Modification of the project to deepen the bar channel to depths varying from 49 feet to 56 feet below mean low water with other modifications to authorized interior channels as described in the General Reevaluation Report and Environmental Assessment dated March 1994.	P.L. 104-303, Oct.12, 1996 104th Cong.
	TAMPA HARBOR, FL (See Section 36 of Text)	
	TAMPA BAY	
Mar. 3, 1899	For a channel 27 feet deep from the Gulf of Mexico to Port Tampa, 500 feet wide across the bar and 300 feet wide in the bay.	H.Doc. 52, 55th Cong., 3d sess. (Also printed in Annual Report 1899, p. 1640) Channel dimensions specified in Act
Mar. 3, 1905	For a channel depth of 26 feet with sufficient width from the Gulf of Mexico to Port Tampa.	Specified in Act
	TAMPA AND HILLSBOROUGH BAYS	
Jun. 25, 1910	For a depth of 24 feet in Hillsborough Bay.	H.Doc. 634, 61st Cong., 2d sess.
Aug. 8, 1917	For a 27-foot depth from Gulf of Mexico up to and in the several channels of Hillsborough Bay, the widths to be 500 feet on the bar, 300 feet in Tampa Bay, Ybor, and Garrison Channels, and 200 feet in Hillsborough Bay, Sparkman, and Seddon Channels, with turning basins at the mouth of Hillsborough and at Ybor Estuary.	H.Doc. 634, 61st Cong., 1st sess.
	HILLSBOROUGH RIVER	
Mar. 3, 1899	For a 12 x 200 foot channel to within 100 feet of the Lafayette St. highway bridge (maintenance only; new work completed under a previous project under title Improving Hillsborough Bay, FL).	H.Doc. 545, 55th Cong., 2d sess. and Annual Report 1998, pp 1357-1360
	TAMPA HARBOR, FL	
Sep. 22, 1922	Consolidation of the above projects to form a single project for Tampa Harbor.	Specified in Act
Jul. 3, 1930	Increasing the depth of Egmont Channel to 29 feet and the width of Sparkman Channel to 300 feet.	H.Doc. 100, 70th Cong., 1st sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Aug. 30, 1935	For a depth of 32 feet and a width of 600 feet on Egmont Bar, a depth of 30 feet and a width of 400 feet in Mullet Key Cut, and a depth of 30 feet and a width of 300 feet in all other project channels in Tampa Harbor (except in Hillsborough River and in the channel leading to Alafia River); and for a turning basin 2,000 feet long and 500 feet in maximum width at the entrance to the Port Tampa terminals.	S.Doc. 22, 72nd Cong., 1st sess.
Jun. 20, 1938	For widening the bend between Sparkman Channel and Cut D of Hillsborough Bay Channel by 250 feet; widening Ybor Channel to 400 feet and extending the turning basin at the west end of Garrison Channel (mouth of Hillsborough River) easterly for 300 feet.	S.Doc. 164, 75th Cong., 3d sess.
Jun. 20, 1938	For construction of a breakwater at Peter O. Knight Field, Davis Islands, its maintenance to be assumed by local interest.	Sen. Comm. Print. 76th Cong., 1st sess.
Mar. 2, 1945	For widening Sparkman Channel to 400 feet and Ybor Channel to 500 feet; widening the bend between Sparkman and Garrison Channels an additional 250 feet to extend the turning basin westerly and widening the bend between Seddon and Garrison Channels by 150 feet (in lieu of 300 feet previously authorized) to extend the turning basin easterly.	S.Doc. 183, 78th Cong., 2d sess.
Mar. 2, 1945	For a channel 9 feet deep and 100 feet wide in the Hillsborough River for about 2.4 miles above the upper end of the existing 12-foot channel, and for the removal of obstructions thence to the Florida Avenue Bridge.	H.Doc. 119, 77th Cong., 1st sess.
Mar. 2, 1945	For a channel 25 feet deep and 150 feet wide from the Hillsborough Bay channel to and including a turning basin in the Alafia River. (Revoked by Act of May 17, 1950).	S.Doc. 16, 77th, Cong., 1st sess.
May 17, 1950	For deepening Egmont Channel to 36 feet; enlarging Mullet Key Cut, Tampa Bay Channel, Hillsborough Bay Channel, Port Tampa Channel and Port Tampa turning basin to present project dimensions; deepening Sparkman Channel and Ybor turning basin to 34 feet; a channel 30 feet deep and 200 feet wide from Hillsborough Bay Channel to and including a turning basin in Alafia River, 700 feet wide and 1,200 feet long (in lieu of the improvement previously authorized); and substantial widening at entrance, bends, and turns.	H.Doc. 258, 81st Cong., 1st sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Sep. 3, 1954	Extended removal of obstructions in Hillsborough River to City Water Works Dam. Maintenance of cleared channel to be assumed by local interests.	H.Doc. 567, 81st Cong., 2d sess.
Oct. 23, 1962	Channel and turning basin at Port Sutton 30 feet deep, Ybor Channel 34 x 400 feet.	H.Doc. 529, 87th Cong., 2d sess.
Dec. 31, 1970	For federal maintenance of Port Sutton Channel, 280 feet wide and an irregularly shaped turning basin both to a depth of 34 feet.	H.Doc. 150, 91st Cong., 1st sess.
Do.	Enlarge entrance channel across Egmont Bar to 46 x 700 feet from the Gulf to Mullet Key.	H.Doc. 401, 91st Cong., 2d sess.
Do.	Enlarge Mullet Key Cut Channel to 44 x 600 feet.	Do.
Do.	Enlarge Tampa Bay Channel to 44 x 500 feet from Mullet Key Cut through Tampa Bay to the junction of Hillsborough Bay and Port Tampa Channels.	Do.
Do.	Enlarge Hillsborough Bay Channel to 44 x 500 feet from the junction with Tampa Bay and Port Tampa Channels to the junction with Port Sutton entrance channel, and thence deepening to a depth of 42 feet at the existing width of 400 feet to the junction with Seddon and Sparkman Channels.	Do.
Do.	Enlarge Port Sutton entrance channel to 44 x 400 feet.	Do.
Do.	Enlarge Port Sutton turning basin to a depth of 44 feet and a turning diameter of 1,200 feet.	Do.
Do.	Deepening Sparkman Channel to 42 x 400 feet.	Do.
Do.	Deepening Ybor Channel to 40 x 300 feet.	Do.
Do.	Enlarge turning basin at the entrance to Ybor Channel to a depth of 42 feet and an additional width of 200 feet on the southwest edge of the present basin.	Do.
Do.	Deepening Port Tampa Channel to 42 feet at its existing width from the junction with Hillsborough and Tampa Bay Channels to the turning basin.	Do.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Do.	Deepening the Port Tampa turning basin to 42 feet over its existing length of 2,000 feet and width of 900 feet.	Do.
Do.	An entrance channel in East Bay 44 x 400 feet and 500 feet north from the Port Sutton turning basin for a distance of about 2,000 feet.	Do.
Do.	A turning basin in East Bay at a depth of 44 feet and with a turning diameter of 1,200 feet.	Do.
Do.	An approach channel in East Bay 44 x 300 feet north from the East Bay turning basin for a distance of about 2,500 feet.	Do.
Do.	Maintenance of Port Sutton Terminal channel to 44 x 200 feet for a distance of 4,000 feet.	Do.
Aug. 15, 1985	Maintenance of East Bay channel to 34 x 300 feet for a distance of 5,500 feet.	H.Doc. 236, 99th Cong., 1st sess.
Report of the Chief of Engineers Mar. 28, 1988	Port Sutton Channel deepening to 43 feet for a distance of 3,700 feet and a width of 200 feet.	P.L. 100-676, Nov. 17,1988, 100th Cong., 2d sess.
WRDA Nov. 28, 1990	Maintenance of Alafia Channel to a depth of 34 feet, if a Non-Federal Sponsor agrees to reimburse the Secretary	
WRDA Aug. 17, 1999	Project for navigation, Tampa Harbor-Big Bend Channel	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
WRDA Aug. 17, 1999	Expedite completion of report for Alafia Channel and proceed to project preconstruction, engineering, and design if justified.	P.L. 106-53 Aug. 17, 1999 106th Cong., 1st sess.
WRDA Jan. 24, 2000	Project for navigation, Port Sutton, FL	P.L.106-541 Jan. 24,2000 106th Cong. 2nd sess.
	TAMPA HARBOR BRANCH CHANNELS, FL	
Report of the Chief of Engineers Jan. 25, 1979	Enlarging Hillsborough Bay Cut D, Sparkman Channel, Port Tampa Channel and existing turning basins at the entrance to Ybor Channel and at Port Tampa, all to a depth of 41 feet with varying lengths and widths and deepening Ybor Channel to a depth of 39 feet. This work will be associated with the Main Channel deepening.	P.L. 99-662, Nov. 17, 1986, 99th Cong., 2d sess

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	TAMPA HARBOR EAST BAY CHANNEL, FL	
WRDA Nov.17, 1986	Maintenance dredging at an average annual cost of $471,000.	P.L. 99-662, Nov.17, 1986 99th Cong., 2d sess.
	TAMPA HARBOR ALAFIA RIVER,FL	
Dec. 21, 2000	Deepen and widen the Alafia Channel	P.L. 106-554 Dec. 1,2000 106th Cong. Appendix D
BEACH EROSION CONTROL PROJECTS		
	BREVARD COUNTY, FL (See Section 40 of Text)	
Aug. 13, 1968	Federal participation in cost of shore protection project.	H.Doc. 352, 90th Cong., 2d sess.
WRDA Oct. 12, 1996	Shoreline protection project for periodic nourishment over the 50-year life of the project subject to completion of report no later than Dec. 13, 1996.	P.L.104-303, Oct. 12, 1996 104th Cong.
WRDA Aug. 17, 1999	Use services of independent coastal expert, who shall consider all reverent studies and shall mitigate any damage to the shore protection project that is a result of Federal navigation project. Costs of the mitigation shall be allocated to the Federal navigation project as operation and maintenance costs	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
WRDA Jan. 24, 2000	Prepare a general reevaluation report on the project of the 7.1 mile reach deleted from the Report of the Chief of Engineers.	P.L. 106-541, Jan. 24, 2000, 106th Cong., 2nd sess.
	BROWARD COUNTY, FL BEACH EROSION CONTROL AND HILLSBORO INLET, FL, NAVIGATION PROJECT (See Section 41 of Text)	
Oct. 27, 1965	Improvement for beach erosion control in Broward County, FL and a combined beach erosion and navigation improvement to Hillsboro Inlet and the shore south thereof to Port Everglades.	H.Doc. 91, 89th Cong., 1st sess.
WRDA Nov. 17, 1986	Deauthorized navigation improvement to Hillsboro Inlet.	P.L. 99-662, Nov. 17, 1986, 99th Cong., 2d sess.
WRDA Nov. 28, 1990	Continued authorization for Hillsboro Inlet dredging for 5 years.	P.L. 101-640, Nov. 28, 1990 101st Cong., 2d sess
WRDA Oct. 12, 1996	Periodic beach nourishment for a period of 50 years beginning on the date of initiation of construction of segments II and III.	P.L. 104-303, Oct. 12, 1996

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Aug. 17, 1999	Project for shore protection is modified to authorize the Secretary, on execution of a contract to construct the project, to reimburse the non-Federal interest for the Federal share of the cost of preconstruction planning and design for the project, if work is compatible with and integral to the project.	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.
	CHARLOTTE COUNTY, FL	
Report of the Chief of Engineers 2 Apr. 1982	Shoreline protection.	P.L. 99-662, Nov. 12, 1986 99th Cong., 2d sess.
	DADE COUNTY, FL (See Section 58 of Text)	
Aug. 13, 1968	Federal participation in cost of shore protection and hurricane-flood control project.	H.Doc. 335, 90th Cong., Cong., 2d sess.
	DADE COUNTY-NORTH OF HAULOVER BEACH, FL (See Section 59 of Text)	
Aug. 15, 1985	Federal participation in cost of shore protection and hurricane-flood control project.	H.Doc. 236, 99th Cong., 1st sess.
Report of the Chief of Engineers Dec. 17, 1983	Extending of existing shore protection project for Dade County to provide for protective beach fill and subsequent nourishment along 2.5 miles of shore north of Haulover Beach Park.	P.L. 99-662 Nov. 17, 1986, 99th Cong., 2d sess
	DUVAL COUNTY, FL (See Section 42 of Text)	
Oct. 27, 1965	Federal participation in cost of local shore protection project.	H.Doc. 273, 89th Cong., 1st sess.
	FORT PIERCE BEACH, FL (See Section 43 of Text)	
River and Harbor Act of 1965	Project for beach erosion control.	
WRDA Oct. 12, 1996	Periodic beach nourishment for a period of 50 years beginning on the date of initiation of construction.	P.L. 104-303, Oct.12, 1996 104th Cong.
WRDA Aug. 17, 1999	Modified to incorporate 1 additional mile into the project in accordance with a final approved general reevaluation report.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
	INDIAN RIVER COUNTY, FL (See Section 44 of Text)	
WRDA Nov.17, 1986	The plans provide for a 2.65 mile beach fill along the ocean shore of Vero Beach, a 1.7 mile beach fill along the ocean shore of Sebastian Inlet State Park and for periodic nourishment of the new beaches.	P.L. 99-662, Nov.17, 1986. 99th Cong., 2d sess

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Aug. 17, 1999	Reauthorized if determined project is technically sound, environmentally acceptable, and economically justified.	P.L. 106-53, Aug. 17, 199, 106th Cong., 1st sess.
	LEE COUNTY, FL (See Section 45 of Text)	
Dec. 31, 1970	Federal participation in cost of shore protection project.	H.Doc. 395, 91st Cong., 2nd sess.
WRDA Oct. 12, 1996	Modification of the project for shoreline protection, Captiva Island, to reimburse the non-Federal interest for beach nourishment work carried out by such interest as if such work occurred after execution. of the agreement.	P.L. 104-303, Oct. 12, 1996 104th Cong.
WRDA Oct. 12, 1996	Complete a review not later than 6 months after enactment of this Act to determine if periodic beach nourishment is necessary for Captiva Island for a period of 50 years beginning on the date of initiation of construction.	P.L. 104-303, Oct. 12, 1996 104th Cong.
WRDA Aug. 17, 1999	Project for shore protection, Captiva Island, is modified to direct the Secretary to enter into an agreement with the Non-Federal interest to carry out the project in accordance with section 206 of WRDA 1992. The design memorandum approved in 1996 shall be the decision document supporting continued Federal participation in cost sharing of the project.	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.
WRDA Jan. 24, 2000	Project for shore protection, Gasparilla and Estero Island segments, is modified to authorize the Secretary to enter into an agreement with the non-Federal interest to carry out the project in accordance with section 206 of WRDA 1992 if the Secretary determines that the project is technically sound, environmentally acceptable, and economically justified.	P.L. 106-541, Jan. 24, 2000, 106th Cong., 2nd sess.
	LIDO KEY, SARASOTA COUNTY, FL	
R&H Act of 1970 Sec. 101	Project for shore protection	
WRDA Nov. 17, 1986	Deauthorized.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess.
WRDA Aug. 17, 1999	Reauthorized project for shore protection for a 50-year period.	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.
	LITTLE TALBOT ISLAND, DUVAL COUNTY, FL	
WRDA Aug. 17, 1999	Project for hurricane and storm damage prevention and shore protection.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	MANATEE COUNTY, FL (See Section 46 of Text)	
S.R. May 31, 1974 and H.R. Nov. 20, 1975	The plan provides for a level berm 50 feet wide at an elevation 6 feet (MLW) along 3.2 miles of shore on Anna Maria Island and nourishment of entire Gulf shore of that island as needed throughout project life.	S.Doc. 37, 93rd Cong., 1st sess.
	MARTIN COUNTY, FL (See Section 47 of Text)	
WRDA Nov. 28, 1990	Periodic nourishment over the 50 year life of the project	P.L.101-640, Nov.28, 1990 101st Cong., 2d sess.
	MONROE COUNTY, FL	
Report of the Chief of Engineers Apr. 22, 1984	Modification of existing project from 6,200-foot long to 8,770-foot long beach fill stabilized with 2 groins and periodic nourishment.	P.L. 99-662, Nov.17, 1986 99th Cong., 2d sess
	NASSAU COUNTY, FL (See Section 48 of Text)	
Report of the Chief of Engineers May 19, 1986	Improvement for beach erosion control on Amelia Island	P.L. 100-676, Nov.17, 1988, 99th Cong., 2d sess
WRDA Aug. 17, 1999	Modified to construct the project for periodic nourishment over the 50-year life of the project	P.L. 106-53, Aug. 17, 1999, 106th Cong., 1st sess.
	PALM BEACH COUNTY, FL, FROM MARTIN COUNTY LINE TO LAKE WORTH INLET AND FROM SOUTH LAKE WORTH INLET TO BROWARD COUNTY LINE (See Section 49 of Text)	
Oct. 23, 1962	Federal participation in cost of local shore protection project and sand-transfer plant	H.Doc. 164, 87th Cong., 1st sess.
WRDA Oct. 12, 1996	Complete a review not later than 6 months after enactment of this Act to determine if periodic beach nourishment is necessary for a period of 50 years beginning on the date of initiation of construction for Jupiter/Carlin, Ocean Ridge, and Boca Raton North Beach segments.	P.L. 104-303, Oct. 12,1996 104th Cong
	PALM BEACH COUNTY, FL, FROM LAKE WORTH INLET TO SOUTH LAKE WORTH INLET, FL (See Section 50 of Text)	
May 17, 1950	Federal participation in cost of local shore protection project on Palm Beach Island.	H.Doc. 772, 80th Cong., 2d sess.
Jul. 3, 1958	Federal participation in cost of local sand-transfer plant at Lake Worth Inlet and shore protection project.	H.Doc. 342, 85th Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PINELLAS COUNTY, FL (See Section 51 of Text)	
Nov. 7, 1966	Federal participation in cost of shore protection project.	H.Doc. 519, 89th Cong., 2d sess.
Report of the Board of Engineers for Rivers and Harbors Apr. 23, 1985	Restoration of 5,000 feet of beach at Clearwater Beach Island, 49,000 feet of beach at Sand Key, 92,000 feet of beach at Treasure Island, and construction of 600 feet of revetment at Long Key. Also, re-nourishment of each island	P.L. 99-662, Nov.17, 1986. 99th Cong., 2d sess
	SARASOTA COUNTY, FL (See Section 53 of Text)	
Report of the Chief of Engineers Feb.28, 1986	Shoreline protection along 12,600 feet of shoreline on central Longboat and 21,100 feet on Manasota Key in the vicinity of Venice, Florida and periodic nourishment of these areas	P.L. 99-662 Nov.17, 1986, 99th Cong., 2d sess.
	ST. JOHNS COUNTY, FL (See Section 52 of Text)	
Report of the Chief of Engineers Feb. 26, 1980	Shoreline protection along 2.5 miles of problem area in the St. Augustine Beach and Coquina Gables area and periodic nourishment.	P.L. 99-662 Nov.17, 1986, 99th Cong., 2d sess
WRDA Aug. 17, 1999	Modified to include navigation mitigation.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
FLOOD CONTROL PROJECTS	**CEDAR HAMMOCK (WARES CREEK), FL (See Section 56 of Text)**	
WRDA Oct. 12, 1996	Project for flood control.	P.L. 104-303, Oct.12, 1996 104th Cong
	FOUR RIVER BASINS, FL (See Section 60 of Text)	
Oct. 23, 1962	Control of floods and improvement of drainage, and for water conservation through construction of necessary canals, levees, reservoirs and control structures.	H.Doc. 585, 87th Cong., 2d sess.
WRDA Nov. 17, 1986	Deauthorized Anclote River control structure and channel improvement.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess.
WRDA Jan. 24, 2000	Restudy flooding and water control issues in the upper Ocklawaha River basin, south of the Silver River, and the Apopka River and Palatlakaha River basins.	P.L. 106-541, Jan. 24, 2000, 106th Cong., 2nd sess.
	GUANAJIBO RIVER, PR	
WRDA Aug. 17,1999	Project for flood control.	P.L. 106-53 Aug. 17, 1999 106th Cong., 1st sess.
	PORTUGUES AND BUCANA RIVERS, PR (See Section 61 of Text)	
	LAGO de CERRILLOS, PR	
Dec. 31, 1970	Multiple purpose dam and lake for flood control, water supply and recreation.	H.Doc. 422, 91st Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	LAGO de PORTUGUES, PR Multiple purpose dam and lake for flood control, water supply and recreation.	
	PONCE, PR Diversion and enlargement of existing channels through Ponce for flood control.	
Report of the Chief Engineers Jan. 1989	**RIO DE LA PLATA, PR (See Section 62 of Text)** Project for flood control.	
WRDA Oct. 12, 1996	**RIO GRANDE DE ARECIBO, PR (See Section 63 of Text)** Project for flood control.	P.L. 104-303, Oct. 12, 1996 104th Cong.
Report of the Chief of Engineers Mar. 5, 1992	**RIO GRANDE DE LOIZA, PR (See Section 64 of Text)** Project for flood control.	P.L. 102-580, Oct. 31, 1992 102nd Cong., 2d sess.
WRDA Aug. 17, 1999	**RIO GRANDE DE MANATI, BARCELONETA, PR (See Section 65 of Text)** Project for flood control.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
WRDA Aug. 17, 1999	**RIO NIGUA, SALINAS, PR** Project for flood control.	P.L. 106-53, Aug. 17, 1999 106th Cong., 1st sess.
Report of the Chief of Engineers 25 Apr. 1986	**RIO PUERTO NUEVO, PR (See Section 66 of Text)** Project for flood control.	P.L. 99-662, Nov. 17, 1986 99th Cong., 2d sess.
Sec. 205 of the Flood Control Act of 1948	**SAVAN GUT, ST. THOMAS, VI** Project for flood control. Increased maximum allotment to $100,000.	P.L. 858, Jun. 30, 1948, 80th Cong, 2d sess.
WRDA Nov. 28, 1990	Set maximum amount allotted under Section 205 of the Flood Control Act of 1948 at $10,000,000.	P.L.101-640, Nov. 28, 1990, 101st Cong., 2d sess.
WRDA Oct. 31, 1992	**TURPENTINE RUN, ST. THOMAS, VI** Project for flood control.	P.L. 102-580, Oct. 31, 1992 102nd Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
RESTORATION PROJECTS		
	CENTRAL AND SOUTHERN FLORIDA, FL (See Section 57 of Text)	
Jun. 30, 1948	First phase of comprehensive plan for flood control and other purposes.	H.Doc. 643, 80th Cong., 2d sess. (Contains latest published map)
Sep. 3, 1954	Modification and expansion of authorization to include entire comprehensive plan of improvement.	H.Doc. 643, 80th Cong., 2d sess.
Jul. 14, 1960	Canals, levees, and water-control and drainage structures in the Nicodemus Slough area, Glades County.	S.Doc. 53, 86th Cong., 1st sess.
Oct. 23, 1962	Flood protection on Boggy Creek, near Orlando.	S.Doc.125, 87th Cong., 2d sess.
Do.	Flood protection in the Cutler Drain area, near Miami.	S.Doc. 123, 87th Cong., 2d sess.
Do.	Flood control and drainage works for South Dade County.	S.Doc 138, 87th Cong., 2d sess.
Do.	Project Shingle Creek between Clear Lake and Lake Tohopekaliga for flood control and major drainage, including development of. Reedy Creek Swamp	S.Doc. 139, 87th Cong., 2d sess.
Do.	Improvement of easterly section of West Palm Beach Canal for flood control and major drainage.	S.Doc. 146, 87th Cong., 2d sess.
Oct. 27, 1965	Primary works for flood control and major drainage in southwest Dade County.	S.Doc. 20, 89th Cong., 1st sess.
Do.	Primary works for flood control and major drainage in Hendry County.	H.Doc. 102, 88th Cong., 1st sess.
Aug. 13, 1968	Gravity drainage in Martin County and distribution of available water supplies to portions of Martin and St. Lucie Counties.	S.Doc. 101, 90th Cong., 2d sess.
Do.	Improvement of supply, distribution and conservation of water resources in Central and Southern Florida, including Lake Okeechobee agricultural area, Everglades National Park and other related areas.	H.Doc. 369, 90th Cong., 2d sess.
Approved Dec. 17, 1970 under the provisions of Section 201 of the Flood Control Act of 1965	Navigation improvements suitable for recreational craft.	H.Doc. 394, 91st Cong., 2d sess.

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Nov. 17, 1986	Deauthorized flood protection on Boggy Creek, near Orlando; primary works for flood control and major drainage in southwest Dade County; and navigation improvements suitable for recreational craft.	P.L. 99-662, Nov.17, 1986, 99th Cong., 2d sess
WRDA Nov. 17, 1988	Extended modified water delivery schedules to Everglades National Park.	P.L. 100-676, Nov. 17,1988,
Everglades National Park Protection and Expansion Act of 1989	Construct modifications to the Central and Southern Florida Project to improve water deliveries into the park and shall, to the extent practicable take steps to restore the natural hydrological conditions within the park.	P.L.101-229, Dec.13, 1989 101st Cong., 2d sess
WRDA Oct. 12, 1996	Modification of project for flood protection of West Palm Beach (C-51) to provide for the construction of an enlarged storm water detention area, Storm Water Treatment Area 1 East.	P.L. 104-303, Oct.12, 1996 104th Cong.
WRDA Oct.12, 1996	Modification of the project to implement the recommended plan of improvement for South Dade County (C-111), including acquisition by non-Federal interests of such portions of the Frog Pond and Rocky Glades areas as are needed for the project.	P.L. 104-303, Oct. 12,1996 104th Cong.
	KISSIMMEE RIVER RESTORATION, FL (See Section 77 of Text)	
WRDA Nov. 28, 1990	Conduct a feasibility study for the purpose of determining modifications of the flood control project for central and southern Florida, authorized by section 203 of Flood Control Act of 1948 (62 Stat. 1176), which are necessary to provide a comprehensive plan for the environmental restoration.	P.L. 101-640, Nov.28, 1990 101st Cong., 2d sess
Report of the Chief of Engineers Mar. 17, 1992	Project for the ecosystem restoration, to construct the headwaters revitalization project, and any modifications for the environmental restoration of the Kissimmee River Basin, ensuring that implementation of the project to restore the Kissimmee River will maintain the same level of flood protection as is provided by the current flood control project.	P.L. 102-580, Oct.31, 1992 102nd Cong., 2d sess.
	EVERGLADES AND SOUTH FLORIDA ECOSYSTEM RESTORATION (See Section 78 of Text)	
WRDA Oct. 12, 1996	Project consists of a comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem. The comprehensive plan shall provide for the protection of water quality in, and the reduction of the loss of fresh water from, the Everglades. The comprehensive plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and Southern Florida project.	P.L. 104-303, Oct. 12, 1996 104th Cong.,

TABLE 9-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA Aug. 17, 1999	Extension of program from 1999 until 2003 and amendment to credit and reimbursement of past and future activities to non-Federal sponsor.	P.L. 106-53 Aug. 17, 1999 106th Cong., 1st sess.
WRDA Jan. 24, 2000	Specific authorization for Pilot Projects and Initial Projects.	P.L. 106-541, Jan. 24, 2000, 106th Cong., 2nd sess.
	HILLSBORO AND OKEECHOBEE AQUIFER, FLORIDA	
WRDA Aug. 17, 1999	The project for aquifer storage and recovery described in the Central and Southern Florida Water Supply Study and House Document 369	P.L. 106-53 Aug. 17, 1999 106th Cong., 1st sess.
	FLORIDA KEYS WATER QUALITY IMPROVEMENTS	P.L. 106-554 Dec. 21, 2000 106th Cong.

TABLE 9-C OTHER AUTHORIZED NAVIGATION PROJECTS
(See Section 38 of Text)

Project	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Anclote River, FL	1974	$ 267,427	$ 2,754,269
Aguadilla Harbor, PR	-	-	738,481
Aquatic Plant Control, FL (R&H Acts of 1958 & 1962)	1968	1,640,997 [1]	-
Atlantic Gulf Ship Canal, FL	1939	5,099,153	-
Bayport, FL[3]	1972	58,524	-
Cedar Island, Keaton Beach, FL	-	-	54,969
Cedar Keys Harbor, FL	1977	168,569 [2]	76,023
Christiansted Harbor, St. Croix, VI[6]	1964	303,317	61,559
Clearwater Pass, FL[21]	1980	46,349 [3]	2,438,390
Courtnay Channel, FL[1]	1940	22,846	26,779
Crystal River, FL[1]	1941	25,000	152,208
Everglades Harbor, FL[1]	1964	221,509 [4]	51,034
Fajardo Harbor, PR[3]	1945	-	-
Guayanes Harbor, PR[3]	1945	-	-
Gulf Intracoastal Waterway St. Marks to Tampa Bay, FL[3]	1974	38,850	-
Hillsboro Inlet, FL[24]	1965	-	-
Homosassa River, FL[1]	1937	3,999 [5]	26,454
Hudson River, FL[3]	1974	9,889	-
Intracoastal Waterway, Miami to Key West, FL[3]	1963	243,079	28,046
Key West Harbor, FL[1]	1972	1,548,892 [6]	534,623
Kissimmee River, FL[1]	1931	23,479	112,954
Lake Crescent and Dunns Creek, FL[11]	1931	10,276	9,035
Largo Sound Channel, FL[12]	1966	117,443 [7]	51,149
Little Manatee River, FL[11]	1949	11,903 [8]	-
Manatee River, FL[15]	1970	123,350	194,516
Miami River, FL	-	-	787,681
New River, FL[1]	1956	36,518	31,296
Orange River, FL[1]	1962	2,000	24,918
Ozona, FL, channel and turning basin[1]	1963	105,527	15,089
Palm Beach, FL, side channel and basin[3]	1946	-	-
Pass-A-Grille Pass, FL[16]	1966	41,297 [9]	60,686
Pithlachascotee River, FL	1973	400,000[10]	261,401
Rice Creek, FL[1]	1957	85,208[11]	18,814
St. Petersburg Harbor, FL	1983	255,608[12]	10,916,170 [13]
St. Thomas Harbor, VI[3]	1949	1,989	-
Sediment Management Pilot Program	-	-	190,779
Steinhatchee River, FL[1]	1940	135,053	63,343
Suwannee River, FL[15]	1977	76,418[14]	1,089,488
Withlacoochee River, FL[15]	1969	614,912[15]	658,963

[1] Excludes $1,640,997 contributed funds.
[2] Includes $82,500 expended under previous project. Excludes $1,473 contributed funds.
[3] Excludes $42,783 contributed funds.
[4] Excludes $36,000 contributed funds.
[5] In addition, $1,000 expended from contributed funds.
[6] Includes $27,500 for new work under previous project. Excludes $35,371 contributed funds.
[7] Includes $25,008 for detailed project report but excludes $86,716 expended from contributed funds.
[8] Expended on restudy.
[9] Excludes $41,297 contributed funds.
[10]Excludes $215,728 contributed funds.
[11] Excludes $93,000 contributed funds.
[12] Includes $32,689 under previous project.
[13] Includes $20,532 under previous project.
[14] Includes $10,154 expended under previous project.
[15] Includes $30,000 expended under previous project.

TABLE 9-D OTHER AUTHORIZED BEACH EROSION PROJECTS
(See Section 54 of Text)

Project	For Last Full Report See Annual Report For	Cost to Sep 30, 2002 Construction	Cost to Sep 30, 2002 Operation and Maintenance
Cape Florida State Park, FL	1969	$34,862	$ -
El Tuque Beach, Ponce, PR	1985	1,396,730	-
Lee County, FL	1971	-	-
Punta Salinas, PR	1984	855,511	-
Palm Beach County, FL, from Lake Worth Inlet to South Lake Worth Inlet	1970	195,140	6,257
San Juan, PR	1965	-	-

TABLE 9-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(See Section 67 of Text)

Project	For Last Full Report See Annual Report For	Cost to Sep 30, 2003 Construction	Cost to Sep 30, 2003 Operation and Maintenance
Arch Creek, Dade County, FL	1960	$66,485 [1]	-
Biscayne Bay, FL, Hurricane Protection [2]	1966	-	-
Hillsborough Bay, FL [2]	1969	-	-
Phillippi Creek Basin, FL [2]	1966	-	-

[1] Excludes $11,734 cost of preauthorization studies. Project was authorized February 20, 1959, by Chief of Engineers under Section 205 of the 1948 Flood Control Act as modified by P.L. 685, 84th Congress.
[2] Deauthorized by Public Law 93-251, Section 12.

TABLE 9-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Central and Southern Florida (S.W. Dade Co. Area)	-	1 Jan 90 WRDA 86	-	-
Central and Southern Florida (Boggy Creek Basin)	-	do	-	-
Central and Southern Florida (Cutler Drainage Area)	-	9 Jul 95 PL 99-662	-	-
Central and Southern Florida (Hendry County)	-	do	-	-
Central and Southern Florida (Martin County Recreation)	-	do	-	-
Central and Southern Florida (Nicodemus Slough)	-	do	-	-
Central and Southern Florida (Reedy Creek Swamp)	-	do	-	-
Central and Southern Florida (Small Boat Harbor)	-	1 Jan 90 WRDA 86	-	-
Charlotte County, FL	-	18 Nov 91 PL 99-662	-	-
Cross Florida Barge Canal, FL	FY 2002	Jan 90 WRDA 90 PL 101-64	$66,097,128	-
Four River Basin (Anclote River C-532, S-552), FL	-	1 Jan 90 WRDA 86	-	-
GIWW St. Marks to Tampa Bay, FL	-	do	38,850	-
Key West, FL	-	do	104,140	-

TABLE 9-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Mullet Key, FL	-	do	436,201	187,133
Palm Beach to Lake Worth Inlet (1950 Act)	-	19 Jul 92 PL 99-662	195,140	781,188
San Juan and Vicinity, PR	-	1 Jan 90 WRDA 86	13,774,968	100,000
Virginia Key and Key Biscayne, FL	-	do	1,667,220	714,522

TABLE 9-H NAVIGATION PROJECTS ON WHICH RECONNAISSANCE AND CONDITION SURVEYS ONLY WERE CONDUCTED DURING FISCAL YEAR (See Section 37 of Text)

Project	Cost Incurred During Period
Arecibo, PR	53,074
Bakers Haulover Inlet, FL	29,704
Caloosahatchee Anclote River, FL	43,137
Fort Myers Beach, FL	34,126
Fort Pierce Harbor,	21,004
Horseshoe Cove, FL	30,158
IWW Jacksonville – Miami, FL	14,029
Johns Pass, FL	28,152
Long Boat Pass, FL	28,152
Mayaguez Harbor, PR	47,102
Naples to Gordon Pass, FL	7,493
New Pass, Sarasota, FL	7,493
Okeechobee Waterway, FL	123,843
Palm Beach, FL	19,186
Pithlachascotee River, FL	34,126
Ponce Harbor, PR	67,041
St. Augustine, FL	17,948
St. Lucie Inlet, FL	18,731
St. Petersburg Harbor, FL	51,359
Venice Inlet & IWW, FL	38,450
Withlacoochee River, FL	37,098
Total	$ 751,406

TABLE 9-I CANAVERAL HARBOR, FL PROJECT DATA RELATIVE TO LOCK (See Section 5 of Text)

Distance to nearest town	9.9 miles via 12-foot barge canal and Intracoastal Waterway
Name of nearest town	Cocoa, FL
Distance from Intracoastal Waterway	6.5 miles
Lock dimensions	90[9] wide; 600[9] long[1]
Lift	Varies with tide
Depth of Sills (mlw, ocean)	14 feet
Character of foundation	Piles in sand
Year completed and opened to navigation	1965
Contract cost	$2,979,670

[1] 56x400 feet authorized. At request of NASA lock was constructed 90 feet wide with NASA bearing additional cost ($700,000). Length increased to 600 feet to be compatible with increased width. Operation and maintenance of lock is a Federal responsibility.

TABLE 9-L OKEECHOBEE WATERWAY OPERATIONS AND RESULTS DURING FISCAL YEAR (See Section 24 of Text)

Work Performed	Cost
Operations and Maintenance:	
Operations:	
Operations of locks, dams, and reservoirs	$1,628,106
Operation of service utilities	0
Operation of flood control structures	0
Environmental studies and monitoring	53,000
Natural resource management	0
Recreation management	411,081
Water Control Management	0
Condition and operation studies and activities	0
Real estate management	97,520
National emergency preparedness program	0
Prevention of obstructive and injurious deposits	0
General regulatory functions	0
Construction Management	0
Sub-Total	$2,189,707
Maintenance:	
Lands and damages	0
Maintenance of locks	118,681
Maintenance of non-recreational buildings and grounds	0
Maintenance of recreational facilities	0
Maintenance of permanent operating equipment non-recreational	58,937
Bank stabilization, maintenance of revetments and dikes	0
Channel and canal maintenance	460,070
Engineering and Design	106,368
Construction Management	0
Real Estate management	3,773
Natural Resource Management	101,744
Security Upgrades	235,057
Sub-Total	$1,084,630
Total	$3,274,337

TABLE 9-M REMOVAL OF AQUATIC GROWTH FROM NAVIGABLE WATERS IN THE STATE OF FLORIDA CONTROL OPERATIONS (See Section 31 of Text)

Locality	Cost
Operation of locks, dams, and reservoirs (channels and canals)	$ 2,620,609
Operation of service facilities	0
Operation of power plants	0
Natural resource management	1,341,602
Recreation management	0
Water control management	0
Condition and operation study	0
Project operations management	0
Maintenance of recreational facilities	0
Maintenance of non-recreational permanent operating equipment	0
Maintenance of non-recreational buildings and grounds	0
Engineering and Design	0
Construction Management	0
Credit	0
Total	$ 3,957,194

TABLE 9-O CENTRAL AND SOUTHERN FLORIDA PROJECT

CONSTRUCTION COMPLETED DURING FISCAL YEAR 2002
(See Section 57 of Text)

Feature	Construction Period	Date transferred to Flood Control District for Operation and Maintenance
None to Report		

TABLE 9-P CENTRAL AND SOUTHERN FLORIDA PROJECT STATUS OF WORK UNDER CONTRACT AT END OF FISCAL YEAR 2003 (See Section 76 of Text)

Feature	Construction Started	Approx. % Complete
Recreation:		
Channels and Canals:		
Kissimmee Reach 1 Backfill	September 2000	86
East Coast C-4 Structure (S-380)	September 2000	99
Western C-11 (S-381)	September 2000	56
Pumps:		
C-51 Machinery	May 1999	92
C-51 Pump Station S-319	April 2000	99
Western C-11 (PS 9A)	September 2000	99
C-51 Pump Station S-362	September 2000	95
C-51 Pump Station 361	April 2001	95
Spillway:		
C-51 155A	May 2001	97
Kissimmee Istokpoga	July 2002	18
Facility:		
Melalueca Quarantine Facility	September 2001	80
Levees:		
C51 Sta – 1 east (East)	August 2002	76
C51 Sta – 1 east (West)	July 2002	45
C51 Grading contract	August 2001	94

TABLE 9-Q CENTRAL AND SOUTHERN FLORIDA PROJECT PRINCIPAL FEATURES OF HURRICANE GATES (See Section 76 of Text)

Gate[1] No.	Nearest Town Name	Distance (miles)	Depth Over Sills (feet)	Character of Founda-tion	Year Com-pleted	Actual Cost
2.	Clewiston, FL	0.5	10	Pile	1935	$309,748
3.	Lake Harbor, FL	0.5	10	Rock	1935	316,938
4.	Belle Glade, FL	4.0	10	Rock	1935	350,025
5.	Canal Point, FL	0.0	10	Rock	1935	262,465
6.	Okeechobee, FL	0.5	7	Pile	1936	373,273

[1]All are 50 feet wide with available length unlimited. They are constructed of concrete with steel sector Gate gates and have no lift. No. 6 has an auxiliary culvert spillway with automatic control. Moore Haven Lock serves as Hurricane Gate Structure 1.

TABLE 9-R CENTRAL AND SOUTHERN FLORIDA PROJECT LOCAL COOPERATION (See Section 76 of Text)

Flood Control Act	Work Authorized	Cash Contribution[1]
Jun. 30, 1948	First phase of comprehensive plan	15.0
Sep. 3, 1954	Second phase of comprehensive plan	20.0
Jul. 14, 1960	Nicodemus Slough area	31.5
Oct. 23, 1962	West Palm Beach Canal	66.3
	Boggy Creek Basin	29.7
	Shingle Creek Basin	25.9
	South Dade County area	19.2
	Reedy Creek Swamp	50.0
Oct. 27, 1965	Southwest Dade County	46.0
	Hendry County area	19.5
Aug. 13, 1968	Martin County	
	Flood Control Features	34.0
	Irrigation Features	49.0
	Backflow Features	20.0
P.L. 89-72	Recreation Features	50.0
	Water Resources - St. Lucie	20.0
	Recreation Features	50.0
Approved Dec. 17, 1970 under provisions of Section 201 of 1965 Flood Control Act (Deauthorized Jan. 1, 1990 by P.L. 99-662)	Navigation improvements suitable for recreational craft	50.0
P.L. 99-662	Upper St. Johns River Basin - non-structural flood protection	25.0

[1] Computed on total contract cost and supervision and administration except for Reedy Creek Swamp and recreation features which are computed on all costs, including engineering and design and land.

TABLE 9-S CENTRAL AND SOUTHERN FLORIDA PROJECT OPERATIONS AND RESULTS DURING FISCAL YEAR (See Section 76 of Text)

Work Performed	Cost
New Work:	
Channels and canal	$ 0
Lands and damage	14,941,000
Levees	17,468,000
Pumping plants	12,195,000
Recreation	3,688,000
Floodway control	1,910,000
Feasibility	2,952,000
Engineering and design	41,177,000
Construction management	3,029,000
Subtotal	$97,360,000
Operations:	
Operation of locks, dams, reservoirs and performance system	700,345
Operation of service facilities	0
Operation of flood control structures	1,864,583
Environmental studies and monitoring	1,849,625
Natural resource management	185,486
Recreational management	467,421
Operation and maintenance of recreation facilities, service and maintenance of traffic counters, master planning	0
Condition and operation studies, periodic inspections, dam safety studies	677,318
Roads, railroads, and bridges	0
Water control management	1,489,933
National preparedness program	0
Prevention of obstructive and injurious deposits	0
General regulatory	0
Real estate management	69,813
Project operations management	0
Subtotal	$ 7,302,723
Maintenance:	
Lands and damages	0
Maintenance of dams	0
Maintenance of locks	287,454
Maintenance of flood control structures	4,111,623
Maintenance of levees and floodwalls	2,762,994

TABLE 9-S CENTRAL AND SOUTHERN FLORIDA PROJECT OPERATIONS AND RESULTS DURING FISCAL YEAR (See Section 57 of Text)

Work Performed	Cost
Maintenance of recreational facilities	0
Maintenance and purchase of non-recreational permanent operating equipment	237,348
Bank stabilization	0
Utilities, supplies, and maintenance of non-recreational buildings and grounds	0
Channel and canal maintenance	218,701
Engineering and Design	1,078,926
Construction Management	281,461
Real Estate Management	5,412
Sub-Total	$ 8,983,919
Total	$113,648,443

TABLE 9-T FOUR RIVER BASINS, FLORIDA PROJECT CONDITION AT END OF FISCAL YEAR 2003 (See Section 60 of Text)

Feature	Construction Period	Date transferred to Southwest Florida For Operation and Maintenance
Bridges:		
B-194	Jul 1968 - Mar 1970	Not transferred
Alteration of Facilities B-195	May 1971 - Jan 1973	Do.
B-594	Jan 1973 - Jan 1974	Do.
Alteration of Facilities B-196	Oct 1972 - Jan 1975	Do.
SCL RR Bridge, B-196	Dec 1972 - Jul 1975	Jul 1975
Channels and Canals:		
C-135	May 1967 - Dec 1968	Dec 1968
C-135, Sec. 1A	Jul 1966 - Aug 1967	Oct 1967
C-135, Sec. 1B	May 1968 - Sep 1972	Not transferred
C-135, Sec. 1C & 2	Jan 1971 - Dec 1973	Not transferred
C-135, Sec. 3A	Dec 1972 - Apr 1975	Oct 1977
C-135, Sec. 3B	Feb 1975 - Aug 1977	Not transferred
C-135, Sec. 4A	Apr 1976 - Jan 1979	Not transferred
C-136	Aug 1975 - May 1977	Nov 1977
C-231, Phase I	Jul 1973 - Apr 1975	Dec 1975
C-231, Phase II	Jul 1973 - Jan 1974	Dec 1975
C-331	Jul 1967 - Sep 1968	Sep 1968
C-531	Apr 1966 - Jan 1969	Apr 1969
C-534	Jun 1979 - Jul 1971	Nov 1971
C-135	Mar 1977 - Oct 1980	
Structures:		
S-160	May 1967 - Dec 1968	Dec 1968
S-161	Aug 1975 - May 1977	Nov 1977
S-162	Apr 1975 - Jun 1977	Apr 1977
S-353	Jul 1967 - Sep 1968	Nov 1968
Moss Bluff Lock and Spillway	Apr 1967 - Mar 1969	Dec 1975
S-551	Jul 1970 - Feb 1972	Not transferred
Levees:		
L-212, Sec. 1	Jun 1968 - Jul 1970	Dec 1975
L-212, Sec. 2	Jul 1970 - Sep 1971	Dec 1975
L-112	Mar 1977 - Oct 1980	Oct 1980
L-112 & Floodway	May 1978 - Jul 1981	Jan 1983
S-155	May 1978 - Jul 1981	Jan 1983
S-163	May 1978 - Jul 1981	Jan 1983
S-159 Middle & Lower	Apr 1979 - Aug 1981	Oct 1981
S-159 Upper	Jun 1979 - Sep 1981	
Recreation:		

TABLE 9-T FOUR RIVER BASINS, FLORIDA PROJECT CONDITION AT END OF FISCAL YEAR 2003

(See Section 60 of Text)

Feature	Construction Period	Date transferred to Southwest Florida For Operation and Maintenance
Morris Bridge & Flint Creek Sites	Dec 1982 - Aug 1984	Jan 1985
Dead River Sites	Mar 1985 - Jul 1986	Dec 1986

TABLE 9-U FOUR RIVER BASINS, FLORIDA PROJECT MOSS BLUFF LOCK

(See Section 60 of Text)

Nearest town	20 miles
Name of nearest town	Ocala, FL
Distance above mouth of river	65.5 miles
Lock dimensions	30 x 125 feet
Normal lift	18.0 feet
Elevation of normal pool surface	58 feet
Depth of sills	12 feet
Character of foundation	Piles in sand
Kind of dam	None
Type of construction	Reinforced concrete
Percent complete	100
Estimated cost (including dam and spillway)	$1,990,138

TABLE 9-V FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION PURSUANT TO SECTION 205, PUBLIC LAW 685, (PREAUTHORIZATION)
(See Section 69 of Text)

Study Identification	Period Costs
Arroyo, PR	$ 40,639
Black Creek, FL	22,726
Cedar Creek, FL	2,465
Colosa Valley AG Area 205	58,465
Estate Mon Bijou, St. Croix, VI	5,705
Juaca Community, Santa Isabel, PR	28,113
La Boca, Cacheta, and Punta Palmas, PR	55,459
LaGrange Gut, Frederiksted, VI	5,044
Plant City, FL	5,470
Rio Anton Ruiz-Runta, Santiago, PR	127,123
Rio Culebrinas, Aguada, PR	38,941
Rio Descalabrado, Santa Isabel, PR	100,556
Rio El Ojo De Agua, PR	62,094
Rio Fajardo, PR	244,033
Rio Grande de Jayuya, PR	28,990
Rio Guamani, Guayama, PR	-63,664
Rio Jacaguas at Juana Diaz, PR	59,399
Rio Loco, Guanica, PR	161,003
Rio Orocovis, PR	32,704
Rio Patillas, PR	55,381
Savan Gut, St. Thomas, VI	6,562
Sec 205 Coordination Account	33,117
Turpentine Run, St. Thomas, VI	5,352
Whitaker Bayou, FL	19,939
TOTAL FY COST	$ 1,135,616

MOBILE, AL., DISTRICT

This district comprises a small portion of southeastern Tennessee, western George, western Florida, all of Alabama south of Tennessee River Basin, eastern Mississippi, and a small portion of southeastern Louisiana embraced in drainage basins tributary to the Gulf of Mexico, west of Aucilla River Basin, to and including the Pascagoula River Basin. The Pearl River Basin, Mississippi was included as part of the Mobile District until October 1, 1981, when responsibilities were transferred to Vicksburg District, Lower Mississippi Valley Division. A section of the Gulf Intracoastal Water from St. Marks, Florida, to Lake Borgne Light No. 29, Louisiana is also within Mobile District.

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Navigation

1. ALABAMA-COOSA RIVERS, AL AND GA

Location. Alabama River is formed 18 miles above Montgomery, Alabama, by the junctions of the Coosa and Tallapoosa Rivers. It then flows southwesterly through Alabama 318 miles and unites with the Tombigbee River about 45 miles north of Mobile, in southwestern Alabama, to form the Mobile River. (See Geological Survey maps for central and southwest Alabama.) The Coosa River is formed at Rome, Georgia, in northwest Georgia, by the junction of the Oostanaula and Etowah Rivers, which have their sources in southeastern Tennessee and northern Georgia. From Rome the Coosa River flows southwesterly through Georgia and Alabama 286 miles and unites with the Tallapoosa River near Montgomery, Alabama, at about the center of the State, to form the Alabama River. (See Geological Survey maps for northeast Alabama, southeast Tennessee, and northwest Georgia.)

Previous project. Projects for Alabama River: for details see page 1837, Annual Report for 1915; page 725, Annual Report for 1938; and page 592, Annual Report for 1944. Projects for Coosa River: for details see page 1837, Annual Report for 1915; page 728, Annual Report for 1938; and page 594, Annual Report for 1944.

Existing project. The authorized project provides for full development of the Alabama-Coosa Rivers and tributaries for navigation, flood control, power, recreation, and other purposes, in accordance with plans under preparation by Chief of Engineers, subject to modifications thereof which may be advisable for increasing development of hydroelectric power. (See Table 10-B for authorizing legislation.) Public Law 436, 83rd Congress, suspended authorization of the comprehensive plan, insofar as it provides for development of hydroelectric power for Coosa River, to permit non-Federal interests to develop the Coosa River by construction of a series of dams in accordance with conditions of a license issued pursuant to Federal Power Act and in accordance with certain other provisions and requirements of the aforementioned public law. The plan was further modified by the WRDA of 1986 to authorize planning, engineering and design for the project generally in accordance with the plans contained in Design Memorandum No. 1, General Design, dated May 1982. The present phase of improvement includes the construction of Robert F. Henry and Millers Ferry multiple-purpose improvements, Claiborne Lock and Dam, and supplemental channel work providing for a nine-foot deep navigation channel from the mouth of the Alabama River to Montgomery, Alabama, and construction of Carters Dam, a multiple-purpose improvement on Coosawattee River, Georgia.

Local cooperation. Requirements of local cooperation will be determined as formulation of plans for development of projects progress. No action in the matter of local cooperation has been initiated.

Terminal facilities. On the east bank of the river a natural landing connects with city streets at Montgomery. There are also various natural landings along the river. Facilities and natural landings on Alabama River are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Operation and maintenance for Claiborne Lock and Dam, navigation maintenance for the waterway, snagging and clearing of channels and general charges for water control management, condition surveys, engineering and design, supervision and administration amounted to $2,694,000.

Condition at end of fiscal year. Construction was initiated on Carters Dam in April 1962, on Millers Ferry Lock and Dam in April 1963, Claiborne Lock and Dam in May 1965, and Robert F. Henry Lock and Dam in June 1966. Carters Dam was completed in FY 1980. The authorized nine-foot navigation channel to Montgomery, Alabama was opened to traffic in January 1972. Overall construction is complete in Millers Ferry Lock and Dam. Construction of Robert F. Henry Lock and Dam is complete. Total Federal cost of the existing project as of September 30, 2003 is $131,012,997, including $3,245,400 for new work and $127,767,597 for maintenance. (See Table 10-L.)

1A. CLAIBORNE LOCK AND DAM, AL

Location. The site is in Monroe County at mile 72.5 on the Alabama River, 15 miles northwest of Monroeville and 5.7 miles upstream from the U.S. Highway 84 bridge.

Existing project. The existing project consists of a short earth dike on the right bank, a combination of a fixed-crest and gated spillway extending across the river channel and into the left bank, a navigation lock and mound on the left bank, and an earth dike extending across the left overbank to high ground. Normal upper pool is elevation 35 and the minimum pool will be elevation 32 to provide storage for reregulation of Millers Ferry powerplant releases. The 60-mile long reservoir has an area of 5,850 acres and a volume of 96,360 acre-feet. For other information see description of Alabama-Coosa projects.

Operations and results during fiscal year.

Maintenance: Maintenance cost included under overall Alabama-Coosa Rivers, AL and GA.

Condition at end of fiscal year. Construction began in May 1965 and was completed in FY 1976 at a total cost of $27,997,450. Recreation attendance during FY 2003 totaled 229,101 visits.

1B. COOSA RIVER, MONTGOMERY TO GADSDEN, AL

Location. The Coosa River is one of the two major tributaries forming the Alabama River approximately 18 miles northeast of Montgomery, Alabama. From its source at the juncture of the Etowah and Ooostanaula Rivers in northwest Georgia, it flows southwesterly about 286 miles to join with the Tallapoosa River in forming the Alabama River.

Existing project. The improvement of the Alabama-Coosa River for navigation to Rome, Georgia was authorized by Congress in the River and Harbor Act of 1945. A report in House Document 320, transmitted to Congress on January 27, 1960, recommended that the navigation project for the Coosa River from Montgomery to Gadsden be accomplished after the waterway to Montgomery was assured. The plan of improvement identified in House Document 320 provided for a waterway 9 feet deep with widths of 200 feet to Montgomery, Alabama, and 150 feet to Rome, Georgia. The waterway to Montgomery is complete. The plan for the Coosa River segment of the waterway between Montgomery and Gadsden was further modified by the WRDA of 1986 to authorize planning, engineering and design for the project generally in accordance with the plans contained in Design Memorandum No. 1, General Design, dated May 1982. Total Federal cost of the existing project as of September 30, 2003 is $14,988,935 for new work.

2. APALACHICOLA BAY, FL

Location. The project is on the coast of northwest Florida 160 miles east of Pensacola Harbor. (See Coast and Geodetic Survey Chart 11401.)

Previous project. For details, see page 1833, Annual Report for 1915, and page 689, Annual Report for 1938.

Existing project. The existing project provides for: (a) A channel 10 feet deep and 100 feet wide from the 10-foot depth in Apalachicola Bay, across St. George Island, to within 300 feet of the gulf shore, thence increasing uniformly in width to 200 feet at the shore and continuing with that width to the 10-foot depth in the Gulf of Mexico, with twin jetties extending from the dune line to the outer end of the channel; (b) an inner bar channel, 10 feet deep and 100 feet wide, in Apalachicola Bay; (c) a boat basin 200 feet by 880 feet and 9 feet deep at Apalachicola, Florida, with a connecting channel 9 feet deep and 80 feet wide through Scipio Creek to Apalachicola River; (d) a channel known as Link Channel, 10 feet deep and 150 feet wide, in Apalachicola Bay; (e) a channel generally parallel to the shore at Eastpoint, Florida, 6 feet deep, 100 feet wide, and about 6,000 feet long, and a connecting channel 6 feet deep and 100 feet wide to water at the same depth in St. George Sound, with twin breakwaters on either side parallel to the shore and having a total length of 5,300 feet; (f) a channel 10 feet deep and 100 feet wide through Bulkhead Shoals, connecting Apalachicola Bay with St. George Sound; and (g) a 6-foot by 100-foot channel about one mile long, generally parallel to the shore at Two Mile, Florida, with a 6-foot by 100-foot connecting channel to water of the same depth in Apalachicola Bay. Mean range of tide throughout this harbor is 1.6 feet. Extreme range, except during storms, is about three feet. Plane of reference is mean low water. (See Table 10-B for authorizing legislation.)

Local cooperation. Requirements have been fully complied with.

Terminal facilities. Facilities consist of pile-and-timber wharves which are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Condition surveys, contract dredging, supervision and administration and other miscellaneous costs amounted to $324,365.

Condition at end of fiscal year. The existing project, authorized by the 1954 River and Harbor Act, was completed in 1959, including reimbursement to local interests for approved work, as authorized by the 1958 River and Harbor Act. Improvements at Two Mile except for modifications authorized in 1975 were completed in September 1964. Construction of the breakwater and channel improvements authorized in 1975 at Two Mile was completed in September 1977. Construction of breakwaters at Eastpoint authorized in 1983 was completed in March 1984. Total Federal cost under existing project as of September 30, 2003 is $2,033,461 for new work and $9,791,636 for maintenance, a total of $11,825,097.

3. APALACHICOLA, CHATTAHOOCHEE, AND FLINT RIVERS, AL, GA, AND FL

Location. The Apalachicola River is formed at the southwest corner of the State of Georgia by the junction of the Chattahoochee and Flint Rivers and flows south 108 miles emptying into Apalachicola Bay. The Florida River enters the Apalachicola from the east at mile 45.4 and the River Styx also enters from the east at mile 36.7 and Chipola River enters from the west at mile 28.2. (See Coast and Geodetic Survey Chart 11401.) The Chattahoochee River, 418 miles long, rises in northeast Georgia and flows southwesterly to West Point, and thence southerly to join the Flint River at the southwest corner of Georgia, forming the Apalachicola River. (See Geological Survey maps for northwest Georgia.) The Flint River, 330 miles long, rises in west central Georgia, flows generally southeasterly to Albany, and thence southwest to the southwest corner of the State, where it joins the Chattahoochee River to form the Apalachicola River. (See Geological Survey maps for southwest Georgia.

Previous project. For details see page 484 of Annual Report for 1963.

Existing project. The authorized project provides for development of the Apalachicola, Chattahoochee, and Flint Rivers for navigation, flood control, hydropower, and recreation. Navigation features of the existing project consist of a continuous 9-foot by 100-foot channel in the Apalachicola River from the intersection of the Gulf Intracoastal Waterway to the confluence of the Chattahoochee and Flint Rivers, 104 miles, thence to Columbus, Georgia, on the Chattahoochee River, 164 miles, and to Bainbridge, Georgia, on the Flint River, 29 miles, and a 3-foot by 100-foot channel on the Flint River from Bainbridge to Albany, Georgia, 74 miles, thence a channel suitable for light draft vessels at moderate stage to Montezuma, Georgia, 79 miles to be accomplished by dredging, contract works, and construction of three locks and dams (Jim Woodruff, George W. Andrews, and Walter F. George) along the 9-foot depth channel, two multipurpose dams (West Point and Buford) on the Chattahoochee River. Three multipurpose dams (Lower Auchumpkee Creek, Lazer Creek, and Spewrell Bluff) on the Flint River were deauthorized in the Water Resources Development Act of 1986. The project also provides for minor improvements of certain streams tributary to the Apalachicola River, including a 9-foot by 100-foot side channel, approximately 2,000 feet long, from Apalachicola River to Apalachicola River Industrial Park at Blountstown, Fla. Plane side of reference is mean low water. Hydropower and flood control storage is provided at Sidney Lanier, Walter F. George, and West Point, and hydropower is provided at Jim Woodruff. For further details see Annual Report for 1962. The project was originally authorized in section 2 of the River and Harbor Act of 1945, was further modified by the WRDA of 1986 (P.L. 99-662). (See Table 10-B for authorizing legislation.)

Mean range of tide at the mouth of Apalachicola River is 1.6 feet. At the point where the river is formed the variation between low and high water is about 37 feet. On the Chattahoochee River, variation between average low and high water is about 20 feet, and extreme fluctuation is 65.3 feet at Eufaula. On the Flint River the extreme fluctuation of stage due to flood is 40 feet, while average variation between low and high water is about 21.5 feet. A Comprehensive Basin Study has been completed on the Apalachicola, Chattahoochee, Flint (ACF), and Alabama-Coosa-Tallapoosa (ACT) River Systems.

Local cooperation. The six Florida Counties that originally served as local sponsors for the Florida portion of the waterway have all informed the District in writing that they no longer wish to serve as local sponsors. The State of Florida has also declined assumption of responsibilities of local sponsorship. At this time no items of local cooperation are being complied with. No local sponsors are required for the Alabama and Georgia portions of the waterway.

Terminal facilities. About 200 feet of public docks, in addition to private wharves, are available at Apalachicola, Florida. There are numerous constructed and natural landings along the entire system for launching small craft. For details of other terminal facilities, which are considered adequate for existing commerce, see individual project descriptions. See also Table 10-M on locks and dams and multiple-purpose development included in existing project.

Operations and results during fiscal year.

Maintenance: Operation and maintenance of George W. Andrew Lock and Dam is included in overall project. All other cost for project amounted to $5,779,159.

Condition at end of fiscal year. Improvement of Apalachicola River channel by dredging to provide project dimensions throughout is complete. All major construction on Lake Sidney Lanier Dam, George W. Andrews Lock and Dam, Jim Woodruff Lock and Dam, Walter F. George Lock and Dam and West Point are complete. Channel rectification in Apalachicola River was completed December 1970. More detailed information concerning condition at the end of fiscal year for individual locks and dams and multiple-purpose developments comprising the system is presented under their respective project titles elsewhere in this report. Total Federal cost under existing project as of September 30, 2003 is $4,452,162 for new work and $153,270,221 for maintenance, a total of $157,722,383. (See Tables 10-A and 10-M for fiscal year costs and summaries of overall project.)

3A. GEORGE W. ANDREWS LOCK AND DAM, AL AND GA

Location. The project is on the Chattahoochee River about 46.5 miles above its mouth and about one mile below the town of Columbia, Alabama, near the head of Jim Woodruff Reservoir. (See Geological Survey maps for southeast Alabama). The pool extends up the navigation channel about 28 miles upstream to Walter F. George Lock and Dam.

Existing project. This single-purpose project provides for a concrete fixed-crest spillway 340 feet long extending into the right bank with a crest at elevation 102 feet national geodetic datum, a concrete gate spillway adjacent to the lock 280 feet long with crest at elevation 82 feet national geodetic datum, a single-lift lock with usable chamber dimensions of 82 feet by 450 feet, and a maximum lift of 25 feet. Depths are 13 feet over the lower sill and 19 over the upper sill at normal pool elevation. The underlying foundation is limestone. The project provides for maintenance and care. The House Committee on Public Works, by resolution adopted May 19, 1953, approved the plan as proposed by the Chief of Engineers for a high dam at Walter F. George site and a low dam at the Fort Benning site and a high dam at the upper Columbia site, construction of which was authorized by the 1946 River and Harbor Act as the initiation and partial accomplishment of the plan for full development of the Apalachicola, Chattahoochee, and Flint River system. (See Table 10-B for authorizing legislation.)

Local cooperation. Local interests must operate all movable span bridges, provide suitable public terminals, and hold the

United States free from damages. These conditions are being complied with.

Terminal facilities. At Columbia, Alabama, there is a public wharf with concrete deck for handling general cargo and a bulk petroleum terminal with an unloading dock. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Maintenance cost included under overall Apalachicola, Chattahoochee and Flint project. Recreation attendance for FY 2003 totaled 253,259.

Condition at end of fiscal year. Construction of the lock and dam began in March 1959 and was completed in November 1963 at a total cost of $13,038,427. (See also Table 10-M).

4.AQUATIC PLANT CONTROL (RIVER AND HARBOR ACT OF 1965)

Location. Navigable water, tributary streams, connecting channels and other allied waters in Mobile District.

Existing project. The existing project provides for management and control of water hyacinth, alligatorweed, Eurasian watermilfoil, hydrilla, and other obnoxious aquatic plant growths from navigable water, tributary streams, connecting channels, and other allied waters of the United States, in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and related purposes, including continued research for development of the most effective and economical control measures to be administered by the Chief of Engineers, under the direction of the Secretary of the Army, in cooperation with other Federal and State agencies. Research and planning cost prior to construction shall be borne fully by the United States. (See Table 10-B for authorizing legislation).

Local cooperation. Local interests shall agree to hold and save the United States free from claims that may occur from control operations and to participate to the extent of 50 percent of such operations. Requirements are being met in the state of Alabama by the Department of Conservation and Natural Resources.

Operations and results during fiscal year. Environmental studies amounted to $13,859.

Condition at end of fiscal year. Total Federal cost under the exiting project as of September 30, 2003 is $970,693. Contributed funds for maintenance amount to $21,225.

5. BAYOU CODEN, AL

Location. The project is located in a small tidal stream on the southern coast of Mobile County, Alabama, emptying into Mississippi Sound about 7.6 miles northwest of Cedar Point, the southern tip of western mainland shore of Mobile Bay. (See Coast and Geodetic Survey Chart 11376.)

Previous project. For details see Annual Report for 1945, page 843.

Existing project. The existing project provides for a channel 8 feet deep by 60 feet wide extending from La Belle Avenue bridge south for about 3,000 feet through the bayou to Portersville Bay, thence 8 feet deep by 100 feet wide extending about 2.3 miles westward across Portersville Bay to connect with the Bayou La Batre channel, and a turning basin 8 feet deep by 60 feet wide by 100 feet long on the west side of the bayou channel about 500 feet south of the La Belle Avenue bridge. Mean tidal range is 1.75 feet, and extreme, except during storms, is 3.5 feet. Plane of reference is mean low water. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Small privately-owned timber dock piles used in connection with fishing industry in this locality are adequate for existing commerce. A small ship building facility is located near the upper limits of the channel. The marina which will accommodate about 12 small recreational craft, and a slip with facilities for loading oyster shells are located near the mouth of the bayou, and are maintained by the Alabama Department of Conservation.

Operations and results during fiscal year.

Maintenance: Miscellaneous cost amounted to $7,200.

Condition at end of fiscal year. That portion of the project authorized prior to the 1969 modification was completed in 1956. Construction authorized in 1969 was

initiated March 31, 1975 and completed March 26, 1976. Total Federal cost under existing project as of September 30, 2003 is $330,701 for new work and $2,289,938 for maintenance, a total of $2,620,639. Contributed funds expended for new work amount to $100,000 and $131,912 for maintenance.

6. BAYOU LA BATRE, AL

Location. Bayou La Batre is a tidal stream about 10 miles long, emptying into Mississippi Sound on the southern coast of Mobile County, AL., about 10 miles northwest of Cedar Point, the southern tip of the western mainland shore of Mobile Bay. (See Coast and Geodetic Survey Chart 11373.)

Previous project. For details see Annual Report for 1945, page 844.

Existing project. The existing project provides for a 18-foot by 120-foot channel from Pascagoula Ship channel, connecting with the GIWW, along the GIWW alignment, connecting with an extension of the previous 12-foot channel alignment, through Mississippi Sound to the mouth of the bayou, a total distance of approximately 20 miles; then provides for a 12-foot by 100-foot channel to a point about 2,800 feet south of the highway bridge, thence a channel 12 feet deep by 75 feet wide to the bridge, with

the channel widened at a point 0.6 mile below the bridge to provide a turning basin 12 feet deep and about 2.6 acres in area. Authorized by the Water Resources Development Act of 1990, the plan of improvement includes deepening channel to 18-foot by 100-foot from the mouth through the turning basin, a distance of about 1.8 miles; deepen channel from turning basin to 0.29 miles above highway 188 bridge to 14-feet by 75-feet, a distance of about 0.89 miles; extend a 14-foot by 50-foot channel from turning basin into Snake Bayou for about 730 feet and a 12-foot by 50-foot channel within Snake Bayou about 790 feet. Mean tidal range is 1.75 feet, and extreme, except during storms, is 3.75 feet. Plane of reference is mean low water. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Wooden wharves have been provided at seafood processing plants and public launching ramps are available. Several boatways for construction of small seagoing vessels are also available. Facilities are adequate for existing commerce.

Operations and results during fiscal year.

New work: None.

Maintenance: Contract dredging cost $0, environmental studies $24,156 and miscellaneous cost $17,844.

Condition at end of fiscal year. The existing project was modified December 30, 1966 under the discretionary authority of the Chief of Engineers to include a turning basin. The project was completed in March 1967. The contract for deepening the Sound Channel was completed in May 1994. The construction of the Bayou Channel was completed in September 1997. Total Federal cost under existing project as of September 30, 2003 is $5,755,195 for new work and $11,695,720 for maintenance, a total of $17,450,915. Contributed funds from local interests for new work amount to $678,618.

7. BILOXI HARBOR, MS

Location. The project is located on Mississippi Sound in southeastern Mississippi, 32 miles by water west of Pascagoula Harbor, Mississippi, and 14 miles east of Gulfport Harbor, Mississippi (See Coast and Geodetic Survey Chart 11373.)

Previous project. For details see page 584, Annual Report for 1962.

Existing project. The existing project provides for a continuous channel 12 feet deep, 150 feet wide and 23 miles long from the Gulf Intracoastal Waterway through Mississippi Sound east of Deer Island, Biloxi Bay, Back Bay, Cranes Neck, and a land cut to Gulfport lake, including a 500-foot by 2,600-foot basin in the lake, thence a 12-foot deep by 100-foot wide channel for about two miles westward from the west end of the lake, terminating in a 300-foot by 500-foot basin; a 12-foot by 100-foot channel from the main channel in Big Lake to and up Bayou Bernard to the Air Force oil terminal at about mile 2.6; a 12-foot by 150-foot spur channel from the main channel in Biloxi Bay for about one mile, terminating in a 400-foot by 600-foot turning basin opposite Ott Bayou; continuation of maintenance of the 12-by 150-foot lateral channel westward about 2.2 miles to Biloxi's south waterfront; a 10-foot by 150-foot channel from Mississippi Sound, passing west of Deer Island to a point where it connects to the 12-foot by 150-foot lateral channel at Biloxi's south waterfront. Construction for the modifications lateral channel authorized by River and Harbor Act of November 7, 1966 was commenced in FY 1974 and completed in February 1975. Further modifications to the project were authorized by the Chief of Engineers on March 28, 1979, which provided for a channel 10 feet deep, 100 feet wide and 300 feet long extending northward from the Biloxi Lateral Channel, and into a rectangular basin, approximately 300 by 370 feet, for use by commercial small craft, and an East Harrison County Canal project which provides for a 12-foot project depth, 130-feet wide and about 2,100 feet long, and a 300 by 300 foot turning basin also to a 12-foot project depth. This work was completed in April 1980.

Cost of modification as authorized by the 1966 River and Harbor Act was $664,390. That portion of the project providing for an entrance channel 6 feet deep, 50 feet wide,

and about 1,800 feet long into Old Fort Bayou, as authorized by the 1945 River and Harbor Act, is inactive. Estimated cost (1954) of this portion was $6,000. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. A number of wooden piling-and-timber piers for small craft and fishing boats, a bulk gasoline terminal, several boat ways, and concrete products plant are available.

Operations and results during fiscal year.

Maintenance: Supervision and administration and other miscellaneous costs totaled $2,799,065.

Condition at end of fiscal year. The existing project, prior to the modification authorized in 1966, was commenced in 1931 and completed in 1962. The 1966 modification was completed in FY 1975. The 1979 modification was completed in 1980. Total Federal cost under existing project as of September 30, 2003 is $1,431,919 for new work and $18,480,513 for maintenance, a total of $19,912,432. Contributed funds for new work amount to $102,600. Contributed funds for maintenance amount to $238,640.

8. BLACK WARRIOR AND TOMBIGBEE RIVERS, AL

Location. Black Warrior River rises in northern Alabama above Birmingham and flows generally southwesterly to unite with the Tombigbee River at Demopolis, Alabama. Thence the Tombigbee flows south, uniting with the Alabama River to form the Mobile River 45 miles above the head of Mobile Bay. Distance by water from Mobile to vicinity of Birmingham is about 430 miles.

Previous project. For details see page 732, Annual Report for 1938.

Existing project. The existing project provides for a channel 9 feet deep and 200 feet wide from the mouth of the Tombigbee River, 45 miles above Mobile, to the vicinity of Birmingham, via the Tombigbee and Black Warrior Rivers, to mile 430.4 on Sipsey Fork, mile 429.6 on Mulberry Fork and mile 407.8 on Locust Fork, and for maintenance by snagging of Mobile River above the mouth of Chickasaw Creek, a total waterway distance of about 408 miles. The total lift of 255 feet is accomplished by six locks and dams. The original construction program, consisting of 17 dams and 18 lifts, was completed in 1915. Replacement of the original structures with new 110-by 600-foot locks and dams, under the modernization program is as follows: William Bacon Oliver replaced locks 10, 11, and 12; Armistead I. Selden replaced locks 8 and 9; Demopolis replaced locks 4, 5, 6, and 7; Coffeeville (Jackson) replaced locks 1, 2, and 3; and Holt replaced locks 13, 14, 15, and 16. Thus, 16 of the original locks have been replaced by five new locks. Bankhead Lock and Dam (Lock 17) rehabilitation to replace the original double lift lock with a single lift lock was completed in 1980. The Coffeeville Lock and Dam wildlife refuge, authorized in 1960, includes 4,250 acres within the reservoir area and along its boundaries. A replacement lock for the old Oliver Lock located 2,300 feet downstream has been completed. The replacement lock has dimensions of 110 feet by 600 feet. A fixed crest spillway extends 800 feet across the river. Minimum provision was provided to allow construction of a hydropower plant. (See Table 10-B for authorizing legislation.)

Tidal influence extends upstream from Mobile 101.6 miles to Coffeeville Lock and Dam, where tidal effect is apparent only at low stages of the river. At Mobile the mean and extreme tidal ranges are 1.5 and 3.6 feet, respectively. These are at times slightly increased by the effect of winds. The greatest fluctuation of river stages is at Demopolis, Ala., the maximum being 59.7 feet. Maximum fluctuations at other points are 40 feet at old lock 1, which is 100.6 miles from Mobile; 57.8 feet at Tuscaloosa, 346.1 miles from Mobile; 13 feet at Birmingport, 404.9 miles from Mobile; and 27 feet at Cordova, 424.3 miles from Mobile. Ordinary fluctuations at these points are at old lock 1, 20 feet; at Demopolis, 35 feet; at Tuscaloosa, 40 feet; at Birmingport, four feet; and at Cordova, seven feet. Works of improvement reduced the amount of fluctuations at different points by three to 10 feet.

Local cooperation. Requirements of local cooperation have been fully complied with to date.

Terminal facilities. Docks, storage facilities, and handling equipment have been provided as required at most loading and unloading points along the waterway. These include facilities for handling petroleum and petroleum products, coal, ores, sand and gravel, pulpwood, manufacturers, and various other commodities. While most terminal facilities are privately owned, many are available for use by the general public. Facilities are considered adequate for existing commerce. (See Table 10-N for existing locks and dams.)

Operations and results during fiscal year.

Maintenance: Contract dredging of the river system cost $2,800,446. Condition surveys, engineering and design cost supervision, administration and other general charges for the overall river project totaled $24,199,554. Recreation attendance FY 2003 totaled 3,915,090 visits.

Condition at end of fiscal year. Work on the project, commenced in 1887, was essentially completed in 1915. Since then three of the original locks and dams (10, 11 and 12) were replaced by William Bacon Oliver (Tuscaloosa) Lock and Dam which was opened to navigation in August 1939; four original lock and dams (4, 5, 6 and 7) were replaced by Demopolis Lock and Dam which was opened to navigation in August 1954; two original locks and dams (8 and 9) were replaced by Warrior Lock and Dam which was opened to navigation in October 1957; three original locks and dams (1, 2 and 3) were replaced by Coffeeville Lock and Dam which was opened to navigation in August 1960; and four original locks and dams (13, 14, 15 and 16) were replaced by Holt Lock and Dam which was opened to navigation in June 1966. Rehabilitation of the spillway at John Hollis Bankhead Lock and Dam commenced in 1966, and physically completed February 6, 1970. Replacement of the double lift lock with a single lift lock at John Hollis Bankhead Lock and Dam commenced in April 1970 and was completed in 1980. The power plant at John Hollis Bankhead Lock and Dam and Holt Lock and Dam, was built and is operated by the Alabama Power Co. Construction of the new Oliver Lock and Dam is completed with the new lock open to traffic as of July 1991. Project construction began in November 1986 and is scheduled for completion in January 1996. Total Federal cost under existing project as of September 30, 2003 is $88,461,935 for new work and $482,108,683 for maintenance, and $52,292,880 and major rehabilitation, a total of $622,863,498.

8A. OLIVER LOCK AND DAM (REPLACEMENT), AL

Location. The project is located at mile 337.7 on the Black Warrior-Tombigbee River System at Tuscaloosa, Alabama.

Existing project. The existing navigation facilities on the Black Warrior and Tombigbee include six (6) locks having a total lift of 255 feet. Each of the locks have chamber dimensions of 110 by 600 feet. Original work on the waterway was authorized by the River and Harbor Act of 1884. The 17 original locks have been replaced by the existing six (6) locks. Previously, Oliver Lock was the only lock in the system with chamber dimensions of 95 by 460 feet.

Authorized by the Water Resources Development Act of 1986, the plan of improvement was to replace Oliver Lock and Dam at a new location 2,300 feet downstream. The replacement lock with chamber dimensions by 110 by 600 feet was opened to traffic in July 1991. The fixed crest spillway, extends 800 feet across the river. Minimum provisions are being provided to allow

construction of a hydropower plant. Land Acquisition is complete. Construction was initiated in November 1986 with the award of the Alabama Power Company relocation contract. The first stage cofferdam and river diversion contract was awarded in February 1987 and the lock and dam construction contract was awarded in March 1988. For other information see description of Black Warrior and Tombigbee Rivers project.

Local cooperation. A local cooperation agreement is not required. One-half of the total cost of construction of the navigation lock and dam will be paid by amounts appropriated from the Inland Waterways Trust Fund.

Operations and results during fiscal year.

New work: None.

Condition at end of fiscal year. The project is complete. Total Federal (Corps of Engineers) cost under existing project to September 30, 2003 is $61,373,200 for new work. Contributed funds (Inland Waterways Trust) expended total $63,128,156.

9. BON SECOUR RIVER, AL

Location. Rises 2 miles south of Foley, Ala., and flows southerly about 8 miles, emptying into Bon Secour Bay, an arm of Mobile Bay in southwest Alabama.

Existing project. A 10- by 80-foot channel from Gulf Intracoastal Waterway through Bon Secour Bay to mouth of Bon Secour River and extending up river to vicinity of Swifts Landing, thence 6 by 80 feet up river to a point about 600 feet above Oak Landing with two turning and maneuvering areas 150 feet wide and 1,100 to 1,200 feet long opposite Swifts Landing and ice loading dock. Also a 10 by 80 foot South Fork channel from the intersection with the Bon Secour channel, 1.14 miles to a 150 x 150 foot turning basin. Plane of reference is mean low water. Overall length of improvement is about 4.7 miles. Mean tidal range is about 1.5 feet and extreme, except during storms, is 3.5 feet. Existing project was authorized by Chief of Engineers, May 16, 1963, under authority in Section 107, River and Harbor Act of 1960.

Local cooperation. Fully complied with.

Terminal facilities. A number of pile-and-timber marginal wharves used by the seafood industry and a marine ways are located along the existing project. These, together with numerous privately owned piers, are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Contract dredging cost $2,739.

Condition at end of fiscal year. Project was commenced in July and completed in October 1964. Total Federal cost under existing project as of September 30, 2003 is $150,615 for new work and $2,891,686 for maintenance, a total of $3,042,301. Contributed funds for new work amounted to $9,700.

10. CARRABELLE HARBOR, FLORIDA

Location. Carrabelle Bar and Harbor is located 50 miles south, southeast of Tallahassee, Florida, on St. George Sound and the Gulf of Mexico.

Existing Project. The existing project provides for a 27- by 200-foot channel from the Gulf of Mexico for 3 miles to a point west of Dog Island, thence a 25- by 150-foot channel for 5 miles through St. George Sound and Carrabelle River to a turning basin 500 feet square and 25 feet deep at the town of Carrabelle, a 10- by 100-foot channel from turning basin for 0.6 mile to U.S. 98 bridge, thence a 10- by 80-foot channel for 3 miles to the confluence of New and Crooked Rivers. Plane of reference is mean low water. Channels above the turning basin were authorized May 17, 1965 by Chief of Engineers under authority in Section 107 of the River and Harbor Act of July 14, 1960. Other features of existing project were authorized by River and Harbor Act of September 3, 1954. The mean tidal range is 2.2 feet, and extreme is 3.0 feet, exclusive of storms.

Local Cooperation. Items of local cooperation have been furnished by the Board of County Commissioners, Franklin County, Florida.

Terminal Facilities. Existing terminal facilities are adequate for the current needs of the project.

Operations and results during fiscal year.

Maintenance: Miscellaneous cost $30,000.

Condition at end of fiscal year. All new work for this project was completed in 1965. Total Federal cost of the existing project to September 30, 2003 is $481,627 for new work and $1,061,534 for maintenance, a total of $1,543,161.

11. DAUPHIN ISLAND BAY, AL

Location. The project is located between Dauphin and Little Dauphin Island on the west side of the entrance to Mobile Bay, about 30 miles south of Mobile, Alabama and 55 miles west of Pensacola, Florida. (See Coast and Geodetic Survey Chart 11376.)

Existing project. The existing project provides for: (a) A channel 7 feet deep and 150 feet wide from Mobile Bay to an anchorage basin of the same depth, and about 7 acres in area, in the marsh just north of Fort Gaines on Dauphin Island; a channel 6 feet deep and 40 feet wide from the anchorage basin to Dauphin Island Bay; and a jetty and revetment to protect the entrance channel; and (b) an anchorage basin 7 feet deep and 500 feet square at Dauphin Island Village, with an entrance channel of like depth, 100 feet wide and about 8,300 feet long, extending to the 7-foot hydrographic contour in Mississippi Sound. Mean tidal range is 1.1 feet, and extreme, except during storms is about 4 feet. Plane of reference is mean low water. (See Table 10-B for authorizing legislation.)

Local cooperation. Requirements of local cooperation have been fully complied with to date.

Terminal facilities. Several privately-owned wharves for handling seafood, a public dock and mooring slip, and a pier for

recreational craft are located on the village basin. A marina, public launching ramp, and a number of private piers are located on the bay. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Contract dredging cost $435,000.

Condition at end of fiscal year. The project was completed in July 1959. Total Federal cost under existing project as of September 30, 2003 is $292,864 for new work and $4,700,918 for maintenance, a total of $4,993,782.

12. DOG AND FOWL RIVERS, AL

Location. Dog and Fowl Rivers are primarily tidal streams emptying into the west side of Mobile Bay, 8.5 and 17 miles, respectively, south of central Mobile (See Coast and Geodetic Survey Chart 11376.)

Existing project. The Dog River project provides for a 7 by 100-foot channel with a total length of 4.5 miles to provide access to the Mobile ship channel.

The Fowl River project provides for a channel 8 feet deep and 100 feet wide from Mobile Bay into and up Fowl River to deep water about 6,700 feet above its mouth. Total length of the channel is about 2.6 miles. Plane of reference is mean low water. Mean range of tide is about 1.5 feet in Dog River. Extreme range during storms is about 3.6 feet. This segment of the project was completed in November 1973. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Existing facilities consist of a boatyard for fabricating steel vessel hulls, nine marinas, four marine ways, a yacht basin on Dog River; two marinas on Fowl River, and numerous timber piers and docks on both rivers. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Contract dredging cost $650,000 and other miscellaneous cost $50,000.

Condition at end of fiscal year. The existing Fowl River portion of the project was commenced in August 1973 and completed in November 1973. Work on the Dog River channel realignment was initiated and completed during FY 1986. Total Federal cost on the existing project as of September 30, 2003 is $8,095,670; $391,354 for new work and $7,704,316 for maintenance. Contributed funds for new work amounted to $195,626.

13. EAST PASS CHANNEL FROM GULF OF MEXICO INTO CHOCTAWHATCHEE BAY, FL

Location. East Pass Channel is located in the entrance from the Gulf into Choctawhatchee Bay at eastern end of Santa Rosa Island, 48 miles east of the entrance into Pensacola Bay and 49 miles west of the new entrance to St. Andrews Bay. (See Coast and Geodetic Survey Chart 11388.)

Previous project. For details see page 672 of Annual Report for 1937.

Existing project. The existing project provides for a 12-foot by 180-foot channel from the Gulf of Mexico into Choctawhatchee Bay, and a 6-foot by 10-foot channel from East Pass Channel into Old Pass Lagoon. The project consists also of two converging jetties spaced 1,000 feet apart at the seaward end. Mean range of tide is 1.3 feet; extreme range, except during storms, is 2.5 feet. Plane of reference is mean low water. (See Table 10-B for authorizing legislation.)

Local cooperation. Responsibilities of local cooperation have been complied with to date.

Terminal facilities. Small privately-owned pile-and-timber piers used in connection with the fishing industry in this locality are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Contract dredging cost $513,637.

Condition at end of fiscal year. Construction of the 1965 modification was commenced October 1967 and completed January 1969. Total Federal cost under existing project as of September 30, 2003 is $916,715 for new work and $15,230,922 for maintenance, a total of $16,147,637. Contributed funds for new work from local interests amount to $398,000.

14. FLY CREEK, AL

Location. Fly Creek (Volanta Bayou) is a small stream about 4.5 miles long rising in Baldwin County, Alabama, 3 miles east of town of Fairhope, from whence it flows northerly, thence westerly and southerly, to form an estuary on eastern shore of Mobile Bay just north of Fairhope and about 13 miles southeast of Mobile, Alabama. (See U.S. Coast and Geodetic Survey Chart No. 11376.)

Existing project. Provides for a channel 6 feet deep, 80 feet wide, and about 1,650 feet long from 6-foot depth in Mobile Bay to a turning basin of same depth, 100 feet wide and 350 feet long, in Fly Creek. Mean tidal range in vicinity of project is about 1.3 feet, and extreme, except during storms, is 3.5 feet.

Existing project was authorized by the River and Harbor Act of May 17, 1950, (H. Doc. 194, 81st Cong., 1st Sess.). The project document contains the latest published map.

Local cooperation. Fully complied with.

Terminal facilities. Fairhope Yacht Club has facilities for small recreational craft on the south bank near mouth of creek, consisting of a pile-and-timber service wharves, several sheet metal boat sheds, boat slips, and other mooring facilities. There is also a commercial marina on north bank of creek.

Operations and results during fiscal year.

Maintenance: Channel condition survey cost $1,000.

Condition at end of fiscal year. Project was commenced in August and completed in October, 1957. Total project costs as of September 30, 2003 amounted to $1,148,835 of which $29,000 was for new work and $1,119,835 for maintenance.

15. GULF INTRACOASTAL WATERWAY BETWEEN APALACHEE BAY, FL AND MEXICAN BORDER (MOBILE DISTRICT)

Location. The project extends westward from Apalachee Bay, Florida, along the Gulf coast to the Rigolets, Louisiana, via a series of coastal lakes, bays, sounds, and land custs. (For further details see Annual Report for 1962.)

Previous project. For details see page 906, Annual Report for 1930.

Existing project. The existing project provides for a waterway 12 feet deep and 125 feet wide at mean low water from Apalachee Bay, Florida, to Mobile Bay, Alabama, and 12 feet deep and 150 feet wide from Mobile Bay, Alabama to Rigolets, Louisiana (Lake Borgne Light No. 29), and for a tributary channel (Gulf County Canal), 12 feet deep, 125 feet wide and about six miles long connecting Intracoastal Waterway at White City, Florida, with St. Joseph Bay. The waterway between the 12-foot depth contours in Apalachee Bay and Lake Borgne Light No. 29 at the Rigolets is 379 miles long. (See Table 10-B for authorizing legislation.

Local cooperation. None.

Terminal facilities. Facilities are available for public use at Carrabelle, Apalachicola, Panama City, and Pensacola, Florida; Mobile and Bayou La Batre, Alabama; and Pascagoula, Biloxi, Gulfport, Pass Christian, and Bay St. Louis, Mississippi. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Dredging navigation channel maintenance cost $4,101,824. Condition surveys, water quality studies, supervision and administration totaled $1,700,000.

Condition at end of fiscal year. The existing project is completed except for the portion between Apalachicola Bay and St. Marks, Florida, which has been deauthorized.
Modification of the Gulf County Canal to provide a 12-foot by 125-foot channel was commenced July 1968 and completed June 1969. Total cost of the existing project to September 30, 2003 is $120,998,452, of which $6,480,299 was for new work and $114,518,153 for maintenance.

16. GULFPORT HARBOR, MS

Location. The project is located on Mississippi Sound in southeastern Mississippi, about 35 miles west of Pascagoula, Mississippi, and 60 miles east of New Orleans. (See Coast and Geodetic Survey Chart 11373.)

Previous project. For details see page 747. Annual Report for 1938, and page 995, Annual Report for 1948.

Existing project. The existing project provides for: (a) A channel 32 feet deep, 300 feet wide, and about eight miles long across Ship Island Bar, a channel 30 feet deep, 220 feet wide, and about 11 miles long through Mississippi Sound, and an anchorage basin at Gulfport 30 feet deep, 1,320 feet wide, and 2,640 feet long; and (b) maintenance of the existing commercial smallboat harbor about 26 acres in area, and a straight-approach channel, 100 feet wide and about 4,300 feet long, from deep water in Mississippi Sound to a smallboat basin, all at a depth of 8 feet. Under ordinary conditions mean tidal range is about 1.75 feet, and extreme range, except during storms, is about 3.5 feet. Plane of reference is mean low water. The project is authorized in the Water Resources Development Act (WRDA) 1986, and further amended by WRDA 1988 to modify the existing ship channel to 36 by 300 feet in Mississippi Sound, and 38 by 400 feet across the bar, with changes in the channel alignment and the turning basin for safe and unrestricted navigation. The FY 91 construction appropriation provided for constructing an increment of the authorized project and provide a 36 by 220 feet channel in Mississippi Sound and 38 by 300 feet across the bar. (See Table 10-B for authorizing legislation.)

Local cooperation. Conditions of local cooperation have been fully complied with to date.

Terminal facilities. Existing modern rail-connected terminal facilities at this port are considered adequate for existing commerce. (See Port Series 19, revised in 1979.)

Operations and results during fiscal year.

New work: Miscellaneous cost $377,314.

Maintenance: Contract dredging at a cost of $4,824,469. Supervision and administration and miscellaneous costs amounted to $1,250,000.

Condition at end of fiscal year. The main harbor was commenced 1932 and completed April 1950. Maintenance for small boat harbor and approach channel, constructed by local interests in 1950, was authorized by 1958 River and Harbor Act. Awarded thin-layer monitoring contract in June 1991 under the authority of WRDA 1986 and 1988. The channel contract was awarded in April 1992, and completed in September 1996. Total Federal cost under existing project as of September 30, 2003 is

$25,125,198 for new work and $68,197,339 for maintenance, a total of $93,322,537. Contributed funds for new work amounted to $8,642,180.

17. MOBILE HARBOR, AL

Location. The project is located along the lower 5 miles of Mobile River, and channel extends thru Mobile Bay and into Gulf of Mexico, in southwestern Alabama, 91 miles by water west of Pensacola Harbor, Florida, 90 miles east of Gulfport Harbor, Mississippi, and 144 miles by water northeast of mouth of Mississippi River. (See Coast and Geodetic Survey Chart 11376.)

Previous project. For details see page 503, Annual Report for 1963.

Existing project. The existing project provides for: (a) A 47-foot by 600-foot channel about 1.5 miles long across Mobile Bar; (b) a 45-foot by 400-foot channel in Mobile Bay to mouth of Mobile River; (c) a 40-foot channel in Mobile River to highway bridge, varying from 500 to 775 feet wide; (d) a 25-foot channel from highway bridge to and up Chickasaw Creek to a point 400 feet south of mouth of Shell Bayou, widths being 500 feet in Mobile River and 250 feet in Chickasaw Creek; (e) a turning basin 40 feet deep, 2,500 feet long, and 800 to 1,000 feet wide, opposite Alabama State Docks; (f) a turning basin 40 feet deep, 1,000 feet wide, and 1,600 feet long opposite Magazine Point; (g) a 27-foot by 150-foot channel from Mobile Bay Channel along Arlington pier to a turning basin 800 feet long and 600 feet wide opposite Brookley Complex ocean terminal, and continuing thence a turning basin 250 feet wide and 800 feet long in Garrows Bend, thence a 22-foot by 150-foot channel to the causeway linking McDuffie Island to the mainland; (h) a channel serving the Theodore Industrial Park 40 feet deep and 400 feet wide from the main ship channel in Mobile Bay and extending northwesterly for about 5.3 miles to the shore of Mobile Bay, including an anchorage basin near the shoreline, thence a land cut 40 feet deep, 300 feet wide and 1.9 miles long to and including a 42 acre trapezoid turning basin 40 feet deep, and a barge channel 12-by 100-feet, extending 6,500 feet and terminating in a 300- by 300-foot turning basin; and (i) maintenance of Three Mile Creek by snagging, from its intersection with Industrial Canal to Mobile River. The project provides also for an anchorage area 32 feet deep, 100 feet wide, and 200 feet long opposite site formerly occupied by the U.S. Quarantine Station at McDuffie (Sand) Island. Prior to widening the Mobile Bay Channel as authorized in 1954, the Quarantine Station anchorage area was maintained to a project width of 200 feet. Construction by local interests of a solid-fill causeway across Garrows Bend Channel between McDuffie Island and the mainland is also provided for under existing project. Total length of the bay and river channel is about 41.7 miles. Plane of reference is mean low water. Under ordinary conditions mean tidal range at the lower end of the improvement is 1.2 feet and at the upper end 1.5 feet. Extreme tidal range is 3.4 feet at the lower end and 3.6 feet at the upper end.

Further authorization provides for future development to deepen and widen entrance channel over the bar to 57 feet by 700 feet about 7.4 miles long, deepen and widen bay channel to 55 feet by 550 feet about 27.0 miles long, deepen and widen an additional 3.6 miles of bay channel to 55 feet by 650 feet and provide 55 foot deep anchorage area and turning basin in vicinity of Little Sand Island. All dredged material will be placed in an approved disposal area in the Gulf of Mexico. (See Table 10-B for authorizing legislation.)

Local cooperation. A local cooperation agreement was signed by the local sponsor to construct the project for the first increment of work.

Terminal facilities. Modern rail-connected terminal facilities at this port are considered adequate for existing commerce. (See Port Series No. 18, revised in 1979.)

Operations and results during fiscal year.

New work: Engineering and Design $72,756.

Maintenance: Contract dredging at a cost of $17,602,804. Water quality studies, engineering and design and supervision and administration cost $4,850,000.

Condition at end of fiscal year. Phase I of the project modification was completed in June 1990. Current estimated Federal cost is $218,548,000, and non-Federal cost is $178,452,000. Total Federal cost under existing project as of September 30, 2003 is $97,883,024 for new work and $375,464,512 for maintenance, a total of $473,347,536. Contributed funds expended amounted to $19,068,964 for maintenance. New work contributed funds amounts to $202,040.

18. PANAMA CITY HARBOR, FL

Location. The project is located on the northwest coast of Florida, 102 miles east of entrance to Pensacola Harbor. (See Coast and Geodetic Survey Chart 11389.)

Previous project. For details see page 710, Annual Report for 1938.

Existing project. The existing project provides for a channel about 3.5 miles long, extending from deep water in St. Andrew bay through barrier peninsula, known as Lands End, to the Gulf of Mexico, 300 feet wide and 32 feet deep in the bay through Lands End; and 450 feet wide and 34 feet deep in the gulf, protected by east, west jetties, extending 2,075 feet and 2,896 feet respectively; a channel 100 feet wide and 8 feet deep in Grand Lagoon to a point about 2,400 feet east of State Highway 392 Bridge, with branches to serve terminal facilities; and the maintenance of a channel in Watson Bayou, an arm of St. Andrew Bay, 100 feet wide and 10 feet deep from that depth in bay to highway bridge.

Authorized modifications includes branch channels 38 feet deep and 300 feet wide, leading from the inner end of the main entrance channel westward to the Port Authority terminal at Dyers Point and eastward to the Bay Harbor terminal, about 3.4 and 3.6 miles in length, respectively; turning and maneuvering areas comprising about 55 acres opposite Dyers Point, and 42 acres opposite Bay Harbor, both at a depth of 38 feet; and an anchoring and loading basin for LASH type intermodal carriers, 40 feet deep and containing about 177 acres in St. Andrew Bay near the inner end of the main entrance channel. Mean tidal range is about normally 1.3 feet and 3.0 feet extreme. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Available terminal facilities are considered adequate for existing commerce. (See Port Series No. 19.)

Operations and results during fiscal year.

New Work: Engineering, Design and Construction cost $2,039,845.

Maintenance: Miscellaneous costs totaled $990,225.

Condition at end of fiscal year. The existing project (prior to modifications) was completed in November 1949. Repairs to jetties were commenced in June 1961 and completed October 1968. Modifications to the project at Grand Lagoon were completed in January 1972. Total Federal cost under existing project as of September 30, 2003 is $4,366,193 for new work and $14,551,668 for maintenance, a total of $18,917,861. Contributed funds expended for new work amount to $637,819.

19. PASCAGOULA HARBOR, MS

Location. The project is located along lower 6.8 miles of Pascagoula River, the lower six miles of Dog River, and in Bayou Casotte (about four miles east of the mouth of Pascagoula River), and through Mississippi Sound into the Gulf of Mexico, in southeastern Mississippi, about 38 miles west of Mobile, Alabama, and about 100 miles east of New Orleans, Louisiana. (See Coast and Geodetic Survey Chart 11373.)

Previous project. For details see page 741, Annual Report for 1938.

Existing project. The existing project provides for (a) An entrance channel 40 feet deep and 350 feet wide from the Gulf of Mexico through Horn Island Pass, including an impounding area for littoral drift, 40 feet deep, 200 feet wide, and about 1,500 feet long adjacent to the channel at the west end of Petit Bois Island; (b) a channel 38 feet deep and 350 feet wide in Mississippi Sound and Pascagoula River to the railroad bridge at Pascagoula, including a turning basin 2,000 feet long and 950 feet wide (including channel area) on the west side of the river below the railroad bridge; (c) a channel 38 feet deep and 225 feet wide from the ship channel in Mississippi Sound to the mouth of Bayou Casotte, thence 38 feet deep and 300 feet wide for about one mile to a turning basin 38 feet deep, 1,000 feet wide, and 1,750 feet long; (d) a 22-foot deep by 150-foot wide channel up Pascagoula River from the railroad bridge to the mouth of Escatawpa (or Dog) River, then up Escatawpa River to Highway 613 (formerly 63) bridge; (e) a 12-foot by 125-foot channel from the highway bridge; via Robertson and Bounds Lakes, to mile 6 on Escatawpa River; and (f) a 12-foot by 80-foot channel extending from deep water in the Pascagoula River (about one-half mile north of the railroad bridge) to a turning basin in Krebs Lake a distance of about 1,500 feet, then along the south bank of the lake a channel 10-foot by 60-foot and terminating at a second turning basin, a distance of 2,700 feet from the first. Under ordinary conditions mean tidal range is 1.75 feet, and extreme range is 3.75 feet. Plane of reference is mean low water.

Further authorization provides for deepening and widening gulf entrance channel to 44 by 550 feet; widen Horn Island channel to 600 feet, relocating that channel about 500 feet westwardly; deepen Mississippi Sound portion to 42 feet; widen and deepen Bayou Casotte to 42 by 350 feet and construct turning basin. Disposal of all new work material in Gulf of Mexico. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Modern rail-connected terminal facilities at this port are considered adequate for existing commerce. (See Port Series No. 19.)

Operations and results during fiscal year.

New Work: Contract dredging cost $886,413.

Maintenance: Contract dredging at a cost of $1,300,000. Water quality studies, supervision and administration, and miscellaneous costs totaled $238,061.

Condition at end of fiscal year. The existing project was completed in August 1965 and the Krebs Lake project was completed in November 1983. The General Design Memorandum (GDM) was approved in June 1992 for deepening and widening channels. Preconstruction Engineering and Design is complete. The channel dredging contract was awarded in September 1994, and completed November 2001. Total Federal cost of existing project to September 30, 2003 is $37,277,589 for new work and $89,828,450 for maintenance, a total of $127,106,039. Contributed funds expended for maintenance amounted to $8,930,035.

20. PENSACOLA HARBOR, FL

Location. The project is located in a landlocked bay on the coast of northwest Florida about 50 miles east of the entrance to

Mobile Bay. (See Coast and Geodetic Survey Charts 490 and 11382.)

Previous project. For details see Annual Report for 1938.

Existing project. The existing project provides for: (a) A 35-foot by 500-foot entrance channel about five miles long, from the Gulf of Mexico to lower Pensacola Bay; (b) a 33-foot by 300-foot bay channel; (c) two 33-foot by 300-foot parallel approach channels to opposite ends of the inner harbor channel; (d) an inner harbor channel 500 feet wide, 33 feet deep, and 3,950 feet long; (e) a 30-foot by 250-foot approach channel to the pierhead line south of Muscogee wharf; and (f) a 15-foot by 100-foot entrance channel into Bayou Chico, thence a channel 14 feet deep, 75 feet wide, and about 4,400 feet long to a turning basin 14 feet deep and 500 feet square. Mean range of tide throughout the harbor is about 1.1 feet near the entrance and about 1.6 feet at the head of bay. Extreme tidal range, except during storms, is about three feet. Plane of reference is mean low water. Modification of the Bayou Chico project to provide for enlarging the entrance channel to 21 by 100 feet, the bayou channel to 20 feet by 100 feet, and deepening the turning basin to 20 feet has been deferred for restudy. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Modern rail-connected terminal facilities at this port are considered adequate for existing commerce. (See Port Series No. 19, revised in 1979.)

Operations and results during fiscal year.

Maintenance: Channel survey, environmental permits, support activities and miscellaneous costs totaled $93,232.

Condition at end of fiscal year. New work is completed except for features which are deferred for restudy. The modification authorized in 1962 was commenced in March and completed in May 1965. Total Federal cost of the existing project to September 30, 2003 is $1,469,693 for new work and $9,698,335 for maintenance, a total of $11,168,028. Contributed funds for maintenance amount to $312,350.

21. PERDIDO PASS CHANNEL, AL

Location. The project is located about midway between Pensacola, Florida, and Mobile, Alabama. (See Coast and Geodetic Chart 11378.)

Existing project. The existing project provides for a channel 12 feet deep and 150 feet wide for about 1,300 feet from the Gulf of Mexico into the inlet, thence 9 feet deep and 100 feet wide for about 2,200 feet to the highway bridge, where the channel branches into two arms, each having dimensions of 9 by 100 feet, one of which extends about 3,400 feet into Terry Cove and the other about 3,200 feet into the southern arm of Perdido Bay. The project also provides for two jetties spaced 600 feet apart at the seaward end. The east jetty has a low weir section, 1000 feet long to permit passage of littoral drift into a dredged deposition basin 800 feet by 1,200 feet located between the east jetty and the navigation channel. Mean tidal range is 1.1 feet and extreme is 2.8 feet. (See Table 10-B for authorizing legislation.)

Local cooperation. Requirements of local cooperation have been fully complied with to date.

Terminal facilities. Six marinas, numerous timber piers, docks, and several launching ramps are available. These facilities are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Contract dredging and miscellaneous cost $1,937,814.

Condition at end of fiscal year. The existing project was commenced in May 1968 and completed in May 1969. Total Federal cost of the existing project to September 30, 2003 is $629,860 for new work and $13,738,781 for maintenance, a total of $14,368,641. Contributions from local interest amount to $510,000 for new work and $10,325 for maintenance.

22. TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS

Location. The waterway extends from mile 215 in Pickwick pool on the Tennessee River, southerly through northeastern Mississippi and western Alabama, a total of 234 miles, to the confluence of the Black Warrior and Tombigbee Rivers at Demopolis, Alabama.

Previous project. For details see Annual Report for 1953.

Existing project. The existing project provides for a waterway 234 miles long, connecting the Tennessee and Tombigbee Rivers via the East Fork of Tombigbee River and Mackeys and Yellow Creeks and consists of three sections as follows: (1) the river section, a 9-foot by 300-foot channel for 149 miles between Demopolis and Amory, Mississippi; (2) the canal section, 12 feet by 300 feet for 46 miles from Amory to Bay Springs; and (3) the divide section, a 12-foot by 300-foot channel (except in the 27 mile long divide cut in which the bottom width is 280 feet) for 39 miles from Bay Springs through the dividing ridge to the Tennessee River. The total lift of 341 feet is accomplished by 10 locks (See Table 10-B for authorizing legislation.)

Local cooperation. Local interests have made and are maintaining alterations in highways and highway bridges and in sewer, water-supply, and drainage facilities and provide and maintain suitable and adequate river and canal terminals. Officials of the State of Mississippi were notified of these requirements on December 13, 1949, and officials of the State of

Alabama were notified on December 20, 1949. Legislation enabling boards of supervisors of the various counties concerned to enter into agreements with the United States relative to navigation projects was adopted by the State of Mississippi in 1950. A compact between the States of Alabama, Mississippi, Tennessee, Kentucky and Florida has been formed for the purpose of promoting the project. The name of this organization is the Tennessee-Tombigbee Waterway Development Authority.

During its 1962 session the Mississippi Legislature authorized the formation of the Tombigbee River Valley Water Management District. The District was organized in accordance with the enabling legislation and is empowered to fulfill the requirements of local cooperation for the portion of the project in Mississippi. A satisfactory resolution has been furnished. During its 1967 session the Alabama Legislature authorized the formation of a public corporation to be named the Tombigbee Valley Development Authority for the purpose of further development of the Tombigbee River and tributary streams. The organization was formed in accordance with the enabling legislation and in a referendum held December 5, 1967 the voters of Alabama authorized a bond issue not to exceed $10,000,000 of finance participation in this project and the Tombigbee River and Tributaries project. A satisfactory resolution has been furnished.

Terminal facilities. Docks, storage facilities and handling equipment are still being developed along this new waterway. As of September 30,1998, twelve such facilities were operational, while five were under construction, and five more are planned. The operational facilities are handling grain, wood chips, and logs. When all facilities are complete, about half will be publicly owned and operated. Additional ports and terminals must be completed before the waterway can achieve its full potential. (See Table 10-N for existing locks and dams.)

Operations and results during fiscal year.

Maintenance: Total cost for operation and maintenance of the project for FY 2003 amounted to $26,925,000. Recreation attendance for FY 2003 totaled 2,563,132 visits.

Condition at end of fiscal year. Total Federal cost under the existing project as of September 30, 2003 is $1,053,068,645 for new work, and $399,216,495 for maintenance for a total of $1,452,285,140. Construction formally began December 12, 1972 and overall project is essentially complete. The waterway was opened for navigation in January 1985.

22A. TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION PROJECT, AL AND MS

Location. This project is in Alabama and Mississippi at the following locations:

(1) Existing Project Lands - Approximately 72,500 acres of Tennessee-Tombigbee Project Lands have been designated for mitigation purposes. An additional 20,100 acres have also been designated at Coffeeville Lake, Demopolis Lake, Claiborne Lake and Dannelly Lakes in Alabama and at Okatibbee Lake in Mississippi.

(2) Separable Lands - Acquisition and management of 88,000 separable lands in the Mobile-Tensaw Delta, Alabama (not less than 20,000 acres); the Pascagoula, Pearl, and Mississippi Delta Basins in Mississippi (not less than 25,000 acres); and the balance at any location in the two states.

Previous project. None. This project was a new construction start in Fiscal year 1990. It was authorized by Section 601 of the Water Resources Development Act of 1986.

Existing project. The authorized project called for the acquisition of separable lands at the above named locations. The Alabama Department of Conservation and Natural Resources, Mississippi Department of Wildlife Fisheries and Parks, and the U.S. Fish and Wildlife Service (FWS) assisted in the selection of separable lands. The selected lands were purchased from willing sellers at fair market value. Emphasis was placed on forested wetlands, with a minimum of 34,000 acres of bottomland hardwoods being purchased.

Management of Lands, the separable lands and the existing project lands designated for mitigation purposes are being managed for wildlife. The States are primarily responsible for managing these lands in accordance with management plans jointly developed by the States, Corps and the FWS. However, due to operational constraints it is necessary for the Corps to retain management responsibility for some of the existing project lands included in the mitigation program.

Local cooperation. A local cooperation agreement is not required since the cost of this project is a 100% Federal responsibility.

Operations and results during fiscal year. Miscellaneous cost $1,887,973.

Condition at end of fiscal year. Initial funding for the project was received in January 1990. At the end of September 1998, 21,182 acres had been acquired in the Mobile-Tensaw Delta; 13,433 acres in the Pascagoula Basin; 18,542 acres in the Mississippi Delta; 7,655 acres in the Pearl Basin; 14,378 acres in northeast Mississippi; and 12,292 acres in other areas of Alabama. A variety of activities also continued to intensively manage the 92,600 acres of existing project lands included in the Mitigation Program. The total project cost is estimated to be $94,042,000. Total Federal cost of the project as of September 30, 2003 is $92,172,002 for new work. $1,933,068 for environmental efforts, and $3,707,175 for maintenance, a total of $97,812,245.

23. OTHER AUTHORIZED NAVIGATION PROJECTS

(See Table 10-C.)

24. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

(See Table 10-D.)

25. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 10-E.)

26. DEAUTHORIZED PROJECTS

(See Table 10-G.)

27. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

(See Table 10-H.)

28. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645, as amended (Preauthorization). Studies conducted under this authority amounted to $-153,928 in FY 2002. (See Table 10-H.)

29. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

(See Table 10-J.)

30. RECONNAISSANCE AND CONDITION SURVEYS

(See Table 10-K.)

FLOOD CONTROL

31. CEDAR POINT EXTENSION BAY ST. LOUIS, MS

Location. The project is located in the city of Bay St. Louis, Mississippi. It is on St. Louis Bay about 95 miles from Mobile, Alabama, on the east and about 50 miles from New Orleans, Louisiana, on the west.

Existing project. The shoreline erosion project consists of a 4,500 linear-foot concrete/sheetpile wall constructed in front of an existing concrete seawall. Concrete was placed between the new sheetpile walls and the bottom step of the existing concrete seawall.

Operations and results during fiscal year. New work: Miscellaneous cost $24.

Condition at end of fiscal year. Construction was authorized on September 5, 2002, with contract awarded on September 13, 2002. Total Federal cost to date is $605,316 for new work. Contributed funds expended amounted to $56,010 for new work.

32. MATUBBEE CREEK AT COONTAIL ROAD, MS

Location. The project site is located along 500 feet of both banks of Matubbee Creek which runs parallel and adjacent to Coontail Road in rural Monroe County near Aberdeen, Mississippi.

Existing project. The emergency streambank protection project consists of rebuilding and armoring the left descending (southeast) bank of Matubbee Creek with riprap and filter fabric; placement of a riprap-filled toe trench along the left descending bank; grading, grassing, and armoring the adjacent road shoulder; removal and backfill of the failed grout materials along the left descending bank; grading and grassing of both banks and adjacent drainage ditches; and replacing guard rails along the road adjacent to the left descending bank.

Operations and results during fiscal year. New Work: None.

Condition at end of fiscal year. The project was awarded in January 2003. Construction was initiated in May 2003. Total Federal cost to date is $79,090 for new work. Contributed funds expended amounted to $29,313 for new work.

33. WEAVER CREEK at HATLEY ROAD

Location. The project site is located along both banks above and below the Hatley Road Bridge crossing at Weaver Creek in rural Monroe County near Amory, Mississippi.

Existing project. The emergency streambank protection project consists of reconditioning and armoring the endangered slope with riprap and filter fabric; removal and backfill of the failed grout materials at the wingwalls; grading and grassing of banks and adjacent drainage ditches; and replacing adjacent guard rails.

Operations and results during fiscal year. New Work: None.

Condition at end of fiscal year. The project was awarded in January 2003. Construction was initiated in May 2003. Total Federal cost to date is $97,039 for new work. Contributed funds expended amounted to $33,758 for new work.

34. OKATIBBEE LAKE, MS

Location. The project is located on Okatibbee Creek 37.7 miles above its mouth, in Lauderdale County, Mississippi, seven miles northwest of Meridian.

Existing project. The project provides for a dam and reservoir for flood control, water supply, water quality control, fish and wildlife, and recreation. The dam consists of a compacted earth fill 6,540 feet long with the top elevation 369.8 feet above national geodetic datum, with top width of 18 feet. The spillway, which is located 1,500 feet east of the east end of the dam, is an unpaved free overflow type, 1,500 feet long with a fixed crest at elevation 359. A sluice intake structure near the center of the dam serves a 9.0-foot diameter concrete conduit. Storage allocated for water supply and water quality control varies seasonally from 21,400 acre-feet to 34,300 acre-feet between a minimum elevation of 328 and top-of-conservation-pool elevation varying from 339 to 343. Storage varying from 46,500 to 59,500 acre-feet between the top of the conservation pool and elevation 352 has been reserved exclusively for storage of flood waters. (See Table 10-B for authorizing legislation.)

Local cooperation. Complied with to date.

Operations and results during fiscal year.

Maintenance: Costs for the year for ordinary maintenance and recreational management amount to $1,524,287. Recreation attendance at the reservoir during FY 2003 totaled 821,038 visits.

Condition at end of fiscal year. Construction began in June 1965, and was completed in November 1968. Total Federal cost of the existing project as of September 30, 2003 is $1,524,287.

35. TOMBIGBEE RIVER (EAST FORK), MS AND AL

Location. The project is located on the Tombigbee River and its tributaries between the junction of the Browns and Mackeys Creek in Itawamba County, Mississippi, for a distance of 53 miles along the East Fork of the Tombigbee River, from Walkers Bridge at the junction of Browns and Mackeys Creeks to the Monroe County line.

Existing project. Provides for alleviation of floods from the Tombigbee River by clearing and snagging and excavation of 13 cut-off channels, and other related channel improvements. (See Table 10-B for authorizing legislation.)

Local cooperation. Fully complied with on work done under the 1963 Flood Control Act. Work to be done under authority of the 1941 Flood Control Act requires local interest to provide all lands, easements, and rights-of-way for project construction; hold and save the United States free from damages due to construction of the project; and maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.

Operations and results during fiscal year.

Maintenance: Routine maintenance of channels cost $130,767.

Condition at end of fiscal year. The project for Itawamba County, as authorized in the 1936 Flood Control Act, was completed during fiscal year 1940. No work has been done on the extension of the project authorized in the 1941 Flood Control Act. Total Federal cost of the existing project as of September 30, 2003 is $134,801 for new work and $4,601,360 for maintenance, a total of $4,736,161.

36. TOMBIGBEE RIVER TRIBUTARIES, MS AND AL

Location. The Tombigbee River rises in extreme northeast Mississippi and flows southerly through eastern Mississippi and western Alabama, emptying into the Mobile River about 45 miles above its mouth at Mobile, Alabama. Tributaries to be improved for flood control are all in northeast Mississippi and northwest Alabama. Luxapalila Creek project consists of 32 miles of completed channel modifications. Approved estimate of cost for new work is $42,108,000; consisting of $37,743,000 Federal funds, and $4,365,000 non-Federal funds. (See Table 10-B for authorizing legislation.)

Local cooperation. Local interests must furnish lands and rights-of-way for construction; make all roads, highway bridge, and utility changes, alterations, additions, and relocations necessary for the project; hold the United States free from damages; prevent future encroachments along the improved channels; maintain all works after completion, with the exception of Twenty Mile Creek from mile 11.7 to mile 22.0.

Operations and results during fiscal year.

New work: Miscellaneous cost $21,359.

Condition at end of fiscal year. Construction commenced in July 1965. Total project is complete. Total Federal cost of existing project as of September 30, 2003 is $40,027,388 for new work. Contributed funds for new work amounted to $570,113.

37. VILLAGE CREEK, BIRMINGHAM, AL

Location. The project is located in central Alabama, Jefferson County, in the city of Birmingham, Alabama.

Existing project. None. The project is basically non-structural and includes evacuating 642 structures, in six (6) separate neighborhoods, from the floodplain; enlarging 2 miles of the stream channel in the vicinity of the Municipal Airport which also involves modification of three (3) bridges, demolishing two (2) unused bridges, and relocating two (2) waterlines and other utilities, installing three (3) emergency floodwarning devices;

and creating an area of 210 acres which can be utilized for future recreation development. Channel enlargements (2 miles) will reduce annual damages near Municipal Airport by 82 percent and evacuation of 642 structures will reduce annual damages in residential areas by 61 percent. The channel segment is not being constructed at the request of the sponsor.

Local cooperation. The Local Cooperation Agreement with the city of Birmingham, Alabama was executed on December 14, 1988. The local sponsor has also agreed to make all required payments concurrently with the project construction.

Operations and results during fiscal year.

New work: Miscellaneous cost $9,842.

Condition at end of fiscal year. Real Estate acquisition started January 1989. The project is complete with acquisition of 634 tracts. Total Federal cost under existing project to September 30, 2003 is $22,887,742 for new work. Contributed funds for new work amounted to $7,196,238.

38. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (Preauthorization).

Snagging and Clearing for flood control pursuant to Section 208 of Flood Control Act of 1954, as amended.

Emergency streambank and shoreline protection pursuant to Section 14 of the Flood Control Act of 1946, as amended.

(See Table 10-J)

Emergency flood control activities - repair, flood fighting, and rescue work under Public Law 99, 84th Congress, and antecedent legislation, and disaster relief and assistance under Public law 288, 93d Congress. (See Table 10-J)

39. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Local flood protection works for which inspection is performed under this heading consist of levee projects at West Point, Georgia, on the Chattahoochee River; Beaver Creek at Montezuma, Georgia, in the Flint River Basin; Elba and Geneva, Alabama in the Choctawhatchee River Basin; Rome, Georgia, and Little Wills Creek at Collinsville, Alabama, in the Alabama-Coosa River Basin. Channel rectification projects include Little Cove Creek, Glencoe, Alabama and Black Creek, Gadsden, Alabama in the Alabama-Coosa River Basin; Big Brown Creek, Donivan Creek, Twenty Mile Creek and Mantachie Creek, near Fulton, Mississippi, Burketts Creek and Stanifer Creek near Amory, Mississippi, Houlka Creek and Sakatonchee Creek in Chickasaw and Clay Counties, Mississippi, James Creek in Monroe County, Mississippi, and Luxapalila Creek, Lowndes County, Mississippi, all in the Tombigbee River Basin; Sowashee Creek, Meridian, Mississippi in the Pascagoula River Basin; Burnt Corn and Murder Creeks, Brewton, Alabama in the Conecuh River Basin; Autauga Creek, Prattville, Alabama; Poley Bridge, Goose Pond and Walnut Creeks, Clanton, Alabama; Pinchgut Creek, and Cahaba River, Trussville, Alabama; Town Creek, Americus, Georgia; and Lake Douglas in Bainbridge, Georgia. Shore protection and erosion control projects include Harrison County, Mississippi; Chattahoochee River at La Grange, Troup County, Georgia; Pumpkinvine Creek, Emerson, Georgia; and Chickasawbogue Creek, US Highway 43 Bridge, Linden, Alabama. The project at Rome and Montezuma, Georgia and Collinsville, Alabama include pumping stations. Inspections are made annually to determine the extent of compliance with approved regulations for maintenance and operation of the project. Responsible local officials are advised of inadequacies in the maintenance and operation of the local flood protection works under their jurisdiction where appropriate. Followup for compliance of the deficient projects continued during the year. Fiscal year costs were $70,917. Total cost to September 30, 2003 is $928,029 charged to maintenance.

40. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 10-E.) Multiple-Purpose Projects Including Power

Multiple Purpose Power Projects

41. ALLATOONA DAM, COOSA RIVER BASIN, GA

Location. The project is on Etowah River in Bartow County, Georgia, about 48 miles upstream from Rome, Georgia, about five miles due east of Cartersville, Georgia, and about 2,000 feet downstream from mouth of Allatoona Creek. The reservoir extends about 28 miles up the Etowah River at maximum power-pool elevation of 840 feet above mean sea level.

Existing project. The authorized project provides for a dam and reservoir for flood control, regulation of streamflow for navigation, and development of hydroelectric power. Height above the river bottom of the concrete, gravity-type dam is about 190 feet, from elevation 690 feet to 880 feet national geodetic datum. The spillway, with crest at elevation 835, is controlled by

nine tainter gates, 40 feet wide by twenty-six feet high, and two tainter gates, 20 feet wide by twenty-six feet high; having a combined discharge capacity of 321,000 cubic feet per second with the water surface at elevation 870.3. One 48-inch diameter sluicing conduit with a free discharge valve and four sluices, 5 feet-8 inches wide by 10 feet high, are included in dam. Installed generating capacity consists of two 36,000 kilowatt units and one 2,000 kilowatt unit, or a total of 74,000 kilowatts. The reservoir, covering 19,200 acres at elevation 860, has a storage capacity of 670,000 acre-feet. The initial construction cost was $31,424,738, excluding the addition of recreation facilities at the completed project. (See Table 10-B for authorizing legislation.)

Local cooperation. None required. (Sec. 2, Flood Control Act of June 28, 1938, applies).

Operations and results during fiscal year.

Maintenance: Operation and maintenance of the dam, reservoir, powerhouse, service and recreational activities, and administration totaled $6,358,079. Gross power generation amounted to 204,128 megawatt hours during FY 2003. Recreation attendance at Allatoona Lake during FY 2003 totaled 5,942,789 visits.

Condition at end of fiscal year. Construction of the existing project began in March 1944 and was completed in October 1955. Total Federal cost under existing project as of September 30, 2003 is $35,709,085 for new work and $154,872,106 for maintenance, a total of $190,581,191.

42. BUFORD DAM, LAKE SIDNEY LANIER, GA

Location. Buford Dam is on the Chattahoochee River about 348.9 miles above its mouth, 50 miles above Atlanta and five miles northwest of Buford, Georgia. The reservoir, Lake Sidney Lanier, extends about 47 miles upstream along the Chattahoochee River, and about 21 miles up the Chestatee River, which enters the Chattahoochee River 14.5 miles above the dam.

Existing project. The authorized project provides for a rolled-earth dam 1,630 feet long with crest elevation 1,106 feet national geodetic datum, or about 192 feet above streambed elevation; three earth saddle dikes with a total length of 5,406 feet; a chute spillway with crest at elevation 1,085; a powerhouse in a deep cut with steel penstocks in tunnels, and concrete intake structure at the upstream end of the tunnels; and a flood control sluice tunnel paralleling the power tunnels. The Lake Sidney Lanier reservoir has a gross capacity of 2,554,000 acre-feet of which 637,000 acre-feet of storage is reserved for flood control storage. The power installations consist of one generating unit of 6,000 kilowatts and two units of 40,000 kilowatts each, or a total of 86,000 kilowatts. (See Table 10-B for authorizing legislation.)

Local cooperation. None required.

Operations and results during fiscal year.

Maintenance: Operation and maintenance cost $8,595,916. Gross power generation amounted to 58,890 megawatt hours during FY 2003. Recreational attendance at Lake Sidney Lanier during FY 2003 totaled 7,697,482 visits.

Condition at end of fiscal year. Construction commenced in March 1950 and was completed in June 1960. The reservoir was in useful operation for flood control in February 1956. The first power generating unit was placed on the line June 19, 1957; the second on July 26, 1957; and the third on October 10, 1957. Total Federal
cost under existing project as of September 30, 2003 is $53,030,038 for new work, major rehabilitation cost $17,202,324 and $193,621,301 for maintenance, a total of $263,853,663. (See also Table 10-M.)

43. CARTERS DAM AND RESERVOIR, GA

Location. The damsite is in Murray County, Georgia, on the Coosawattee River 26.8 miles above its junction with Conasauga River, one of the headwater tributaries of the Alabama-Coosa system. It is 60 miles north of Atlanta near the town of Oakman, Georgia. The reservoir is in both Murray and Gilmer Counties.

Existing project. The existing project consists of a 1,950-foot long rockfill dam across the river, three saddle dikes on the left bank, a 258-foot long high-level, gated spillway on the left bank, a powerhouse on the right bank having two conventional units with a generating capacity of 125,000 kilowatts each and two pump-generating units of the same size, and a regulating dam 2,855 feet long with a gated spillway 208 feet long 1.5 miles downstream from the main dam. The lake has an area of 3,220 acres, at maximum pool power elevation 1,072, total capacity of 472,800 acre-feet, of which 134,900 acre-feet is usable for power and 95,700 acre-feet reserved for flood control and 242,200 acre-feet dead storage. For other information see description of Alabama-Coosa project.

Operations and results during fiscal year.

Maintenance: Operation and maintenance of the dam, reservoir, powerhouse, service and recreational activities and administration totaled $7,647,372. Gross power generation

amounted to 378,008 megawatt hours during FY 2003. Recreation attendance during FY 2003 totaled 566,310 visits.

Condition at end of fiscal year. Construction which commenced in April 1962 and completed in September 1980. Total Federal cost of the existing project as of September 30, 2003 is $230,075,628, including $111,140,340 for new work and $118,935,288 for maintenance.

44. JIM WOODRUFF LOCK AND DAM, GA AND FL

Location. The project is located on the Apalachicola River 107.6 miles above its mouth, about 1,000 feet below confluence of the Chattahoochee and Flint Rivers, and 1.5 miles northwest of Chattahoochee, Florida. Reservoir extends about 46.5 miles upstream along the Chattahoochee River to the vicinity of Columbia, Alabama, and about 47 miles upstream along Flint River, or 17 miles above Bainbridge, Georgia. (See Geological Survey maps for southwest Georgia.)

Existing project. The existing project provides for a concrete open-crest spillway 1,634 feet long on the right bank, with a crest at elevation 79 feet national geodetic datum; a single-lift lock with usable chamber dimensions of 82 by 450 constituting a portion of the dam; an earth section 506 feet, a maximum lift of 33 feet, and depth over the sills of 14 feet; a gated spillway 766 feet long with the bridge at elevation 107 feet national geodetic datum, or about 67 feet above the streambed elevation; a powerhouse with an intake section constituting a portion of the dam; an earth section 506 feet long to accommodate the switchyard and substation; and an overflow dike section 2,130 feet long on the left bank, with a crest at elevation 85. The underlying foundation is limestone. At the normal pool elevation of 77, the reservoir has a total capacity of 406,160 acre-feet. The power installation consists of three units of 10,000 kilowatts each, or a total of 30,000 kilowatts. (See Table 10-B for authorizing legislation.)

Local cooperation. Required cooperation is being fulfilled. Easements for rights-of-way and spoil-disposal areas were provided as required along the Apalachicola River. Adequate public terminals were constructed by local interests at Bainbridge, Georgia, on the Flint River, and at Columbia, Alabama, on the Chattahoochee River. Facilities are being planned for other localities on the project.

Terminal facilities. A public wharf with concrete deck for handling general cargo, a bulk storage terminal for petroleum, a grain elevator, and private riverside facilities at Bainbridge, Georgia, on the Flint River, are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Operation and maintenance cost $6,447,711. Gross power generation, amounted to 147,119 megawatt hours during FY 2003. Recreational attendance at Lake Seminole during FY 2003 totaled 1,391,000 visits.

Condition at end of fiscal year. Construction of the lock was commenced in 1947, and completed in 1957. The pool was opened to navigation in May 1954, and the pool was raised to project level in January 1957. The first power-generating unit was placed on-the-line on February 1, the second on March 1, and the third April 26, 1957. Total Federal cost under existing project as of September 30, 2003 is $47,978,858 for new work, major rehabilitation cost $29,738,986 and $143,701,462 for maintenance, a total of $221,419,306. (See also Table 10-M.)

45. MILLERS FERRY LOCK AND DAM, AL

Location. The site is in Wilcox County at mile 142.2 on the Alabama River, 10 miles northwest of Camden, Alabama, and 30 miles southwest of Selma.

Existing project. The existing project consists of an earth dike on the right bank, a concrete, gravity-gated spillway in the river channel, a lock and mound on the left bank, an earth dike extending downstream paralleling the lock, to the powerhouse intake structure; a powerhouse, and an earth dike extending to high ground on the left bank. Normal upper pool is at elevation 80. The powerplant contains two 25,000 kilowatt units and one 30,000 kilowatt unit. The 103-mile long reservoir has an area of 17,200 acres at normal pool level and a total capacity of 331,800 acre-feet. The lock chamber is 84 by 600 feet with a 13-foot depth over the miter sills. For other information see description of Alabama-Coosa project.

Operations and results during fiscal year.

Maintenance: Operation and maintenance of lock, dam, powerhouse, reservoir, and administration cost $6,024,428. Gross power generation amounted to 408,070 megawatt hours during FY 2003. Recreation attendance at William "Bill" Dannelly Reservoir during FY 2003 totaled 1,885,695 visits.

Condition at end of fiscal year. Construction began in April 1963. The lock was placed in temporary operations in June 1968 and opened to full use in November 1969. The powerhouse units were placed on line during April and May 1970. The project was completed in 1980. Total Federal cost of the project as of September 30, 2003 is $63,125,300 for new work and $109,801,504 for maintenance, a total of $172,926,804.

46. ROBERT F. HENRY LOCK AND DAM, AL

Location. The site is in Lowndes and Autauga Counties at mile 281.2 on the Alabama River, 26 miles west of Montgomery.

Existing project. The existing project provides for a navigation lock, a gated spillway, and a power plant located at mile 281.2. The normal upper pool is at elevation 125.0 and the minimum lower pool due to the Millers Ferry Lock and Dam is at elevation 80.0. The structures consist of earth dikes and a power plant on the right bank, a gated spillway in the river channel, a lock and mound on the left bank, and an earth dike extending upstream parallel to the Western Railway of Alabama. The total length of the structures is about 14,962 feet with maximum height above the foundation at the power plant intake about 101 feet. The power plant contains four 20,500-kw. units. The 88-mile long reservoir has an area of 12,300 acres at normal pool level and a total capacity of 234,200 acre-feet. The lock has a chamber 84 feet wide and 600 feet long and provides a 12-foot depth over the lower miter sill. For other information see description of Alabama-Coosa project.

Operations and results during fiscal year.

Maintenance: Operation and maintenance costs amounted to $4,820,517. Gross power generation amounted to 417,933 megawatt hours during FY 2003. Recreation attendance during FY 2003 totaled 1,644,067 visits.

Condition at end of fiscal year. Construction began in March 1966 and is complete. The first powerhouse unit was placed in operation in June 1975, with the last unit on line in November 1975. Total Federal cost of the project as of September 30, 2003 is $167,999,338, including $83,360,800 for new work and $84,638,538 for maintenance.

47. WALTER F. GEORGE LOCK AND DAM, AL AND GA

Location. The project is on the Chattahoochee River about 75.2 miles above its mouth and about 1.5 miles above Fort Gaines, Georgia. (See Geological Survey maps for southwest Georgia.)

Existing project. The existing project provides for a concrete dam, gated spillway, and single-lift lock, with earth embankments at either side. The non-overflow section of the dam includes a powerhouse and an intake structure. The gated spillway is 708 feet long with a fixed crest at elevation 163 feet national geodetic datum. The two earth embankments, of almost equal lengths, have a total length of 12,128 feet, with a crest elevation at 215, and a maximum height of about 68 feet. The nonoverflow section of the concrete dam is 200 feet long, with the deck of the powerhouse section at elevation 208. The lock, with usable chamber dimensions of 82 feet by 450 feet, has a lift of 88 feet with the normal upper pool elevation at 190. Depths are 13 feet over the lower sill and 18 feet over the upper sill at normal pool elevation. The underlying foundation is limestone. Total reservoir capacity is 934,400 acre-feet, with 244,000 acre-feet reserved for power. The power installation consists of four units of 32,500 kilowatts each, or a total of 130,000 kilowatts. The project provides for maintenance, including operation and care. (See Table 10-B for authorizing legislation.)

Local cooperation. Local interests must maintain and operate all utility and highway facilities which may be relocated or otherwise altered as part of the improvement, provide suitable public terminal facilities, and hold the United States free from damages. Local agencies and other organizations have indicated their willingness and ability to comply.

Terminal facilities. Public wharves at Eufaula and Phenix City, Alabama, and Columbus, Georgia, are considered adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Operation and maintenance cost for FY 2003 was $7,289,061. Gross power generation amounted to 490,556 megawatt hours, of which 481,944 megawatt hours were delivered to Southeastern Power Administration. Recreational attendance during FY 2003 totaled 4,384,766 visits.

Condition at end of fiscal year. Construction was completed in 1963. The lock was opened to navigation in June 1963. The first power generating unit was placed on-the-line in March, the second in May, the third in September, and the fourth in November 1963. Total Federal cost under existing project as of September 30, 2003 is $88,330,669 for new work, major rehabilitation cost $30,976,527 and $178,274,511 for maintenance, a total cost of $297,581,707. (See also Table 10-M.)

48. WEST POINT LAKE, CHATTAHOOCHEE RIVER BASIN, GA AND AL

Location. The damsite is on the Chattahoochee River 2.8 miles upstream from West Point, Georgia, 201.4 miles above the mouth of the Chattahoochee River, and 309.2 miles above the mouth of the Apalachicola River. At the full power pool elevation of 635 feet above national geodetic datum, the reservoir would lie in Troup and Heard Counties, Georgia, and in

Chambers and Randolph Counties, Alabama (See Geological Survey maps of Georgia and Alabama.)

Existing project. The existing project provides for flood control, power, recreation, fish and wildlife development, and streamflow regulation for downstream navigation. The project provides for a gravity-type concrete dam 896 feet long with earth embankments at either end 1,111 feet long on the east end and 5,243 feet long on the west end. The total length of the dam and spillway is 7,250 feet. The main dam consists of a concrete non-overflow section, 185 feet long on the west side and an earth embankment retaining wall on the east side; a gravity concrete spillway 390 feet long, including piers and abutments, with six tainter gates, each 50 feet by 41 feet. A monolith intake-powerhouse section and erection bay 321 feet long is constructed directly west and adjacent to the spillway. At the full power-pool elevation of 635 the reservoir provides a total storage of 605,000 acre-feet of which 307,000 acre-feet is usable. During the critical flood season the reservoir is operated with maximum power pool elevation at 625 feet to provide flood storage between elevations 625 and 635. The initial power installation of 73,375 kilowatts consisting of units 1, 2 and 3 were placed in operation in March and April, 1975. (See Table 10-B for authorizing legislation.)

Local cooperation. None required.

Operations and results during fiscal year.

Maintenance: Operation and maintenance of the project totaled $7,017,300. Gross power generation amounted to 140,458 megawatt hours during FY 2003, of which 134,350 megawatt hours were delivered to Southeastern Power Administration. Recreational attendance during FY 2003 totaled 2,621,920 visits.

Condition at end of fiscal year. Construction of the project, which was initiated in June 1966, and completed at the end of FY 1984. Total Federal cost under existing project as of September 30, 2003 is $131,565,760 for new work and $127,624,573 for maintenance, a total of $259,190,333 (See also Table 10-M.)

49. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Mobile District monitors flood control operations of Alabama Power Company's Weiss, H. Neely Henry, and Logan Martin Dams on Coosa River, Alabama, and their Lewis Smith Dam on Sipsey Fork (headwaters of Black Warrior River, Alabama), for compliance with regulation plans prepared in accordance with Public Law 436, 83rd Congress, and Federal Power Commission licenses. Fiscal year cost for these activities on the Weiss, H. Neely Henry, and Logan Martin Dams are included under operation and maintenance costs for the Alabama-Coosa Rivers. Fiscal year cost for the Lewis Smith Dam is included under the overall operation and maintenance costs for the Black Warrior-Tombigbee Rivers System.

50. FLOOD CONTROL AND COASTAL EMERGENCIES (FC & CE)

Disaster Preparedness Program	$1,774,121
Emergency Operations	1,987,366
Rehabilitation	-0-
Miscellaneous Reimbursable	2,660,618
Total FC & CE	$6,422,105

51. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

National Preparedness	$27,772
Local Preparedness	-0-
Emergency Facilities	82,160
Training and Exercise	109,615
Other Programs/Activity	29,390
Total NEPP	$248,937

52. REGULATORY FUNCTIONS PROGRAM

Permit Evaluation	$2,698,801
Enforcement	477,914
Studies	-0-
Other Navigational Regulations	7,255
Coastal Mississippi EIS	129,367
Administrative Appeals	15,545
Total Regulatory	$3,328,882

53. PROJECT MODIFICATION TO IMPROVE ENVIRONMENT (Sec. 1135)

Mayo's Bar, Floyd Co., GA	$5,587
Coordination Account Funds	12,112
Gator Lake, Panama City Harbor, FL	20,858
Disposal Area 39, Liberty County, FL	143,126
Coosa River Levees, GA	11,969
Paddlefish Spawning, MS	64
Preliminary Restoration Plan	8,378
Osborne Creek, MS	18,051

Manatchie Creek, MS 13,009
Claiborne Dam Fish Passage, AL 22,791
Lake Seminole-Spring Restoration 3,180
Longwood Cove, GA 343,068
Total Improvement (Sec. 1135, P.L. 99-662) $602,193

54. AQUATIC ECOSYSTEM RESTORATION (SEC. 206)

Big Escambia Creek $386,550
Coordination Account Funds 10,560
Gulf Breeze Wetlands 757
Marvel Slab Removal, AL 24,360
Preliminary Restoration Plans 79,686
Panama City Harbor East Pass 4,461
Butler Creek Detention Pond 207,480
Lake Jackson, FL 76,506
Bell Fountaine Jackson Co., MS 2,697
Deadman's Island, FL 57,581
Allatoona Creek, GA 80,994
Proctor Creek, GA 95,459
Shoal Creek, GA…….. 131,142

Chattahoochee River Dam Removal, GA……..$272,250
Crooked Creek, Gwinnett, GA……..34,579 West Bay Wave Break, FL……69,531 Salt Marsh and Seagrass, FL……49,507 Ginger Creek, GA…….……19,851 Flat Creek……..14,029
Anneewakee Creek Watershed……..12,333
Settingdown Creek Watershed, Forsyth County…….2,723 Flint River Watershed, Clayton County, GA…….595

Total Restoration (Sec. 206, P.L. 104-303)…$1,633,631

55. OTHER AQUATIC HABITAT (SEC. 204)

Coordination Account Funds $10,926
Deer Island Marsh, MS 499,063

Total Other Aquatic (Sec. 204, P.L. 102-560) $509,989

General Investigations

56. SURVEYS

During FY 2003, costs of $1,587,727 were incurred as shown below:

Flood Damage Preventive Studies $110,174
Navigation Studies 200,661
Special Studies 668,406
Shoreline Protection Studies 299,713
Coordination with Other Agencies, and non-Federal Interests 169,219
Miscellaneous Activities 139,554

Total Surveys $1,587,727

57. COLLECTION AND STUDY OF BASIC DATA

Collection and study of basic data continued during the fiscal year with the initiation of Flood Insurance studies, the cost of which was reimbursable by FEMA. In addition, Flood Plain Management Services were performed at a cost of $170,238 and $18,277 expended for Hydrologic Studies. (See Table 10-P for listings of studies completed during FY 2003.)

58. PRECONSTRUCTION ENGINEERING AND DESIGN

Total FY 2003 expenditures for Preconstruction, Engineering and Design (PED) were $2,535.

59. RIVERS AND HARBORS CONTRIBUTED FUNDS (GENERAL INVESTIGATION)

Contributed funds expended for authorized Federal studies included:

Birmingham Watershed, AL $13,210
Brewton & East Brewton, AL 59,694
Dog River Watershead, AL 12,749
Hancock Co., MS 29,323
Metro Atlanta Watershed, GA 312,682
Planning Assistance to States 120,949

Total Contributed Funds $548,607

TABLE 10-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
Navigation							
1.	Alabama-Coosa	New Work:					
	Rivers, AL and GA	Approp.	-	-	-	-	3,245,400
		Cost	-	-	-	-	3,245,400
		Maint.:					
		Approp.	2,532,000	3,856,485	4,582,000	2,611,000	127,787,653[24]
		Cost	2,550,682	3,840,718	4,503,947	2,694,342	127,767,597[24]
1A.	Claiborne Lock and	New Work:					
	Dam, AL	Approp.	-	-	-		27,997,450
		Cost	-	-	-	-	27,997,450
1B.	Coosa River,	New Work:					
	Montgomery to	Approp.	-	-	-	-	14,986,400[23]
	Gadsden, AL	Cost	-	-	-	2,535	14,988,935[23]
2.	Apalachicola Bay,	New Work:					
	FL	Approp.	-	-	-	-	2,033,461[1]
		Cost	-	-	-	-	2,033,461[1]
		Maint.:					
		Approp.	2,255,050	778,450	114,950	323,750	9,791,668[2]
		Cost	2,254,668	780,939	114,532	324,365	9,791,636[2]
3.	Apalachicola,	New Work:					
	Chattahoochee	Approp.	-	-	-	-	4,452,162[26]
	And Flint Rivers,	Cost	-	-	-	-	4,452,162[26]
	AL and GA	Maint.:					
		Approp.	2,986,050	5,342,274	12,906,209	1,871,804	153,337,774[27]
		Cost	2,973,204	5,342,945	8,973,843	5,779,159	153,270,221[27]
3A.	George W. Andrews	New Work:					
	Lock and Dam	Approp.	-	-	-	-	13,038,427[29]
	AL and GA	Cost	-	-	-	-	13,038,427[29]
		Maint.:					
		Approp.	[30]	[30]	[30]	[30]	[30]
		Cost	[30]	[30]	[30]	[30]	[30]
4.	Aquatic Plant	New Work:					
	Control	Approp.	-	-	50,000	-1,100	1,018,087
		Cost	-2,680	11,511	10,563	13,859	970,693
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	21,225
		Cost	-	-	-	-	21,225
5.	Bayou Coden, AL	New Work:					
		Approp.	-	-	-	-	330,701[3]
		Cost	-	-	-	-	330,701[3]
		Maint.:					
		Approp.	4,000	-	378,000	-	2,291,158
		Cost	7,753	-	6,715	370,624	2,289,938
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	100,000
		Cost	-	-	-	-	100,000
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	134,357
		Cost	-	4,000	-2,428	-	131,912
6.	Bayou La Batre, AL	New Work:					
		Approp.	-	-100,000	-115,900	-	5,755,195
		Cost	2,895	645	-36,699	-	5,755,195
		Maint.:					
		Approp.	-2,800	13,201	844,000	36,000	11,699,747
		Cost	-	11,141	840,308	37,762	11,695,720
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-18,882	-	678,618[4]
		Cost	-55,619	-	36,738	-	678,618[4]
7.	Biloxi Harbor, MS	New Work:					
		Approp.	-	-	-	-	1,431,919[5]
		Cost	-	-	-	-	1,431,919[5]
		Maint.:					
		Approp.	12,000	212,278	82,000	2,814,000	18,518,673[6]
		Cost	12,077	163,832	107,279	2,799,065	18,480,513[6]
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	102,600
		Cost	-	-	-	-	102,600
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	238,640
		Cost	-	-	-	-	238,640

TABLE 10-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
8.	Black Warrior &	New Work:					
	Tombigbee Rivers,	Approp.	-	-	-	-	88,461,935[7]
	AL	Cost	-	-	-	-	88,461,935[7]
		Maint.:					
		Approp.	18,853,000	19,631,479	25,972,000	22,953,902	484,369,244[8]
		Cost	18,894,197	19,572,514	22,679,480	24,142,192	482,108,683[8]
		Major Rehab.					
		Approp.	-	-	-	-	52,292,880
		Cost	-	-	-	-	52,292,880
8A.	Oliver Lock & Dam	New Work:					
	(Replacement), AL	Approp.	-	-35,000	-800	-	61,373,200
		Cost	-	-	87	-	61,373,200
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	63,164,125
		Cost	-	-	-	-	63,128,156
9.	Bon Secour River,	New Work:					
	AL	Approp.	-	-	-	-	150,615
		Cost	-	-	-	-	150,615
		Maint.:					
		Approp.	31,000	1,367,000	3,000	-	2,894,758
		Cost	-	25,876	2,739	-	2,891,686
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	9,700
		Cost	-	-	-	-	9,700
10.	Carrabelle Bar	New Work:					
	and Harbor, FL	Approp.	-	-	-	-	481,627
		Cost	-	-	-	-	481,627
		Maint.:					
		Approp.	-	-	-	29,100	1,063,185
		Cost	-	-	60	28,270	1,061,534
11.	Dauphin Island,	New Work:					
	Bay, AL	Approp.	-	-	-	-500	292,364
		Cost	-	-	-	-	292,864
		Maint.:					
		Approp.	1,287,000	184,871	18,000	431,000	4,708,297
		Cost	1,260,526	199,455	18,512	435,064	4,700,918
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	41,422
		Cost	-	-	-	-	41,422
12.	Dog and Fowl	New Work:					
	Rivers, AL	Approp.	-	-	-	-	391,354
		Cost	-	-	-	-	391,354
		Maint.:					
		Approp.	14,800	1,900,358	2,142,000	0	8,047,144
		Cost	12,377	171,229	2,830,712	700,014	7,704,316
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	197,450
		Cost	-	-	-	-	195,626
12A.	Dog River Pilot, AL	New Work:					
		Approp.	350,000	251,000	-	0	601,000
		Cost	185,178	226,084	39,978	6,553	457,793
13.	East Pass Channel	New Work:					
	From Gulf of Mexico	Approp.	-	-	-	-	916,715
	into Choctwhatchee	Cost	-	-	-	-	916,715
	Bay, FL	Maint.:					
		Approp.	-	25,000	888,850	608,225	15,325,536
		Cost	-	25,000	888,908	513,637	15,230,922
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	398,000
		Cost	-	-	-	-	398,000
14.	Fly Creek, AL	New Work:					
		Approp.	-	-	-	-	29,000
		Cost	-	-	-	-	29,000
		Maint.:					
		Approp.	-12,000	20,000	179,000	-33,000	1,120,121
		Cost	-12,041	19,160	145,424	1,231	1,119,835
15.	Gulf Intracoastal	New Work:					
	Waterway between	Approp.	-	-	-	-	6,480,299[9]
	Apalachee Bay, FL	Cost	-	-	-	-	6,480,299[9]
	and Mexican Border	Maint.:					

TABLE 10-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
		Approp.	6,086,500	4,183,770	4,377,995	5,784,250	114,538,391[10]
		Cost	6,079,289	4,198,427	4,348,216	5,801,824	114,518,153[10]
16.	Gulfport Harbor, MS	New Work:					
		Approp.	350,000	168.000	84,000	345,000	25,186,000[11]
		Cost	348,513	93,120	130,245	377,314	25,125,198[11]
		Maint.:					
		Approp.	2,836,501	3.433.624	235,000	6,056,000	68,208,127[12]
		Cost	2,827,812	3,287,730	362,192	6,074,469	68,197,339[12]
	(Contributed Funds)	New Work:					
		Contrib.	-	-856,020	-	197,000	8,835,980
		Cost	-350,575	1,579	-	3,200	8,642,180
17.	Mobile Harbor, AL	New Work:					
		Approp.	365,000	73,000	197,000	85,120	97,896,055[13]
		Cost	644,229	271,489	343,313	72,756	97,883,024[13]
		Maint.:					
		Approp.	15,890,000	21,766,262	26,314,000	22,061,000	375,848,302[14]
		Cost	16,024,982	21,789,241	25,628,125	22,452,804	375,464,512[14]
	(Contributed Funds)	Maint.:					
		Contrib.	209,000	-	-	-10,000	19,132,500
		Cost	175,494	4,737	-	-10,000	19,068,964
		New Work:					
		Contrib.	202,040	-	-	-	202,040
		Cost	202,040	-	-	-	202,040
18.	Panama City Harbor, FL	New Work:					
		Approp.	209,000	216,000	321,000	1,995,000	4,379,045[15]
		Cost	175,494	119,957	392,852	2,039,845	4,366,193[15]
		Maint.:					
		Approp.	8,550	30,992	19,400	993,300	14,554,755[16]
		Cost	8,519	31,014	19,416	990,225	14,551,668[16]
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	1,750,000	1,830,000
		Cost	-	-	-	557,819	637,819
19.	Pascagoula Harbor, MS	New Work:					
		Approp.	1,835,000	5,884,000	1,622,000	552,935	37,279,920[17]
		Cost	14,071,126	5,461,866	1,912,103	886,413	37,277,589[17]
		Maint.:					
		Approp.	9,409,000	4,616,636	5,889,000	1,477,195	89,841,523[18]
		Cost	9,341,198	4,030,111	6,473,267	1,538,061	89,828,450[18]
	(Contributed Funds)	New Work:					
		Contrib.	4,200,000	1,500,000	1,100,000	417,652	11,094,754
		Cost	4,705,000	1,000,000	1,566,352	110,049	10,753,503
	(Contributed Funds)	Maint.:					
		Contrib.	500,000	500,000	613,412	600,000	8,960,296
		Cost	928,022	489,313	556,340	652,604	8,930,035
19A.	Bayou Casotte, MS	New Work:					
		Approp.	-	2,820,000	-791,200	-	2,074,800
		Cost	2,133	2,292,076	-256,665	-	2,074,296
	(Contributed Funds)	New Work:					
		Contrib.	683,000	267,000	-	-	950,000
		Cost	683,000	660,960	62,061	3,549	726,570
20.	Pensacola Harbor, FL	New Work:					
		Approp.	-	-	-	-	1,469,693[19]
		Cost	-	-	-	-	1,469,693[19]
		Maint.:					
		Approp.	135,150	826,899	236,755	35,135	9,703,697[20]
		Cost	134,421	751,583	249,702	93,232	9,698,335[20]
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	312,350
		Cost	14,763	-	-	-	312,350
21.	Perdido Pass Channel, AL	New Work:					
		Approp.	-	-	-	-	629,860
		Cost	-	-	-	-	629,860
		Maint.:					
		Approp.	39,499	97,000	988,000	1,642,000	13,845,616
		Cost	39,399	94,387	588,136	1,937,814	13,738,781

TABLE 10-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	510,000
		Cost	-	-	-	-	510,000
	(Contributed Funds)	Maint.:					
		Contrib.	-	-	-	-	10,325
		Cost	-	-	-	-	10,325
22.	Tennessee-	New Work:					
	Tombigbee	Approp.	-224,500	-56,000	-1,300	-	1,053,070,400[21]
	Waterway,	Cost	2,100	-824	43	-1,755	1,053,068,645[21]
	AL and MS	Maint.:					
		Approp.	21,302,000	23,736,215	28,280,940	24,511,926	402,494,566[22]
		Cost	21,313,425	23,382,135	24,954,726	25,036,502	399,216,495[22]
22A.	Tenn-Tom Wildlife	New Work:					
	Mitigation	Approp.	300,000	-	-180,000	-12,700	92,207,300
		Cost	788,744	404,711	69,477	7,685	92,172,002
	Tenn-Tom Wildlife						
	Mitigation	Maint.:					
		Approp.	-	-	1,870,000	1,848,400	3,718,400
		Cost	-	-	1,829,202	1,877,973	3,707,175
22B.	Tenn-Tom Wildlife	New Work:					
	Environmental	Approp.	2,030,000	100,000	-	-	2,130,000
		Cost	1,516,048	587,722	5,976	-176,678	1,933,068
	Flood Control						
31.	Cedar Point Extension	New Work:					
	Bay St. Louis, MS	Approp.	-	-	-	-700	684,300
		Cost	240	1,175	-	24	605,316
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-590	56,010
		Cost	-	-590	-	-	-
32.	Choctawhatchee and	New Work:					
	Pea Rivers,	Approp.	-28,000	-6,000	-4,800	-	381,000
	AL and FL	Cost	39,156	-9,430	-	37	381,000
	(Contributed Funds)	New Work:					
		Contrib.	-	-6,299	-	-	150,988
		Cost	42,663	9,430	-	-	150,988
32A.	Choctawhatchee and	New Work:					
	Pea Rivers, Elba and	Approp.	-68,000	-24,000	-11,600	-	629,400
	Geneva Levees, AL	Cost	-21,683	-29,704	-	44	629,400
	(Contributed Funds)	New Work:					
		Contrib.	-5,697	6,532	-	-	338,835
		Cost	99,119	29,756	-	-	338,835
33.	Dane Avenue	New Work:					
	Waveland, MS	Approp.	-	710,000	290,000	-	1,000,000
		Cost	-	595,257	404,743	-	1,000,000
	(Contributed Funds)	New Work:					
		Approp.	-	642,300	-	-117,490	524,810
		Cost	-	33,176	491,634	-	524,810
34.	Graveline Bayou East	New Work:					
	Jackson Co., MS	Approp.	78,000	193,900	-4,954	-9,800	257,146
		Cost	32,122	208,339	3,454	13,146	257,062
	(Contributed Funds)	New Work:					
		Approp.	-	104,300	-	-	104,300
		Cost	-	72,332	-	427	72,759
35.	Gulf Breeze Wetlands	New Work:					
	Gulf Breeze, FL	Approp.	-	96,200	-	-6,800	139,400
		Cost	2,610	91,748	10,963	757	139,380
	(Contributed Funds)	New Work:					
		Approp.	-	6,235	-	-	6,235
		Cost	-	-	3,771	2,270	6,041
36.	Gulf of Mexico,	New Work:					
	Highway 193	Approp.	850,000	-	-	-	1,000,000
	Mobile County, AL	Cost	874,309	878	1,383	-	1,000,000
	(Contributed Funds)	New Work:					
		Contrib.	138,321	-	-	-6,250	632,034
		Cost	578,670	54,748	-1,383	-	632,034
37.	Gulfside Seawall	New Work:					
	Waveland, MS	Approp.	656,800	-95,000	4,954	1,749	668,503
		Cost	178,584	410,923	30,479	6,703	666,754

TABLE 10-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY 03	Total Cost to Sept. 30, 2003
	(Contributed Funds)	New Work:					
		Contrib.	374,665	-	-	-37,182	337,483
		Cost	374,665	-	-30,479	-6,703	337,483
38.	Texas Flat Road	New Work:					
	Hancock County, MS	Approp.	65,100	-	-	-4,200	190,900
		Cost	106,842	6,606	7	33	190,900
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-6,064	81,236
		Cost	87,300	-6,057	-7	-	81,236
39.	Okatibbee Dam,	New Work:					
	MS	Approp.	-	-	-	-	9,739,528
		Cost	-	-	-	-	9,739,528
		Maint.:					
		Approp.	1,599,000	1,472,946	1,551,102	1,605,000	32,696,758
		Cost	1,617,976	1,465,772	1,520,122	1,524,287	32,569,465
40.	Tombigbee River	New Work:					
	(East Fork)	Approp.	-	-	-	-	134,801
	MS and AL	Cost	-	-	-	-	134,801
		Maint.:					
		Approp.	146,000	184,677	158,000	126,500	4,601,378
		Cost	133,774	199,739	156,272	130,767	4,601,360
41.	Tombigbee River	New Work:					
	Tributaries,	Approp.	-	50,000	-	5,970	40,032,795
	MS and AL	Cost	589,434	160,622	16,186	21,359	40,027,388
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	872,700
		Cost	3,333	-	-	12,389	570,113
42.	Upper Gordon Creek	New Work:					
	Hattiesburg, MS	Approp.	50,000	11,000	-	5,000	3,916,000
		Cost	47,654	13,245	2,909	-	3,910,761
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	130,720
		Cost	-	-	-	-	130,689
43.	Village Creek,	New Work:					
	Birmingham, AL	Approp.	-	-	-	-	22,894,000
		Cost	-	6,042	6,954	9,842	22,887,742
	(Contributed Funds)	New Work:					
		Contrib.	-	-	-	-	7,199,710
		Cost	-	-	-	-	7,196,238
Multiple Purpose Power Projects							
47.	Allatoona Dam,	New Work:					
	Coosa River Basin,	Approp.	-	-	-	-	35,709,085[25]
	GA	Cost	-	-	-	-	35,709,085[25]
		Maint.:					
		Approp.	6,428,000	6,324,098	7,503,604	5,955,526	156,111,574
		Cost	6,452,321	6,087,439	6,358,079	6,146,865	154,872,106
48.	Buford Dam,	New Work:					
	Lake Sidney	Approp.	-	-	-	-	53,030,038[28]
	Lanier, GA	Cost	-	-	-	-	53,030,038
		Maint.					
		Approp.	7,488,004	8,168,356	9,235,419	7,802,000	194,001,074
		Cost	7,480,371	8,133,746	8,213,189	8,595,916	193,621,301
		Major Rehab.					
		Approp.	1,397,000	4,848,000	4,346,000	4,816,000	17,206,000
		Cost	1,105,050	4,748,741	4,788,268	5,100,860	17,202,324
49.	Carters Dam and	New Work:					
	Reservoir, GA	Approp.	-	-	-	-	111,140,340
		Cost	-	-	-	-	111,140,340
		Maint.:					
		Approp.	7,563,000	11,208,896	9,535,000	8,267,474	120,705,101
		Cost	7,228,225	11,453,387	8,540,318	7,647,371	118,935,288
50.	Jim Woodruff Lock	New Work:					
	and Dam, GA and	Approp.	-	-	-	-	47,978,858[31]
	FL	Cost	-	-	-	-	47,978,858[31]
		Maint.:					
		Approp.	5,559,535	6,653,610	6,143,630	6,759,000	144,193,486
		Cost	5,641,637	6,772,028	6,008,079	6,447,711	143,701,462

TABLE 10-A (continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
		Major Rehab.					
		Approp.	7,346,000	7,279,000	4,457,000	165,220	29,367,220
		Cost	7,639,724	7,522,050	4,665,051	398,175	29,738,986
51.	Millers Ferry Lock and Dam, AL	New Work:					
		Approp.	-	-	-	-	63,125,300
		Cost	-	-	-	-	63,125,300
		Maint.:					
		Approp.	5,532,000	5,890,250	7,466,438	6,069,000	110,059,546
		Cost	5,170,723	6,221,134	7,339,593	6,024,428	109,801,504
52.	Robert F. Henry Lock and Dam, AL	New Work:					
		Approp.	-	-	-	-	83,360,800
		Cost	-	-	-	-	83,360,800
		Maint.:					
		Approp.	5,997,000	4,430,330	5,983,002	4,788,000	84,824,445
		Cost	5,515,036	4,893,132	5,834,553	4,820,517	84,638,538
53.	Walter F. George Lock and Dam, AL and GA	New Work:					
		Approp.	-	-	-	-	88,330,669[32]
		Cost	-	-	-	-	88,330,669[32]
		Maint.:					
		Approp.	7,486,658	6,522,145	6,824,298	6,860,058	179,041,447
		Cost	7,520,468	6,527,715	6,322,634	6,649,173	178,274,511
		Major Rehab.:					
		Approp.	1,756,000	4,265,000	5,637,650	5,130,000	30,978,650
		Cost	724,438	5,156,982	5,455,138	5,696,492	30,976,527
53A	Walter F. George Secant Wall, AL and GA	Major Rehab.:					
		Approp.	743,000	614,000	16,785,000	33,503,078	51,645,078
		Cost	661,563	238,887	16,878,001	33,718,076	51,496,527
54.	West Point Lake, Chattahoochee River Basin, GA and AL	New Work:					
		Approp.	-	-	-	-	131,565,760[33]
		Cost	-	-	-	-	131,565,760[33]
		Maint.:					
		Approp.	6,774,292	8,516,298	6,503,823	7,103,504	128,378,792
		Cost	6,753,889	8,523,232	6,204,334	6,678,683	127,624,573

1. Includes $134,613 for previous projects and $28,500 for DPR on Two-Mile.
2. Includes $168,766 for previous projects.
3. Includes $5,650 for previous projects.
4. Cost for providing spoil dikes for work authorized by 1965 River and Harbor Act.
5. Includes $44,382 for previous projects of which $5,000 was contributed funds.
6. Includes $96,509 for previous projects of which $10,200 was contributed funds.
7. Includes $606,931 for previous projects and $1,243,661 for recreational facilities on completed projects.
8. Includes $50,000 for previous projects.
9. Includes $45,605 for previous projects.
10. Includes $65,137 for previous projects.
11. Includes $269,017 for previous projects.
12. Includes $2,312,297 for previous projects and $442,836 Special O and M Funds.
13. Includes $6,683,104 for previous projects, $14,000 Public Work Funds, and $41,242 Emergency Relief funds.
14. Includes $4,096,681 for previous projects and $494,136 Special O and M funds.
15. Includes $203,560 for previous projects, $581,959 Public Works Funds,
$457,467 rehabilitation of jetties under existing project and $48,001 for Grand Lagoon modification.
16. Includes $513,604 for previous projects.
17. Includes $904,442 for previous projects.
18. Includes $412,624 for previous projects, $124,565 Special O and M funds, and $829,472 Emergency Work Funds.
19. Includes $594,688 for previous projects.
20. Includes $126,649 for previous projects.
21. Includes $1,993,000 transferred to National Park Service; $210,249 GI funds expended during FY 1957 thru FY 1961. Previous project cost amounted to $197,651.
22. Includes $234,331 for previous projects.
23. Includes $3,692,483 for previous projects.
24. Includes $2,978,050 for previous projects.
25. Includes $3,347,489 for recreational facilities.
26. Includes $1,883,193 Federal funds, $1,924 contributed funds for previous projects; and $809,553 for Lazer Creek design and $301,310 for Rysco Channel.
27. Includes $2,246,233 for previous projects.
28. Includes $8,233,325 for recreational facilities.
29. Includes $84,014 for recreational facilities.
30. Included under maintenance for overall Apalachicola, Chattahoochee and Flint Rivers projects.
31. Includes $1,515,822 for recreational facilities.
32. Includes $2,441,029 for recreational facilities.
33. Includes $35,045 for previous project costs.

TABLE 10-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	APALACHICOLA BAY, FL (See Section 2 of Text)	
Mar. 2, 1907	Channel 18 feet deep through West Pass and Link Channels. Ten feet deep across the inner bar, and 9 feet deep through Bulkhead Shoals.	H. Doc. 422, 59th Cong., 1st Sess.
Jan. 21, 1927	Modify project to provide for channel 10 feet deep from mouth of inner bar channel to Gulf via Link and West Pass Channels, and 10-foot depth in Bulkhead Shoals Channel.	H. Doc. 106, 69th Cong., 1st Sess.
Sep. 3, 1954	At Eastpoint, Fl., a channel 6 feet deep, 100 feet wide, and about 6,000 feet long, parallel to shore, with connecting channel 6 feet deep, and 100 feet wide to St. George Sound, and at Apalachicola, Fl., a small-boat basin 200 feet and 9 feet deep, with a connecting channel 9 feet deep and 80 feet wide through Scipio Creek to the Apalachicola River.	H. Doc. 156, 82d Cong., 1st Sess.
Sep. 3, 1954	Modify project to provide for a channel 10 feet deep and 100 feet wide from the 10-foot depth in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing uniformly in width to 200 feet at shore and continuing at this width to the 10-foot depth in the Gulf, with two jetties extending from the dune line on St. George Island to the outer end of channel, and for abandonment of West Pass Channel upon completion of channel through St. George Island.	H. Doc. 557, 82d Cong., 2d Sess.
Jul. 3, 1958	Modify improvement of Apalachicola Bay, Fl., authorized by River and Harbor Act of Sept. 3, 1954 to provide that the Secretary of the Army shall reimburse local interests for such approved work as they may have done based upon the reduction in the amount of material which will have to be removed to provide project dimensions at such time as Federal dredging of the channel is undertaken.	
Nov. 21, 1963[1]	A channel 6 feet deep, 100 feet wide, and about 1 mile long, parallel to shore at Two Mile, Fl., with a 6-by 100-foot connecting channel to water of the same depth in Apalachicola Bay.	DPR (Sec. 107)
Feb. 5, 1975[1]	A channel 6 feet deep and 100 feet wide extending from the eastern end of the existing Two Mile channel and generally paralleling the shoreline for a distance of about 9,000 feet to intersect with the Gulf Intracoastal Waterway about 1,650 feet south of Gorrie Bridge at Apalachicola, and a breakwater built to elevation 4.0 feet above mean low water along the seaward side of the existing channel parallel to the shore at Two Mile. The total length of the breakwater of about 6,150 feet, includes two 860-foot legs paralleling the existing entrance channel.	DPR (Sec. 107)
Aug. 11, 1983[1]	Modify Eastpoint project to include breakwaters with a total length of 5,300 feet.	DPR (Sec. 107)
	AQUATIC PLANT CONTROL (See Section 4 of Text)	
Jul. 3, 1958	Aquatic plant control for N.C., S.C., Ga., Fl., Al., Ms., and La.	H. Doc. 37, 85th Cong., 1st Sess.
Oct. 23, 1962	Research and planning costs to be borne by U.S.	Public Law 87-874, 87th Cong.
Oct. 27, 1965	Provided for continued research.	H. Doc. 251, 89th Cong., 1st Sess.
Nov. 17, 1986	Increased non-federal cost-sharing from 30% to 50%.	Water Resources Development Act of 1986 (P.L. 99-662)
	BAYOU CODEN, AL (See Section 5 of Text)	
Mar. 2, 1945	Channel 4 by 40 feet.	H. Doc. 824, 77th Cong., 2d Sess.
Jun. 2, 1969[1]	Channel 8 by 60 feet to connect with Bayou La Batre channel	DPR (Sec. 107)
	BAYOU LA BATRE, AL (See Section 6 of Text)	
Oct. 27, 1965	A 12- by 100-foot channel from that depth in Mississippi Sound to a point about 2,800 feet south of the highway bridge, thence a channel 12 by 75 feet to the bridge, an overall distance of about 33,500 feet.	H. Doc. 327, 88th Cong., 2d Sess.
Nov. 28, 1990	Deepen existing channel to 18 feet to the bridge; to 14 feet above bridge, and into Snake Bayou at a depth of 12 feet.	Water Resources Development Act of 1990 (P.L. 101-640)
	BILOXI HARBOR, MS (See Section 7 of Text)	
Jul. 3, 1930	Channel 10 feet deep and 150 feet wide from Mississippi Sound west and north of Deer Island to deep water in Back Bay of Biloxi.	H. Doc. 754, 69th Cong., 2d Sess.
Jun. 20, 1938	Relocation of channel.	H. Doc. 639, 75th Cong., 3d Sess.
Mar. 2, 1945	Entrance channel 6 feet deep and 50 feet wide into Old Fort Bayou.	H. Doc. 258, 76th Cong., 1st Sess.
Mar. 2, 1945	Entrance channel 8 feet deep and 100 feet wide through Cranes Neck into Bayou Bernard.	H. Doc. 326, 76th Cong., 1st Sess.
May 17, 1950	Maintain channel 6 feet deep and 40 feet wide from Biloxi Harbor to Ott Bayou.	H. Doc. 256, 81st Cong., 1st Sess.
Jul. 14, 1960	Continuous channel 12 feet deep from Mississippi Sound the Air Force terminal on Bayou Bernard via Back Bay and Cranes Neck.	H. Doc. 271, 86th Cong., 2d Sess.
Nov. 7, 1966	A 23-mile-long through channel 12 feet deep and 150 feet wide from the Gulf Intracoastal Waterway through: Mississippi Sound, Biloxi Bay (east of Deer Island), Back Bay, Big Lake, and via land cut to Gulfport Lake, including a 500 by 2,600-foot turning basin in the lake, thence, a channel 12 by 100 feet from the western end of Gulfport lake for about 2 miles to a 300- by 500-foot turning basin; adoption for maintenance of a 12- by 150-foot spur channel from the main channel in Biloxi Bay, westward about 1 mile to a 400- by 600-foot turning basin opposite Ott Bayou, and	H. Doc. 513, 89th Cong., 2d Sess.

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	abandonment of the existing 6- by 40-foot channel into Ott Bayou; continuation of maintenance of the 12- by 150-foot lateral channel westward about 2.2 miles from the main channel in Biloxi Bay to a point opposite Oak Street; continuation of maintenance of the channel west of Deer Island.	
Mar. 28, 1979[1]	A channel 10 feet deep; 100 feet wide and 300 feet long extending northward from the Biloxi Lateral Channel and, into a rectangular basin approximately 300 feet by 370 feet.	DPR (Sec. 107)
Aug. 15, 1985	A channel 12-feet deep; 130-feet wide and 2,100-feet long, and a 300 by 300 foot turning basin also to a 12-foot depth.	DPR (Sec. 107)
	BLACK WARRIOR AND TOMBIGBEE RIVERS, AL (See Section 8 of Text)	
Jul. 5, 1884	Original appropriation for improving Black Warrior River.	
	Original project for slack-water improvement authorized by Secretary of War, Apr. 19, 1887	Annual Report, 1887, pt. 2, p. 1302.
Mar. 3, 1899	Construction of the first locks between Tuscaloosa and Demopolis.	
Sep. 19, 1890	(Maintenance of the section of Tombigbee River below lock 1 to its mouth (66 miles) included in the existing project.)	
Sep. 19, 1890	Construction of locks and dams, 1, 2, and 3. Merging of the individual project for the Black Warrior and Warrior Rivers and the Tombigbee River below Demopolis	H. Doc. 178, 56th Cong., 2d Sess., and Annual Report, 1901, pt. 3, p. 1858 H. Doc. 165, 57th Cong., 1st Sess., and Annual Report, 1902, p. 1293
Mar. 2, 1907	Construction of locks and dams 14, 15, 16, and 17.	
Mar. 3, 1909	Provides for reconstruction of obsolete structures, modified in plan and location, to provide efficient and economical maintenance and operation.	Public Law 317
Aug. 22, 1911	Lift of lock 17 changed to 63 feet, and construction of locks and dams 18 and 19 eliminated from the project.	H. Doc. 72, 62d Cong., 1st Sess.
	Extension of slack-water improvement on Sanders Ferry on Mulberry Fork and Nichols Shoal on Locust Fork.	
Mar. 2, 1919	Raising of various dams 2 feet and raising the lock walls 2 feet at lock 1 to provide a minimum depth of 8 feet at low water, widening the channel to 150 feet where practicable.	Annual Report, 1918, P. 876
Aug. 30, 1935	For snagging Mobile River from the mouth of Chickasaw Creek to the junction of the Alabama and Tombigbee Rivers.	H. Doc. 728, 71st Cong., 3d Sess,
Aug. 30, 1935	Increase channel dimensions to 9 by 200 feet; construct crest gates at lock and dam 17; add flashboards at all dams; Sunflower Bend Cutoff.	H. Doc. 56, 73d Cong., 1st Sess,, and Rivers and Harbors and Committee Doc. 45 73d Cong.
Aug. 30, 1935	Construction of a lock and dam below Tuscaloosa to replace original locks and dams 10, 11, and 12.	Rivers and Harbors Committee Doc. 26., 74th Cong., 1st Sess.
Jun. 26, 1934	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers harbors.	
Dec. 22, 1944	Recreation facilities.	
Mar. 2, 1945	Construction of a lock and dam near Demopolis to replace existing dams 4, 5, 6, and 7.	H. Doc. 276, 76th Cong., 1st Sess.
Mar. 2, 1945	Provide increased spillway capacity at dam 1.	H. Doc. 382, 76th Cong., 1st Sess.
Jul. 14, 1960	Coffeeville Lock and Dam Wildlife Refuge.	S. Doc. 50, 86th Cong., 1st Sess.
Dec. 21, 1982	Provides for a wider navigation opening at the Franklin Ferry Bridge, Jefferson County, Al.	Public Law 97, 377
Jul. 30, 1983	Authorized to widen, as necessary for safe passage, the navigation opening of Franklin Ferry Bridge, Jefferson County, Al.	Public Law 98-63
Nov. 17, 1986	Conduct a feasibility study of protection from erosion problems on the southern bank from river mile 253 to river mile 255.	Water Resource Development Act of 1986 (P.L. 99-662)
	OLIVER LOCK AND DAM (REPLACEMENT), AL (See Section 8A of Text)	
Aug. 15, 1985	Construction and land acquisition for Oliver Lock Replacement	The Supplemental Appropriations Act, 1985 (P.L. 99-88)
Nov. 17, 1986	Construction of a lock and dam to replace the William Bacon Oliver Lock and Dam.	Water Resources Development Act of 1986 (P.L. 99-662)
	BON SECOUR RIVER, AL (See Section 9 of Text)	
May 16, 1963[1]	A 10- by 100-foot channel from Gulf Intracoastal Waterway through Bon Secour Bay to mouth of Bon Secour River and extending up river to vicinity of Swift's Landing, thence 6 by 80 feet up river to a point 600 feet above Oak Landing, with two turning and maneuvering areas 150 feet wide and 1,100 and 1,200 feet long opposite Swift's Landing and ice loading dock. Overall length of improvement is about 4.7 miles.	DPR (Sec. 107)

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	CARRABELLE HARBOR, FL (See Section 10 of Text)	
Sep. 3, 1954	Entrance channel 27- by 200-foot, harbor channel 25- by 150-foot, turning basin 25- by 100-foot.	H. Doc. 451, 83d Cong., 2d Sess,
	DAUPHIN ISLAND BAY, AL (See Section 11 of Text)	
Mar. 2, 1945	A channel 7 feet deep and 150 feet wide from Mobile Bay to an anchorage basin of same depth, about 7 acres in area, in marsh just north of Fort Gaines on Dauphin Island; a channel 4 feet deep and 40 feet wide from anchorage basin	H. Doc. 333, 76th Cong., 1st Sess.
Sep. 3, 1954	to Dauphin Island Bay; and a jetty and revetment to protect entrance channel; and (b) an anchorage basin 7 feet deep and 500 feet square at Dauphin Island Village, with an entrance channel of like depth, 100 feet wide and about 8,300 feet long, extending to 7-foot hydrographic contour in Mississippi Sound.	H. Doc. 394, 82d Cong., 2d Sess.
Aug. 16, 1991	Deepen existing 4-foot channel to 7-feet and 40-feet wide from anchorage basin to Dauphin Island Bay.	DPR (Sec. 107)
Jun. 23, 1993	Provides 400 feet of stone protection along the shoreline near the pier and erosion protection for shoreline in the immediate vicinity of Fort Gaines.	DPR (Sec. 14)
	DOG AND FOWL RIVERS, AL (See Section 12 of Text)	
May 19, 1969[1]	To provide small craft navigation on west side of Mobile Bay.	DPR (Sec. 107)
	EAST PASS CHANNEL FROM GULF OF MEXICO INTO CHOCTAWHATCHEE BAY, FL (See Section 13 of Text)	
Jul. 3, 1930	Maintenance of 6-foot channel by 100-foot channel from Choctawhatchee Bay into Gulf.	H. Doc. 209, 70th Cong., 1st Sess.
Oct. 24, 1951	Maintenance of 12-foot channel from Choctawhatchee Bay into Gulf, and maintenance of 6-foot channel into Old Pass Lagoon.	H. Doc. 470, 81st Cong., 2d Sess.
Oct. 27, 1965	Construction of twin jetties. (Present project dimensions.)	H. Doc. 194, 88th Cong., 2d Sess.
Oct. 1, 1980	Modifications to provide a channel length of approximately 3,800 feet in lieu of 2,000 feet from the East Pass Channel into Old Pass Lagoon, with no changes in width and depth.	Energy and Water Development Appropriation
	FLY CREEK, FAIRHOPE, AL (See Section 14 of Text)	
May 17, 1950	A channel 6 feet deep, 80 feet wide, and about 1,650 feet long from 6-foot depth in Mobile Bay to a turning basin of same depth, 100 feet wide and 350 feet long, in Fly Creek.	H. Doc. 194, 81st Cong., 1st Sess,
	GULF INTRACOASTAL WATERWAY BETWEEN APALACHEE BAY, FL, AND MEXICAN BORDER (Mobile District) (See Section 15 of Text)	
	APALACHICOLA RIVER TO ST. ANDREW BAY, FL	
Jun. 25, 1910	A channel 5 feet deep at mean low water and 65 feet wide at the bottom.	H. Doc. 670, 61st Cong., 2d Sess.
	A channel 9 feet deep at mean low water and 100 feet wide at the bottom.	Rivers and Harbors Committee Doc. 52.; 72d Cong., 2d Sess.
	CHOCTAWHATCHEE BAY TO WEST BAY, FL	
Aug. 30, 1935	A channel 9 feet deep at mean low water and 100 feet wide at the bottom.	H. Doc. 259, 72d Cong., 1st Sess.
Jun. 25, 1910	A channel 6 feet deep at mean low water, with no reference to width.	H. Doc. 565, 61st Cong., 2d Sess.
	CHOCTAWHATCHEE BAY TO PENSACOLA BAY, FL	
Aug. 30, 1935	A channel 9 feet deep at mean low water and 100 feet wide at the bottom.	Rivers and Harbors Committee Doc. 42, 73d Cong., 2d Sess.
	PENSACOLA BAY, FL, TO MOBILE BAY, AL	
Jul. 3, 1930	A channel 9 feet deep at mean low water and 100 feet wide at the bottom.	H. Doc. 42, 71st Cong., 1st Sess.
	MOBILE BAY, AL, TO NEW ORLEANS, LA	
Jul. 3, 1930	A channel 300 feet wide and 10 feet from the 10 foot contour in Mobile Bay to the 10-foot contour in Mississippi Sound,	Rivers and Harbors Committee Doc. 4, 71st Cong., 1st Sess.
Jul. 3, 1930	A channel 100 feet wide and 9 feet deep from Lake Pontchartrain to Mississippi Sound.	H. Doc. 341, 71st Cong., 2d Sess.
	APALACHEE BAY, FL, TO NEW ORLEANS, LA	
Jul. 23, 1942	A channel 12 feet deep and 125 feet wide at mean low water, except in the section between Mobile, Al., and New Orleans, La, where the width is to be 150 feet.	Public Law 675, 77th Cong., 2d Sess., and H. Doc. 96, 79th Cong., 1st Sess.
Jun. 17, 1943	Conditional acquisition of Gulf County Canal, Fl. And enlargement of the canal to 9 feet deep and 100 feet wide.	H. Doc. 257, 76th Cong., 1st Sess., and P. L.75, 78th Cong., 1st Sess.
Mar. 2, 1945	Construction of a movable span in the Georgia, Florida & Alabama R.R. bridge crossing the Ochlockonee River.	H. Doc. 442, 76th Cong., 1st Sess,
May 17, 1950	Abandonment and closure of original channel between Big Lagoon and Pensacola Bay and construction of a new channel to enter the bay north of original entrance.	H. Doc. 325, 81st Cong., 1st Sess.

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Nov. 7, 1966	Authorized enlargement of Gulf County Canal to 12 by 125 feet.	P. L. 89-789, 89th Cong. 2d Sess.
	GULFPORT HARBOR, MS (See Section 16 of Text)	
Mar. 3, 1899	A channel 19 feet deep and 300 feet wide from the anchorage basin at Ship Island to Gulfport, Ms., and an anchorage basin next to the shore end 19 feet deep and not less than 2,640 feet by 1,320 feet in area.	H. Doc. 120, 55th Cong., 3d Sess.
Mar. 2, 1907	Combined Ship Island Pass with Gulfport Harbor project.	
Feb. 27, 1911	Increased depth to 26 feet and width to 300 feet across Ship Island Bar and depth to 19 feet in channel from anchorage basin at Ship Island to anchorage basin at Gulfport.	H. Doc. 2, 60th Cong., 1st Sess.
Jan. 21, 1927	Authorized relocation of channel across Ship Island Bar.	
Jul. 23, 1930	Increased depth to 27 feet and width to 300 feet across Ship Island Bar, 26 feet deep and 220 feet wide through Ms. Sound and depth of 26 feet in the anchorage basin at Gulfport.	H. Doc. 692, 69th Cong., 2d Sess.
Jun. 30, 1948	Increased depth of 32 feet and width to 30 feet across Ship Island Bar, 30 feet deep and 220 feet wide through Ms. Sound and a depth of 30 feet in the anchorage basin at Gulfport.	H. Doc. 112, 81st Cong., 1st Sess.
Jul. 3, 1958	Maintenance of the existing commercial small-boat harbor and an approach channel 100 feet wide and 4,300 feet long, from deep water in Ms. Sound to the small-boat basin, all at a depth of 8 feet.	S. Doc. 123, 84th Cong., 2d Sess.
Aug. 15, 1985	Modify the existing Ship Channel to 36 x 300 feet in Mississippi Sound, and 38 x 400 feet across the bar, with changes in the channel alignment and the entrance to the anchorage basin for safe and unrestricted navigation.	The Supplemental Appropriations Act, 1985 (P.L. 99-88)
Nov. 17, 1986	Modification of FY 1985 Supplemental Appropriations Act. Dredged material from project shall be disposed of in open water in the Gulf of Mexico in accordance with all provisions of Federal law.	Water Resources Development Act of 1986 (P.L. 99-662)
Nov. 17, 1988	Modify of WRDA of 1986 and authorize disposal of dredged material in open waters of the Gulf of Mexico; and by Thin-layer disposal in Mississippi Sound under a demonstration program.	Water Resources Development Act of 1988 (P.L. 100-676)
	MOBILE HARBOR, AL (See Section 17 of Text)	
Aug. 26, 1937	For improvement of Threemile Creek by snagging from Mobile River to the Industrial Canal.	Rivers and Harbors Committee Doc. 69, 74th Cong., 1st Sess.
Mar. 2, 1945	Adoption of existing channel through Garrows Bend from Choctaw Point in Arlington pier, 27 feet deep and 150 feet wide, with 2 turning basins. Adoption of the existing channel alongside Arlington pier from the of Garrows Bend Channel, 27 feet deep and 150 feet wide. A channel 25 feet deep and generally 500 feet wide in Mobile River from the highway bridge to the mouth of Chickasaw Creek, then 25 feet deep and 250 feet wide in Chickasaw Creek to a point about 400 feet below Shell Bayou.	H. Doc. 739, 79th Cong., 2d Sess,
Sep. 3, 1954	Enlarging Mobile Bay Channel to 42 by 600 feet. Enlarging Mobile Bay Channel to 40 by 400 feet. Deepening Mobile River Channel below highway bridge to 40 feet over present widths, including existing turning basin and anchorage areas. Widening river channel opposite Mazagine Point to provide a 40- by 800- by1,400-foot turning basin. The turning basin was further modified for maintenance by SAD letter of November 27, 1973 under authority contained in ER-1130-2-307 to increase the turning basin's dimensions to 1000' by 1600'.	H. Doc. 74, 83d Congress, 1st Sess.
Sep. 3, 1954	Closure of Garrows Bend Channel by construction and operation of an earth-filled causeway across said channel (work to be done by local interests).	H. Doc. 74, 83d Cong., 2d Sess.
Jul. 26, 1970 (SR) Dec. 15, 1970 (HR)	To provide a channel 40 feet deep and 400 feet wide from the main ship channel in Mobile Bay and extending northwesterly for about 5.3 miles to the shore of Mobile Bay including an anchorage and turning basin near the shoreline, thence a land-cut 40 feet deep, 300 feet wide and about 1.9 miles long to and including a trapezoidal turning basin 40 feet deep and approximately 42 acres, 40 feet deep; a barge channel 12- by 100-feet extending 6500-feet and terminating in a 300-foot by 300-foot terminal basin.	(Under provision of Section 201 of the 1965 Flood Control)
Aug. 15, 1985	Deepen and widen entrance channel over the bar to 57 by 700 feet, a distance of about 7.4 miles, deepen and widen Mobile Bay Channel from mouth of bay to south of Mobile River, 55 by 550 feet, a distance of about 27.0 miles, deepen and widen an additional 4.2 miles of Mobile Bay Channel to 55 by 650 feet, provide 55 foot deep anchorage area and turning basin in vicinity of Little Sand Island, and construct a 1710 acre disposal area adjacent to the Brookley Industrial Complex.	The Supplemental Appropriations Act.
Nov. 17, 1986	Modification of FY 1985 Supplemental Appropriations Act. Dredged material from project shall be disposed of in open water in the Gulf of Mexico in accordance with all provisions of Federal law.	Water Resources Development Act of 1986 (P.L. 99-662)
	PANAMA CITY BEACHES, FL	
Nov. 17, 1986	Shoreline protection to provide a 110-foot wide beach with an artificial dune system and stabilization of vegetation.	Water Resources Development Act of 1986 (P.L. 99-662)
	PANAMA CITY HARBOR, FL (See Section 18 of Text)	
Aug. 30, 1935	Channels 27 and 29 feet deep. Abandonment of project adopted by act of June 25, 1910.	H. Doc. 33, 73d Cong., 1st Sess.
Mar. 2, 1945	Maintenance of a channel in Watson Bayou 100 feet wide and 10 feet deep	H. Doc. 555, 76th Cong., 3d Sess.

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	from that depth in St. Andrew bay to the highway bridge.	
Jun. 30, 1948	Channels 32 and 34 feet deep.	H. Doc. 559, 80th Cong., 2d Sess.
Mar. 23, 1967[1]	A channel 8 by 100 feet in Grand Lagoon from St. Andrew Bay to a point about 2,400 feet east of State Highway 392. Bridge with branches to serve shore facilities which terminate at the bridge.	DPR (Sec. 107)
Jun. 14, 1972	Channels 38, 40, 42 feet deep.	H. Doc. 196, 92d Cong., 2d Sess.
	PASCAGOULA HARBOR, MS (See Section 19 of Text)	
Mar. 4, 1913	Provides for through channel from the Gulf to mile 4 on Dog River 25 by 300 feet through Horn Island Pass, thence 22 by 225 feet across Mississippi Sound and up 150 feet in Pascagoula River above bridge, and up Dog River to mile 4, all subject to financial participation by local interests.	H. Doc. 682, 62d Cong.,
Mar. 4, 1915	Waived requirement for financial participation by local interests.	River and Harbor Committee Doc. 12, 63d Cong., 2d Sess.
May 17, 1950	Cutoff channel, 12 by 125 feet, from State Highway 63 bridge to mile 4 on Dog River, via Robertson and Bounds Lakes.	H. Doc. 188, 81st Cong., 1st Sess.
Sep. 3, 1954	Modification to provide for channel dimensions of 35 by 325 feet through Horn Island Pass, thence 30 by 275 feet across Mississippi Sound and up Pascagoula River to the railroad bridge, and a turning basin just below the bridge.	H. Doc. 98, 96th Cong.,
Jul. 3, 1958	Reimbursement of local interests for work done on Dog River cutoff ($44,000).	
Jul. 14, 1960	Modification to provide for maintenance of 12- by 125-foot channel to mile 6 on Dog River, and maintenance of 30-by 225-foot side channel from main ship channel in Mississippi Sound to the mouth of Bayou Casotte, thence 30 by 300 feet in Bayou Casotte to a turning basin of the same depth 1 mile above the mouth.	H. Doc. 98, 86th Cong., 1st Sess.
Jul. 14, 1967	Deepening the Horn Island Pass channel to 38 feet and deepening the main ship channel in Mississippi Sound, the river channel to the railroad bridge, and the turning basin all to 33 feet.	Chief of Engineers Report dated Nov. 3, 1960.
Oct. 23, 1962	Enlarging Horn Island Pass Channel to 40 by 350 feet provision of an impounding area adjacent to and east of channel 40 feet deep, 200 feet wide, and about 1,500 feet long, enlarging main channel in Mississippi Sound and river channel to railroad bridge to 38 by 350 feet, and deepening turning basin in river and Bayou Casotte channels and basin to 38 feet.	H. Doc. 560, 87th Cong., 2d Sess.
Jul. 11, 1983[1]	Modification to provide for channel dimensions 12 by 80 feet extending about 2,750 feet from deep waters in the Pascagoula River into Krebs Lake to a turning basin, thence, along the south bank of the lake a channel with dimensions of 10 x 60 feet terminating at a second turning basin, a distance of about 2,750 feet. The project was constructed by hydraulic dredging with the disposal placed in an upland diked area.	DPR (Sec. 107)
Nov. 17, 1986	Deepen and widen gulf entrance channel to 44 by 550 feet; widen Horn Island channel to 600 feet, relocating that channel about 500 feet westwardly; deepen Mississippi Sound portion to 42 feet; widen and deepen Bayou Casotte to 42 by 350 feet and construct turning basin. Disposal of all new work material in Gulf of Mexico.	Water Resources Development Act of 1986 (P.L. 99-662)
	PENSACOLA HARBOR, FL (See Section 20 of Text)	
Jun. 13, 1902	A channel 30 feet deep at mean low water and 500 feet wide from the Gulf of Mexico to the dock line at the east end of the city of Pensacola, and also provided that $150,000 may be used in constructing or purchasing a seagoing suction dredge.	
Aug. 30, 1935	Modified the existing project for the present inner channels and the deepening of the entrance channel to 32 feet.	H. Doc. 253, 72d Cong., 1st Sess.
Aug. 26, 1937	Improvements of Bayou Chico.	Rivers and Harbors Committee Doc. 96, 74th Cong., 2d Sess.
Aug. 27, 1962	Maintenance of the entrance channel from the Gulf of Mexico to lower Pensacola Bay, a distance of about 5 miles to dimensions of 35 feet deep and 500 feet wide; maintenance of a channel along the south side of the aircraft carrier mooring basin, a distance of about 2.5 miles, to dimensions of 33 feet deep and 300 feet wide; a bay channel 33 feet deep, 300 feet wide, and about 2.1 miles long; parallel approach channels to opposite ends of the inner-harbor channel, about 1.3 and 1.4 miles in length, each 33 feet deep, 300 feet wide, and flared at the junctions with the inner-harbor channel; and deepening the existing 500-foot wide inner-harbor channel to a depth of 33 feet and lengthening it to 3,950 feet.	H. Doc. 528, 87th Cong., 2d Sess.
	PERDIDO PASS CHANNEL, AL (See Section 21 of Text)	
Oct. 27, 1965	A 12- by 150-foot channel stabilized by twin rubblemount jetties, from the Gulf of Mexico into Perdido Pass, thence 9 by 100 feet into Perdido Bay with a spur channel of the same dimensions into Terry Cove.	H. Doc. 94, 88th Cong., 2d Sess.
	TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS (See Section 22 of Text)	
Jul. 24, 1946	A waterway connecting Tennessee and Tombigbee Rivers via East Fork of Tombigbee River, Mackeys and Yellow Creeks. Plan of improvement consists of three sections: river section, 9- by 300-foot channel for 149 miles between Demopolis and Amory, Ms.;	H. Doc. 486, 79th Cong., 2d Sess.

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	canal section, 12 by 300 feet for 46 miles from Amory to Bay Springs; divide section, 12 by 300 feet (except in the 27 mile-long divide cut in which bottom width be 280 feet) for 39 miles from Bay Springs through dividing ridge to Tennessee. Total lift of 341 feet to be accomplished by 10 locks. Total length of project is 234 miles.	
Nov. 17, 1986	**TENNESSEE-TOMBIGBEE WILDLIFE MITIGATION** (See Section 22A of Text) Acquire from willing sellers in a timely manner at fair market value 88,000 acres of land for mitigation of wildlife losses resulting from construction and operation of the project for the Tennessee-Tombigbee Waterway.	Water Resource Development Act of 1986 (P.L. 99-662)
Sep. 5, 2002	**CEDAR POINT EXTENSION, BAY ST. LOUIS, MS** (See Section 31 of Text) Construction of a 4,500 foot concrete/sheetpile wall in front of existing concrete seawall.	DPR (Sec. 14)
Sep. 11, 1995	**CHOCTAWHATCHEE/PEA RIVERS, AL** (See Section 32 of Text) Install fourteen (14) combination rain and stream gages within Choctawhatchee and Pea River Basins.	DPR (Sec. 205)
Jan. 15, 1998	**CHOCTAWHATCHEE AND PEA RIVERS ELBA AND GENEVA LEVEES, AL** (See Section 32A of Text) Replacing or repairing culverts flap gates, installing sluice gates on inside of levee and clearing underbrush.	DPR (Sec. 205)
May 30, 2001	**DANE AVENUE, WAVELAND, MS** (See Section 33 of Text) Provide a 4,500 linear-foot sheetsteel bulkhead with a concrete cap for Shoreline protection.	DPR (Sec. 14)
Nov. 1, 2000	**GRAVELINE BAYOU EAST, JACKSON CO., MS** (See Section 34 of Text) Provide a 600-foot-long vinyl sheetpile bulkhead with a timber cap for storm damage reduction.	DPR (Sec. 103)
	GULF BREEZE WETLANDS, GULF BREEZE, FL (See Section 35 of Text) Provides for a 200-foot long riprap breakwater to control tidal impacts, and approximately 0.3-acres of productive seagrass beds; 4,000 square feet of emergent salt marsh plants.	DPR (Sec. 206)
Sep. 15, 1999	**GULF OF MEXICO, HWY 193, MOBILE CO., AL** (See Section 36 of Text) Provide a 5,875 vinyl sheetpile/riprap seawall along Highway 193 to prevent erosion and destruction of highway due to wave action from Gulf of Mexico.	DPR (Sec. 14)
Jun. 13, 2000	**GULF SEAWALL, WAVELAND, MS** (See Section 37 of Text) Provide a 3,000 foot long sheetsteel concrete bulkhead to protect South Beach Boulevard from erosion, due to wind driven wave action from Mississippi Sound.	DPR (Sec. 14)
Sep. 24, 1999	**TEXAS FLAT ROAD, KILN, MS** (See Section 38 of Text) Construct a 150-foot revetment, consisting of vinyl sheetpile and riprap, along southeastern slope of the Jourdan River to protect roadway and atrium.	DPR (Sec. 14)
Oct. 23, 1962	**OKATIBBEE LAKE, MS** (See Section 39 of Text) Provides for a dam and reservoir for flood control, water supply, water quality control, and recreation.	H. Doc. 549, 87th Cong., 2d Sess.
Aug. 18, 1941	**TOMBIGBEE RIVER (EAST FORK), MS AND AL** (See Section 40 of Text) Provides for alleviation of floods from the Tombigbee River by clearing, snagging, and excavation of 13 cut-off channels, and other related channel improvements.	Special Report on Record in Oct. (P.L. 222) 77th Cong., 1st Sess.
Jul. 23, 1958 Jul. 8, 1980	**TOMBIGBEE RIVER TRIBUTARIES, MS AND AL** (See Section 41 of Text) Provides for improvement of 22 tributaries of Tombigbee River. Extends project limits on Twenty Mile Creek and eliminates local cooperation for this remedial work.	H. Doc. 167, 84th Cong., 1st Sess. Supplemental Appropriations and Recession Act
Oct. 13, 1988[2]	**UPPER GORDON CREEK, HATTIESBURG, MS** (See Section 42 of Text) Real Estate acquisition of nine (9) residences; habitat mitigation and channel enlargement.	DPR (Sec. 205) 1980 (P.L. 96-304)
	VILLAGE CREEK, JEFFERSON COUNTY, BIRMINGHAM, AL (See Section 43 of Text)	

TABLE 10-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Nov. 17, 1986	Basically nonstructural and includes evacuating 642 structures in six separate neighborhoods from floodplain; enlarge 2 miles of channel and relocate necessary facilities; Install flood warning devices.	Water Resources Development Act of 1986 (P.L. 99-662)
Nov. 28, 1990	Authorized the Secretary to acquire private vacant lands within the definite project boundaries established in the Real Estate Design Memorandum as a nonstructural element of the project.	Water Resources Development Act of 1990 (P.L. 101-640)
	MULTIPLE PURPOSE PROJECTS INCLUDING POWER ALABAMA-COOSA RIVERS, AL AND GA (See Section 1 of Text)	
Mar. 2, 1945	Provides for full development of Alabama-Coosa Rivers and tributaries for navigation, flood control, power, recreation, and other purposes. Authorized construction of Carters Lake, GA, Claiborne Lock and Dam, AL, Jones Bluff Lock and Dam, AL, and Millers Ferry Lock and Dam, AL.	H. Doc. 414, 77th Cong., 1st Sess.
Jun. 28, 1954	Suspended comprehensive plan to permit non-Federal interests to develop Coosa River by constructing series of dams.	Public Law 436, 83rd Cong.
May 25, 1982	Designated change of name from Jones Bluff to Robert F. Henry Lock and Dam.	S.2034 97th Cong., 2d Sess.
Nov. 17, 1986	Modification to the plan for the Coosa River segment of the waterway between Montgomery and Gadsden, AL to carry out planning, engineering and design in accordance with the Montgomery to Gadsden, Coosa River Channel, AL Design Memorandum No. 1, General Design, dated May 1982.	Water Resources Development Act of 1986 (P.L. 99-662)
	ALLATOONA LAKE, COOSA RIVER BASIN, GA (See Section 47 of Text)	
Aug. 18, 1941	Provides for dam and reservoir for flood control, regulation of stream flow for navigation, development of hydroelectric power and recreation.	Public Law 228, 77th Cong., 1st Sess.
Dec. 22, 1944		H. Doc. 674, 76 Cong., 3d Sess.
	APALACHICOLA, CHATTAHOOCHEE AND FLINT RIVERS, AL, GA AND FL (See Section 3 of Text)	
Mar. 2, 1945	Development of Apalachicola, Chattahoochee, and Flint Rivers for navigation, flood control, hydropower, and recreation.	H. Doc. 342, 76th Cong., 1st Sess.
Jul. 24, 1946	Modified general plan for full development of Apalachicola, Chattahoochee, and Flint River System and authorized construction of Lake Sidney Lanier multipurpose reservoir.	H. Doc. 300, 80th Cong., 1st Sess.
Dec. 22, 1944	Authorized recreation facilities.	
Jan. 27, 1981[1]	Modified the existing project to provide for 9- foot deep by 100-foot wide side channel into the Apalachicola River Industrial Park, Blountstown, Fl.	DPR (Sec. 107)
	APALACHICOLA, CHATTAHOOCHEE, AND FLINT	
Nov. 17, 1986	Modified Rivers and Harbors Act of 1945 to restore and maintain access to bendways and interconnecting waterways in the course of routinue maintenance dredging; and to acquire lands for and to construct, operate, and maintain water-related public use and access facilities.	Water Resources Development Act of 1986 (P.L. 99-662)
	LAKE SIDNEY LANIER, GA (See Section 48 of Text)	
Jul. 24, 1944	Provision of recreation facilities.	
	GEORGE W. ANDREWS LOCK AND DAM, AL AND GA (See Section 3A of Text)	
Jul. 24, 1946	Construction of high dam at Walter F. George site and low dam at George W. Andrews site.	H. Doc. 300, 80th Cong., 1st Sess.
Dec. 22, 1944	Provided recreation facilities.	
	JIM WOODRUFF LOCK AND DAM, GA AND FL (See Section 50 of Text)	
Dec. 22, 1944	Provided for recreation facilities.	
	WALTER F. GEORGE LOCK AND DAM, AL AND GA (See Section 53 of Text)	
May 19, 1953	Authorized construction of high dam at Walter F. George site and low dam at Columbia site.	H. Comm. On Public Works
	WEST POINT LAKE, CHATTAHOOCHEE RIVER BASIN, GA AND AL (See Section 54 of Text)	
Oct. 23, 1963	Authorized construction for flood control, power, recreation, fish and wildlife development, and streamflow regulation for downstream navigation.	H. Doc. 570, 87th Cong., 2d Sess.

1. Authorized by Chief of Engineers under Section 107 of 1960 River and Harbor Act, as amended.
2. Authorized by Chief of Engineers under Section 205 of Flood Control Act of 1948, as amended.
3. Authorized by Chief of Engineers under Section 208 of Flood Control Act of 1954, as amended.
4. Authorized by Chief of Engineers under Section 14 of Flood Control Act of 1946, as amended.

TABLE 10-C OTHER AUTHORIZED NAVIGATION PROJECTS

	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation Maintenance
Blackwater River, FL	1981	$41,650	$330,433
Bluff Creek, MS[1]	1963	1,000	6,883
Cadet Bayou, MS	1984	87,921	2,160,377
Cahaba River, AL[2]	1894	45,000	-
Choctawhatchee River, FL and AL	1973	171,885	291,694
Escambia-Conecuh Rivers, AL and FL	1981	208,499	2,321,574
Helicopter Lidar Bathymeter	-	-	14,343,000
Holmes Creek, FL	1931	8,562	36,800
LaGrange Bayou, FL	1972	289,496	209,089
Leaf and Chickasawhay River, MS[2]	1919	23,090	42,676
Mobile Area Digital Mapping, AL	-	-	3,024,348
Noxubee River, MS[1]	1902	47,528	14,472
Ochlockonee (Ochlockney) River, GA and FL[1 2]	1900	5,000	-
Old Town Creek[1 2]	1887	3,000	-
Oostanaula and Coosawattee River, GA[1 2]	1907	32,656	-
Panacea Harbor, FL	1979	122,383	106,446
Pascagoula River, MS	1956	15,000	179,535
Pass Christian Harbor, MS	1976	59,313	823,385
Port St. Joe Harbor, FL	1984	1,960,862	3,509,149
Removing Water Hyacinths	1984	-	1,100,471
Sediment MGT Pilot PGM	-	-	2,029,713
St. Marks River, FL	1965	1,710,809	87,379
Tallapoosa River, AL[2]	1893	43,972	-
Tombigbee River at Columbus Port, MS	1988	500,500	-
Upper Chipola River, FL from Marianna to its' mouth[1 2]	1941	36,781	63,193
Wolf and Jordan Rivers, MS	1979	29,195	701,510

1. Abandonment recommended in H. Doc. 467, 69th Cong.
2. Uncompleted portion of project deauthorized by H. Doc. 96-157, 1st Session.

TABLE 10-D OTHER AUTHORIZED BEACH EROSION CONTROL PROJECT

	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation Maintenance[2]
Harrison County, MS, shore protection[1]	1953	$1,133,000	-
Panama City Beaches, FL	1999	10,125,192	-

1. Completed.
2. Operation and maintenance is the responsibility of local interests.

TABLE 10-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation Maintenance[2]
Alabama River at Montgomery, AL[1]	1965	$144,194	-
Armuchee Creek, GA	1966	115,547	-
Bayview Court, Bay St. Louis, MS	1998	247,400	-
Beaver Creek, Montezuma, GA	1958	149,815	-
Big Brown Creek, Prentiss Co., MS	1987	137,500	-
Biloxi River at Lorraine Road, Harrison County, MS	1985	132,174	-
Black Creek, Gadsden, AL	1953	125,389	-
Black Warrior River, Northport Leveel, AL	2000	4,807,566	-
Black Warrior River, U.S. Hwy. 11 Bridge, Fosters, AL	1986	181,500	-
Boggy Bayou, Valparaiso, FL	1994	147,200	-
Boligee Canal, Boligee, AL	1987	178,600	-
Burketts Creek, Amory, MS	1984	1,366,454	-
Chattahoochee River, Eufaula, AL	1988	206,600	-
Chickasaw Bogue Creek, U.S. Highway 43 Bridge, Linden, AL	1985	121,718	-
Clanton, AL	1964	274,024	-
Collinsville, AL	1940	71,119	-
County Line Road Bridge, Itawamba Co., MS	1992	116,800	-
County Road 55, Etowah Co., AL	1996	242,348	-
Cribbs Mill Creek, Tuscaloosa, AL	1994	1,848,327	-
Dauphin Island Shoreline, AL	1996	352,479	-
East End Dauphin Island, AL	1996	318,580	-
Eslava Creek, Mobile, AL	1997	4,732,721	-
Fort Toulouse, Wetumpka, AL	1994	368,000	-
Gadsden Water Treatment Plant, AL	1996	360,000	-
Goodfood Creek, Chickasaw Co., MS	1988	91,500	-
Gordons Creek, Hattiesburg, MS	1985	802,026	-
Gulf Breeze, Santa Rosa Co., FL	1991	147,432	-
Hancock County Seawall, Hancock Co., MS	1998	307,000	-
Highway 39 Bridge, Gainesville, AL	1990	71,000	-
Hintonville Road Bridge, Perry Co., MS	1991	268,691	-
Houlka Creek, Chickasaw & Clay Counties, MS	1982	238,219	-
Houston School Rd. Bridge, Itawamba Co., MS	1988	59,300	-
Hurricane Creek, Prentiss Co., MS	1992	52,803	-
Interstate 59 Bridges, Fosters, AL	1987	155,200	-
Kings Creek, Tupelo, MS	1998	499,930	-
Lake Douglas, Decatur County, GA	1970	164,998	-
Leaf and Bowie Rivers, Hattiesburg, MS	1990	1,585,000	-
Leaf River, County Road Bridge, Mahned, MS	1986	231,618	-
Little Cove Creek, Glencoe, AL	1991	144,047	-
Magby Creek, Columbus, MS	1991	156,508	-
Martin Creek, Prentiss County, MS	1988	78,500	-
Mill Creek, Dalton, GA	1992	474,065	-
Mill Creek, Sumrall, MS	1994	157,340	-
Mound State Park, Moundville, AL	1994	789,000	-
Murder and Burnt Corn Creeks, Brewton, AL	1980	190,974	-
Murder Creek, Brewton, AL	1994	1,215,000	-
Murder Creek, East Brewton, AL	1986	903,474	-
Noxubee River Relief Bridge, Shuqualak, MS	1988	119,500	-
Old Hwy. 82 Bridge, Columbus, MS	1987	143,936	-
Osborne Creek, Highway 362 Bridge, Prentiss County, MS	1985	250,000	-
Portersville Bay East, Mobile Co., AL	1996	490,750	-
Prattville, Autauga Creek, AL	1946	649,280	-
Proctor Creek, Atlanta, GA	1994	870,000	-
Pumpkinvine Creek, Emerson, GA	1985	85,029	-
Raccoon Creek, Baconton, GA	1994	385,300	-
Rome, Coosa River, GA	1955	384,550	-
Saint Louis Bay, Bay St. Louis, MS	1998	237,400	-
Sewerline Protection, Valley, AL	1989	180,937	-
Silver Creek, Rome, GA	1992	604,719	-
Sope Creek, Marietta, GA	1990	1,538,555	-
Sowashee Creek, Meridian, MS	1998	1,218,036	-
Sun Creek, Okibbeha County, MS	1984	55,569	-
Tallabinella Creek, Chickasaw County, MS	1988	81,000	-
Tallahala Creek, Pascagoula River, MS	1988	3,945,757	-
Tallahalla Creek, Laurel, MS	1996	641,058	-
Three Mile Creek, Mobile, AL	2000	17,384,782	-
Tombigbee River Bridge #6, Monroe Co., MS	1996	331,323	-
Town Creek, Americus, GA	1965	340,409	-
Trim Cane Creek, Okibbeha County, MS	1984	145,519	-
Trussville, AL	1965	141,334	-
Twenty Mile Creek, Airport Road Bridge, Frankstown, MS	1986	215,860	-
West Point, Chattahoochee River, GA	1955	599,637	-
Whorton's Bend Road, Etowah Co., AL	1991	448,956	-
Wolf Creek, Highway 362 Bridge, Prentiss County, MS	1985	114,753	-
Wolf Creek, U.S. Highway 45 Bridge, Prentiss County, MS	1986	154,641	-
Yellow Jacket Creek, Hogansville, GA	1966	330,734	-

1. Engineering, design, supervision, and administration (no construction work has been done. Includes $17,000 for pre-authorization studies.)
2. Operation and maintenance is the responsibility of local interests.

TABLE 10-G DEAUTHORIZED PROJECTS

Project	Type	Year of Last Full Report	Deauthorization Document	Date Deauthorized
Bayou Galere, MS[1]	Navigation	1946	H. Doc. 192, 94th Cong., 1st Sess., as amended.	Aug. 5, 1977
Buttahatchee Creek, MS[2] (Auth. P.L. 96-304)	Flood Control	1989	Public Law 99-662 99th Congress	Jul. 9, 1995
Coosa River Channel, Gadsden, AL to Rome, GA (Auth. 1945 Act)	Navigation	1955	Public Law 99-662 99th Congress	Aug. 18, 1996
GIWW; Apalachicola Bay to St. Marks River, FL	Navigation	1986	Public Law 99-662, 99th Congress	Nov. 17, 1986
Highway 39 Bridge, Gainesville, AL (Appropriation Act, 1986)	Flood Control	1990	Public Law 99-88	Apr.16,2002
Lazer Creek Lake, GA	Hydroelectric power	1986	Public Law 99-662, 99th Congress	Nov. 17, 1986
Little Browns Creek, AL[2] (Auth. P.L. 96-304)	Flood Control	1989	Public Law 99-662 99th Congress	Jul. 9, 1995
Lower Auchumpkee Creek, GA	Hydroelectric power	1986	Public Law 99-662, 99th Congress	Nov. 17, 1986
Montgomery to Gadsden, AL (Auth. 1945 Act)	Navigation		Public Law 99-88	Apr. 16, 2002
Noxubee River, MS[2] (Auth. P.L. 96-304)	Flood Control	1989	Public Law 99-662 99th Congress	Jan. 1, 1990
Pensacola Harbor Modification, FL	Navigation	1986	Public Law 99-662 99th Congress	Nov. 17, 1986
Sipsey River, AL[2] (Auth. P.L. 96-304)	Flood Control	1989	Public Law 99-662 99th Congress	Jan. 1, 1990
Tallahala Creek, MS (Auth. 1945 Act)	Flood Control	2000	Public Law 99-662	Apr. 16, 2002
Tombigbee River, AL & MS[2] (Auth. 1941 Act)	Flood Control	n/a	Public Law 99-662 99th Congress	Jan. 1, 1990
Westfork, MS[2] (Auth. P.L. 96-304)	Flood Control	1989	Public Law 99-662 99th Congress	Jan. 1, 1990

1. H. Doc. 96-157 deauthorized uncompleted portions of certain projects as shown in Table 10-C.
2. Deauthorized tributaries of Tombigbee River improvements.

TABLE 10-H NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Study	Authority	Fiscal year 2003 Costs
Bayou Cadet, Hancock Co., MS	107	10,152
Biloxi Channel, Harrison Co., MS	107	1,193
Ocean Springs Harbor, Jackson County, MS	107	14
Old Pass Lagoon, Destin, FL	107	417
Section 107 Coordination Account	107	10,965
Scipio Creek, Franklin Co., FL	107	7,303
Total		$30,044

TABLE 10-J FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Study	Authority	Fiscal year 2003 Costs
Big Cedar Creek, Cedartown, GA	205	27,588
Black Warrior River, Northport, AL	205	2,406
Jasper, AL	205	32,775
Little Cahaba River, Moody, AL	205	23,480
Mill Creek, Eton, GA	205	2,187
Mixons Creek, Lamar County, MS	205	66,099
Section 205 Coordination Account	205	9,920
Turkey Creek, Jefferson Co., AL	205	19,629
Turkey Creek, Harrison Co., MS	205	116,118
Walton Co., FL	205	16,523
Bouie River, MS	14	74,319
Mattubbee Creek, Monroe Co., MS	14	79,090
Plum Bluff Road, MS	14	37,998
Portersville Bay, West Alabama	14	20,000
Section 14 Coordination Account	14	9,996
Weaver Creek, Monroe Co., MS	14	97,039
Whorton Bend Road, Etowah Co., AL	14	39,490
Total		$674,657

TABLE 10-K RECONNAISSANCE AND CONDITION SURVEYS

Project	Cost During Fiscal Year
Shoals - Airborne Lidar Bathymetry	$2,400,000
Channel Condition Surveys on Florida projects	151,290
Channel Condition Surveys on Alabama & Mississippi projects	152,123
Total	$2,703,413

TABLE 10-L ALABAMA-COOSA RIVERS, AL AND GA DEVELOPMENT PROPOSED UNDER EXISTING PROJECT (See Section 1 of Text)

Proposed Structures	Claiborne Lock and Dam	Millers Ferry Lock and Dam	Robert F. Henry Lock and Dam	Carters Lake Dam[3]	Allatoona Dam
Miles above mouth of river	72.5[1]	133.0[1]	245.4[1]	26.8[2]	47.8[4]
Nearest town	Claiborne, AL	Camden, AL	Benton, AL	Carters, GA	Cartersville, GA
Distance (miles)	7	10	3	2	4
Greatest lock length available for full width (feet)	600	600	600	-	-
Width of lock chamber (feet)	84	84	84	-	-
Maximum lift (feet)	30	48	47	-	-
Elevation of normal pool surface (mean sea level)	35	80	125	1072	840
Depth over sills at low water (feet)	13	Upper 15 Lower 13	Upper 15 Lower 12	-	-
Character of foundation	Rock	Rock	Rock	Rock	Rock
Kind of spillway	Gated and Fixed Crest	Gated	Gated	Gated	Gated
Height of dam (feet)	95.5	99.5	94	451	190
Type of construction	Concrete	Concrete	Concrete	Rock-fill Earth Core	Concrete
Total reservoir capacity (acre-feet)	96,360	331,800	234,200	472,800	670,050
Power development (kw)	-	75,000	68,000	500,000	74,000
Percent complete	100	100	100	100	100
Cost to date:[5]	$27,997,450	$63,125,300	$83,360,800	$111,140,340	$35,709,085

1. Above mouth of Alabama River (river miles).
2. Above mouth of Coosawattee River (river miles).
3. Reregulation dam (Carters) 25.3 (river miles).
4. Above mouth of Etowah River (river miles).
5. Includes cost of added recreation facilities as shown in Table 10A.

TABLE 10-M

APALACHICOLA, CHATTAHOOCHEE, AND FLINT RIVERS, AL, GA, AND FL, LOCKS AND DAMS AND MULTIPLE-PURPOSE DEVELOPMENT INCLUDED IN EXISTING PROJECT (See Section 3 of Text)

	Existing Projects				
	Jim Woodruff Lock and Dam	**George W. Andrews Lock and Dam**	**Walter F. George Lock and Dam**	**West Point Lake**	**Buford Dam Lake Sidney Lanier**
Miles above mouth	107.6[1]	46.5[2]	75.0[2]	201.4[2]	348.3[2]
Nearest town	Chattahoochee, FL	Columbia, AL	Ft. Gaines, GA	West Point, GA	Buford, GA
Distance (miles)	1	1	2	2.8	5
Greatest lock length and available for full width (feet)	450	450	450	-	-
Width of chamber (feet)	82	82	82	-	-
Maximum lift (feet)	33	25	88	-	-
Elevation of normal pool surface (msl)	77	102	190(Summer) 185(Winter)	635(Summer) 625(Winter)	1071(Summer) 1070(Winter)
Depth over sills at low water (feet)	14	13	13	-	-
Character of foundation	Limestone	Limestone	Limestone	Rock	Rock
Kind of spillway	Fixed-gated	Fixed-gated	Gated	Gated	Fixed
Height of dam (feet)	67	72	114	95	192
Type of construction	Concrete and Earth	Concrete	Concrete and Earth	Concrete and Earth	Earth
Total reservoir capacity (acre-feet)	367,300	18,180	934,400	604,500	2,554,000
Power-development (kilowatts)	30,000	-	130,000	73,375	86,000
Percent complete 100	100	100	100	100	100
Year opened to navigation	1954	1962	1963	-	-
Cost to date:[3]	$77,717,844[5]	$13,038,427	$119,307,196[4]	$131,565,760	$70,232,362[6]

1. Above mouth of Apalachicola River (river miles).
2. Above mouth of Chattahoochee River (river miles).
3. Includes cost of added recreational facilities as shown in Table 10-A.
4. Includes $30,976,527 cost of land for wildlife refuge and $10,932,884 for major rehabilitation.
5. Includes $29,738,986 for major rehabilitation.
6. Includes $17,202,324 for major rehabilitation.

TABLE 10-N BLACK WARRIOR AND TOMBIGBEE RIVERS, AL

(See Section 8 of Text)

	Coffeeville Lock and Dam	Demopolis Lock and Dam	Armistead Selden Lock and Dam	William Bacon Oliver Lock & Dam (Replacement)	Holt Lock and Dam	John Hollis Bankhead Lock and Dam[1]
Miles above Mobile[2]	116.7	213.2	261.1	337.7	347.0	365.5
Nearest town (Alabama)	Coffeeville	Demopolis	Eutaw	Tuscaloosa	Tuscaloosa	Tuscaloosa
Distance (miles)	3 (within city)	6	15	(within city)	6	30
Lock:						
Grestest length available for full width (feet)	600	600	600	600	600	600
Width of chamber (feet)	110	110	110	110	110	110
Maximum lift (feet)	34	40	22	28	64	68
Depth over sills at low water (feet)	13.0	13.0	13.2	18.0	13.0	14.0
Character of foundation	Rock	Rock	Sand, clay	Hard shale	Shale, sandstone	Sandstone
Kind of spillway	Fixed-Gated	Fixed	Gated	Fixed	Gated	Gated
Type of construction						
Lock	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete
Dam	Concrete	Concrete	Earth-Concrete	Concrete	Concrete	Concrete
Year completed	1965	1962	1962	1934	1969	1985
Year opened to navigation	1960	1954	1957	1991	1966	1975
Actual cost of lock and dam[3]	$21,597,264	$19,774,583	$13,295,553	$123,822,919	$28,100,000	$52,292,880

1. Single lift lock.
2. Navigation mileage from foot of Government Street, Mobile, Ala.
3. Excludes cost of adding recreation facilities.
4. Scheduled.

TABLE 10-O TENNESSEE-TOMBIGBEE WATERWAY, ALABAMA AND MISSISSIPPI (See Section 21 of Text)

	Existing Projects									
	Gainesville Lock and Dam	**Aliceville Lock and Dam**	**Columbus Lock and Dam**	**Aberdeen Lock and Dam**	**Lock A and Spillway**	**Lock B and Spillway**	**Lock C and Spillway**	**Lock D and Spillway**	**Lock E and Spillway**	**Bay Springs Lock and Dam**
Miles above mouth[1]	266	307	335	358	371	376	39	398	407	412
Nearest town	Gainesville, AL	Aliceville, AL	Columbus, MS	Aberdeen, MS	Amory, MS	Smithville, MS	Fulton, MS	Fulton, MS	Belmont, MS	Tupelo, MS
Greatest lock length available for full width (feet)	600	600	600	600	600	600	600	600	600	600
Width of Chamber (feet)	110	110	110	110	110	110	110	110	110	110
Maximum lift (feet)	36	27	27	27	30	25	25	30	30	84
Elevation of normal pool surface (msl)	109	136	163	190	220	245	270	300	330	(Summer) 414 (Winter) 409
Depth over sills at low water (feet)	15	15	15	15	15	18	18	18	18	18
Character of foundation	Mooreville Chalk	Eutaw Form. Sand & Clay	Eutaw Form. Sand & Clay	Eutaw Form. Sand	Eutaw Form. Lam. Sand	Eutaw Form. Sand & Clay	Gordo Form. Clay	Eutaw Form. Sand	Gordo Form. Clay	Sandstone and Shale
Kind of spillway	Fixed & Gated	Fixed & Gated	Gated	Gated	Gated	Gated	Gated	Gated	Gated	N/A
Height of dam (feet)	56	57	57	57	46	48	53	52	44.5	103
Type of construction	Concrete	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth	Concrete & Earth
Total reservoir capacity (acre-feet)	45,290	655	59,483	31,564	4,400	19,000	13,300	24,900	6,900	(Summer)180,000 (Winter) 143,000
Percent complete	100	100	100	100	100	100	100	100	100	100
Year opened to navigation	1978	1979	1981	1984	1985	1985	1985	1985	1985	1985
Estimated Cost	$103,214,000	151,255,000	182,650,000	128,262,000	102,685,000	96,905,000	71,375,000	98,205,000	88,173,000	147,000,000
Cost to Date	$100,010,600	143,190,800	174,620,500	112,620,200	92,190,500	93,106,700	62,197,000	89,610,800	76,917,700	130,398,000

1. Miles above Mobile, Alabama (Mile 0.00 is at Bankhead Tunnel on U.S. Highway 90).

TABLE 10-P COMPLETED FLOOD INSURANCE STUDIES AND FLOOD HAZARD INFORMATION REPORTS FOR FY 1993 THRU FY 2003[1]

	Requesting Agency	Date Completed	Federal Cost
Flood Insurance Studies			
Fayette County, GA	Federal Emergency Management Agency (FEMA)	Jan 93	264,000
Tupelo, MS	Federal Emergency Management Agency (FEMA)	Jun 94	157,965
Mobile, AL	Federal Emergency Management Agency (FEMA)	Nov 94	254,531
Tuscaloosa, AL	Federal Emergency Management Agency (FEMA)	Jan 97	182,000
Dougherty Co., GA	Federal Emergency Management Agency (FEMA)	Feb 97	244,000
Meridian, MS	Federal Emergency Management Agency (FEMA)	Jan 96	119,000
Special Flood Hazard Information			
Big Wills Creek, AL	Fort Payne, AL	Aug 93	41,800
Dry Creek, AL	Oneonta, AL	Dec 93	25,000
Big Wills Creek, AL	Valley Head, AL	Nov 93	34,800
Coosa River, AL	Wilsonville, AL	May 95	35,000
Choctawhatchee River, FL	Holmes County, FL	Aug 95	3,000
Thompson Creek, MS	Richton, MS	Aug 96	44,000
Black Creek, MS	Forrest Co., MS	Aug 97	35,000
Leaf River, MS	McLain, MS	Sep 97	19,000
Tanyard Creek, AL	Jasper, AL	Oct 96	32,000
Cane Creek & Tribs, AL	Oakman, AL	May 97	45,000
Magby Creek, MS	Lowndes Co., MS	Apr 96	5,700
Coosa River	Wetumpka, AL	Sep 98	24,000
Chickasawhay	Shabuta, MS	Sep 98	62,000
Walnut Creek	Chilton Co., AL	Nov 98	4,000
Big Dry Creek	Floyd Co., GA	May 99	62,000
Noxabee River	Macon, MS	Sep 99	67,000
Spring Creek	Lafayette, GA	Aug 99	7,000
Galbrith Mill Creek	Montgomery, AL	Sep 99	14,000
Okeelala Creek	Baldwyn, MS	Oct 99	53,000
Coosa River	Riverside, AL	Oct 99	5,000
Black Warrior River	City of Northport	June 00	50,000
Graves Creek	Roanoke, AL	Jul 2001	55,000
Perkins Creek	Lamar Co., MS	Sep 2000	63,000
Ryan Creek	Cullman, AL	Jan 2001	59,000
Carteycar River	Gilmer Co., GA	Sep 2001	60,000
Halawakee Creek	Opelika, AL	Feb 2002	56,000
Pascagoula Creek	George Co., MS	Mar 2002	8,000
Bogue Homo Creek	Heidelberg, MS	Aug 2002	58,000

1. For list of reports completed by Mobile District for FY 1965 thru FY 1974, see FY 1974 Annual Report, page 10-50; reports completed in FY 1975 see FY 1975 Annual Report, page 10-44; and for reports completed in FY 1976 and FY 1977, see FY 1977 Annual Report, page 10-46. See page 10-48 FY 1978 Annual Report for FY 1978 reports, and see page 10-43 FY 1984 Annual Report for FY 1978 through FY 1984 reports.

No new SFH studies in FY 2003.

NEW ORLEANS, LA, DISTRICT

District comprises a portion of Louisiana, embraced in drainage basins tributary to Mississippi River and Gulf of Mexico, except Mississippi River above mile 325.5 above Head of Passes (AHP), drainage area of Ouachita-Black River Basin, and small eastern and western portions of Louisiana tributary to Pearl River and Sabine River and Lake. The New Orleans District territory encompasses 30,000 square miles.

It includes sections of the Gulf Intracoastal Waterway from Lake Borgne Light 29 at the mouth of Pearl River to Sabine River, and the Passes of the Mississippi River. It exercises jurisdiction over flood control work on Mississippi River from mile 325.5 AHP to Gulf of Mexico; Atchafalaya River; and in Atchafalaya Basin; and maintenance of project navigation channel of Mississippi River below mile 325.5 AHP, under supervision of President, Mississippi River Commission (MRC), and Division Engineer, Mississippi Valley Division.

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1. INNER HARBOR NAVIGATION CANAL LOCK, LA

Location. The project is located within the city of New Orleans, Louisiana. It is a deep and shallow draft canal extending northward from the Mississippi River to Lake Pontchartrain.

Existing project. The existing Inner Harbor Navigation Canal Lock, built in 1920 by the Port of New Orleans, has dimensions of 31.5 feet deep, 75 feet wide, and 640 feet long (usable length). It passes barge traffic between the Mississippi River and the Gulf Intracoastal Waterway and is a vital link in the nation's Inland Waterway System. Delays to the navigation traffic average about 11 hours, with 24-36 hour delays common. The average yearly tonnage through the lock is about 20 million tons, 2/3 of which is coal, petroleum products, and crude petroleum. Other major commodities include metallic ores, industrial chemicals and non-metallic minerals. Two major vehicular roadway bridges (Claiborne and St. Claude Avenues) and one railroad/roadway bridge (Florida Avenue) cross the canal in the vicinity of the existing lock. The Corps of Engineers bought the lock from the Port of New Orleans in 1985.

Local cooperation. The cost sharing for the replacement lock is specified in the Water Resources Development Act of 1986. The costs of the new lock were apportioned between general cargo navigation and inland navigation. Costs assigned to inland navigation are shared 50 percent from the Inland Waterway Trust Fund and 50 percent from regular Corps of Engineer's appropriations. Those costs assigned to general cargo navigation, will be cost shared 65 percent Federal and 35 percent non-Federal, with the Port of New Orleans, who signed a non-Federal Project Cooperation Agreement (PCA) in Sep. 2001. The Recommended Plan is 40 feet deep by 110 feet wide by 1200 feet long (usable length) and is estimated to cost $635,000,000.

Terminal facilities. Two container ship berths and one other ship wharf are located on the canal in the vicinity of the existing lock.

Operations and results during the fiscal year. Detailed engineering and design for the replacement lock and Community Impact Mitigation Plan has continued. The TERC contract work continued in FY 03.

Condition as of Sep 30. Initiation of construction was authorized in the FY 99 Appropriations Act. Demolition of existing facilities on both banks of the canal between Claiborne Ave. and Florida Ave. began in FY 01 and continued through FY 03.

2. MISSISSIPPI RIVER-GULF OUTLET, LA

Location. In State of Louisiana and the territorial waters of the United States and extends from existing Inner Harbor Navigation Canal at a point 7,500 feet north of existing IHNC lock and about 11,000 feet from Mississippi River, to a turning basin south of Michoud, LA, and then as a land and water cut from turning basin south of Michoud, LA, southeasterly to and along south shore of Lake Borgne and through marshes to and through Chandeleur Sound to 38-foot contour in Gulf of Mexico. (Refer to NOAA Coast Charts Nos. 11340, 11360, 11363, 11369, 11371, and 11373. Also see MRC 1989 (57th edition) folio of maps, Mississippi River-Cairo, IL, to Gulf of Mexico, LA.)

Existing project. Provides for a seaway canal, 36 by 500 feet, extending 76 miles as a land and water cut from Michoud southeasterly to and along south shore of Lake Borgne, and across Chandeleur Sound to Chandeleur Island and increasing gradually to 38 by 600 feet in Gulf of Mexico, with protective jetties at entrance, a permanent retention dike through Chandeleur Sound, and a wing dike along islands as required. It also provides for an inner tidewater harbor consisting of 1,000- by 2,000-foot turning basin 36 feet deep at landward end of seaway canal, and a connecting channel 36 by 500 feet wide extending easterly along Gulf Intracoastal Waterway from turning basin, including construction of a suitable highway bridge with approaches to carry Louisiana State Highway 47 (formerly 61) over channel. Plan further provides for future construction of a channel and lock in the vicinity of the existing lock to furnish an additional connection between tidewater harbor and Mississippi River. (See "Inner Harbor Navigation Canal Lock, LA" for more details).

Reevaluation studies to determine the economic feasibility of continuing to maintain the 36-foot depth in the channel were initiated in FY 99, all at Federal expense. Concerns about increased maintenance dredging costs and ecosystem deterioration prompted the study.

Local cooperation. Requirements of local cooperation are fully described on page 11-4 of FY 1986 Annual Report.

Terminal facilities. A public facility on the waterway is the Public Bulk Terminal of New Orleans constructed by Board of Commissioners, Port of New Orleans, on left descending bank at Mile 63. Two

container ship berths are in operation at the Industrial Canal end of the seaway.

Operations and results during fiscal year. Three dredging contracts for removal of material from the channel at a cost of $17,000,000 were awarded in FY 03.

Condition as of Sep. 30. Construction was initiated March 1958. The channel unit is 90 percent complete and the shiplock unit is 0 percent complete. The total project is 75 percent complete. The channel was opened to navigation Jul. 25, 1963, and completed Jan. 20, 1968. Paris Road Bridge was opened to traffic Jul. 21, and completed Nov. 14, 1967. The foreshore protection, south bank, Chalmette Area, Station 367+00 to Station 1007+00 is complete.

3. MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA

Location. The project is located in the southeastern portion of Louisiana below Baton Rouge, and consists of the Mississippi River and its major outlet to the Gulf of Mexico, Southwest Pass.

Existing project. Provides more efficient deep-draft navigation access to the New Orleans and Baton Rouge reaches of the Mississippi River via Southwest Pass by enlarging the existing channel to a project depth of 55 feet and enlarging the adjacent channel along the left descending bank in New Orleans Harbor to a 40-foot depth, a turning basin at Baton Rouge, and training works in the passes to reduce maintenance.

Estimated cost of existing project (Oct. 1, 2002) is $189,800,000 Federal and $475,000,000 non-Federal. In addition, the Coast Guard is to provide navigation aids at an estimated cost of $1,200,000.

Local cooperation. Requirements are described in full on pages 11-2 and 11-3 of the FY 92 Annual Report.

A third supplement to the LCA addressing the Permanent Saltwater Intrusion Mitigation Plan was executed on May 28, 1993.

A Project Cooperation Agreement (PCA) between the Government and the State of Louisiana was executed on Sep. 3, 1993 which provides for the dredging of a 45-foot channel from Mile 181 AHP to Baton Rouge.

Operations and results during fiscal year. Construction is underway on the permanent mitigation plan. The permanent mitigation plan consists of the Government constructing an underwater sill, when needed, at Mile 64 AHP to prevent the intrusion of saltwater into water supplies of the metropolitan New Orleans area. The plan also provides for upgrading the Plaquemines Parish water distribution system to provide fresh water to water treatment plants impacted by increased saltwater intrusion caused by the deeper channel. A supplemental LCA for this work was executed on May 28, 1993. The underwater sill was constructed during FY 99 due to extremely low flows in the river which allowed salt water to threaten up river water supplies. The sill was successful in preventing impacts to these facilities.

We have initiated work on the General Design Memorandum for the remaining authorized features of the project. This includes the deepening of the Mississippi River to 55 feet from the Gulf of Mexico to Baton Rouge.

Condition as of Sep. 30. The 45-foot channel is completed from the Gulf to Baton Rouge. Construction of the permanent mitigation plan is underway. Work on the General Design Memorandum for the remaining authorized features continues.

4. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 86-645, as amended (preauthorization).

Preauthorization studies costs for FY 02 were Section 107 Coordination, $10,000, Port Fourchon Extension for $19,507, Short Cut Canal for $18,978 and Cameron Oil Port for $27,218.

Flood Control

5. AMITE RIVER AND TRIBUTARIES, LOUISIANA, EAST ROUGE PARISH WATERSHED

Location. In East Baton Rouge Parish, LA, consisting of the following five watersheds in the metropolitan Baton Rouge area: Jones Creek, Ward Creek, Bayou Fountain, Beaver Bayou, and Blackwater Bayou.

Existing project. The project will provide protection to residents of the metropolitan Baton Rouge area by reducing stages in the five waterways through clearing and snagging, earthen channel improvement and concrete lining of the waterways. The authorized project consists of modifying approximately sixty-six (66) total miles of channel. This involves approximately

twenty-five (25) miles of minimal channel clearing and snagging, twenty-four (24) miles of earthen channel enlargement, and seventeen (17) miles of channel concrete lining. Included in the proposed construction are sixty (60) miles of stream bank aesthetic tree planting. Fish and wildlife mitigation feature consist of the reforestation of 397 acres of cleared land to compensate for an estimated 280 acres of bottomland hardwoods that would be lost to project construction. The authorized channel modifications for Beaver Bayou, Ward Creek, and Bayou Fountain are designed to have a ten percent chance of being out of bank in any one year. Blackwater Bayou and Jones Creek channel modification are designed to have a four percent and two percent chance, respectively, of being out of bank in any one year. The proposed project would reduce the extent of the Federal Emergency Management regulatory flood plain throughout the area. The estimated first costs at the October 2002 price levels is $167,705,000 ($108,408,000 – Federal, $59,297,000 – non-Federal).

Local cooperation. The cost sharing provisions contained in the Water Resources Development Act of 1999 require that local interests shall provide cost sharing in accordance with the Chief of Engineers report dated December 23, 1996. The project requires that the local sponsor provide all land, easements, rights-of-way, relocations, and disposal areas (LERRD's) needed for project construction. In lieu of a portion of the cash contribution, the sponsor will perform work-in-kind, including design, construction and management of the proposed channel modifications for the Bayou Fountain Watershed, and perform all necessary clearing and snagging for channel modification on Beaver Bayou, Blackwater Bayou, Weiner Creek and Dawson Creek. Cost sharing for the flood damage reduction features is in accord with the cost sharing specified by the Water Resources Development Act of 1986 (WRDA 1986), as amended by Section 202(a) and 202(c) of the Water Resources Development Act of 1996 (WRDA), and the Consolidated Resolutions Appropriation 2003.

Condition as of Sep. 30. A Post Authorization Change has been submitted for HQUSACE review. Once the PAC has been approved, a supplemental Chief's report is anticipated that would increase the work-in-kind provisions.

6. COMITE RIVER (DIVERSION), LA

Location. In East Baton Rouge Parish, LA, between the Comite River and the Profit Island Chute of the Mississippi River, north of the town of Baker, LA, and south of the town of Zachary, LA.

Existing project. The project will provide protection for residents of the Comite River Basin by reducing stages in the river below the diversion point for events up to the 100-year flood event,and containing within banks events up to the 10-year flood event. The authorized project consists of construction of an eight-mile diversion channel from the Comite River to an outfall into Lilly Bayou, and then a four-mile diversion along Lilly and Cooper Bayous to the Profit Island Chute of the Mississippi River. The project also includes a diversion structure in the new channel near the diversion point, and an outfall structure near and at the outfall into Lilly Bayou, and four control structures at the intersections of Whites, Cypress and Baton Rouge Bayous, the fourth near McHugh Road. Disposal areas will be constructed along both banks of the new channel to retain the flood waters from the Comite River along both side of the new channel, and clearing and snagging of White, Cypress and Baton Rouge Bayous north of the diversion channel will also be done. Mitigation for the project includes the planting of trees on cleared land near the diversion point and on portions of the disposal area, the protection and management of existing forested lands near the diversion point. Upgrading two gauging stations and installing six new gauging stations to assist in flood prediction is also included in the project. The current approved cost of the project is $163,000,000, including $115,000,000 Federal cost and $48,000,000 non-Federal cost. The Water Resources Development Act of 1999 authorized the Secretary to include the costs of highway relocations to be cost shared as project construction features.

Local cooperation. The cost sharing provisions contained in the Water Resources Development Act of 1986 require that local interests shall: (a) Provide to the Federal Government all lands, easements, rights-of-way, and dredged material disposal areas, and perform the necessary relocations required for construction, operation, and maintenance of the project (Current estimate is $39,610,000); and (b) Provide to the Federal Government a cash contribution equal to 5 percent of the total cost of the project, excluding cultural resources (Current estimate is $8,390,000). The total cost of items (a) and (b) mentioned above is limited to 50 percent of the total cost of the project.

Operations and results during the fiscal year. In FY 03, efforts continued with pre-construction, engineering and design and the award of the Lilly Bayou Control Structure.

Condition as of Sep. 30. Construction for the Lilly Bayou Control Structure, Phase 1, was initiated in

FY 03, as well as continuing right-of-way acquisition and E&D of other project features.

7. GRAND ISLE AND VICINITY, LA

Location. In south Jefferson Parish, LA, along the Gulf of Mexico, about 50 miles south of New Orleans and 45 miles northwest of Southwest Pass (Mississippi River).

Existing project. The project provides protection from waves driven by hurricanes that have a frequency of recurrence of up to once in every 50 years. The plan consists of a berm and vegetated dune extending the length of Grand Isle's gulf shore and a jetty to stabilize the western end of the island at Caminada Pass. The dune has a 10-foot-wide crown at an elevation of 11.5 feet NGVD, 1 on 5 side slopes, and protective vegetation. The sandfill berm slopes from an elevation of 8.5 feet NGVD at the toe of the dune 180 feet gulfward to an elevation of 3 feet NGVD and, from this point, assumes its natural slope to the offshore bottom. The jetty provided by the plan has a top width of 6 feet at an elevation of 4 feet mean sea level, 1 on 2 side slopes, and extends approximately 3,600 feet along the western end of the island at Caminada Pass. Estimated cost of project (October 1991) is $20,933,000 Federal and $12,567,000 non-Federal, including $7,157,484 contributed funds. The repair and restoration of Grand Isle were accomplished by two separate contracts. The jetty extensions and sand bar removal contract (partial fix), was completed in early 1988. The dune repair and structural reinforcement contract was physically completed Sep. 4, 1991. The project has been turned over to the State of Louisiana for operation and maintenance.

The 1992 Dire Emergency Supplemental Appropriations Act provided funds to repair damage to the wave berm and dune caused by Hurricane Andrew and to add offshore breakwaters to the project as an integral part of the repair. The original plan was to construct 27 breakwater segments; however, only 23 breakwater segments were constructed due to limited federal funds. 19 additional breakwater segments were built in the summer of 1999 by the local sponsor.

Local cooperation. Requirements are described in full on page 11-4 of the FY 92 Annual Report. An additional $4,750,000 was deposited in escrow to complete restoration of the dune which was completed on Sep. 4, 1991. The existing sand and beach dune have been damaged as a result of a series of storms between 1998 and 2002. PL-99 Federal assistance was approved to repair the damages caused by the latest Hurricane Lili and Tropical Storm Isodore. A sponsor's contractor will do the renourishment and the Corps will reimburse the 12% cost share.

NORTH SHORE PROJECT

The Water Resources Development Act of 1996 authorized construction of $17 million of additional improvements to the region subject to approval of a report justifying the improvements. The District received $250,000 to initiate the study. The study is considering improvements, building breakwaters along the north side of the island, and the north side of Fifi Island.

The Water Resources Development Act of 1999 authorized the Secretary to consider shore protection benefits that the project provides to the main land coast of Louisiana.

The study is continued in FY 03 with a Congressional aid of $213,000.

8. LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION)

Location. In southeastern Louisiana, vicinity of New Orleans, in St. Charles, Jefferson, Orleans, St. Bernard, and St. Tammany Parishes, comprising lower land and water area between the Mississippi River alluvial ridge and the Pleistocene escarpment to north and west. The dominant topographic feature is Lake Pontchartrain, a shallow tidal basin, about 640 square miles in area and averaging 12 feet deep, connecting with lesser Lake Maurepas to the west and through Lake Borgne and Mississippi Sound to the Gulf to the east. The lake drains about 4,700 square miles of tributary area. (Refer to Geological Survey quadrangles Yscloskey and Malheureaux Point, Drum Bay, Door Point, Lake Eugenie, Oak Mound Bayou, Mitchell Keys, Lake Eloi, and Morgan Harbor; Engineer quadrangles Slidell, Covington, Ponchatoula, Springfield, Denham Springs, Donaldsonville, Mt. Airy, Bonnet Carre', Spanish Fort, Chef Menteur, Rigolets, St. Bernard, New Orleans, and Hahnville; and Coast and Geodetic Survey Charts Nos. 1115 and 1116.

Existing project. Provides protection to that part of the greater New Orleans area east of the Mississippi River and other communities bordering Lake Pontchartrain from the effects of hurricane-generated floods. The project is comprised of two major features: The Chalmette Area Plan and the High Level Plan. The Chalmette Area Plan consists of a levee and floodwall system around the Chalmette area and along the Mississippi River-Gulf Outlet, with connections to the

Mississippi River levees. The High Level Plan provides for heightening and strengthening the existing hurricane protection levee systems in Orleans Parish and the east bank of Jefferson Parish, repairing and rehabilitating the Mandeville Seawall in St. Tammany Parish; building a new mainline hurricane levee on the east bank of the St. Charles Parish just north of U.S. Highway 61 (Airline Highway); raising and strengthening the existing levee which extends along the Jefferson-St. Charles Parish boundary between Lake Pontchartrain and Airline Highway; and deferring construction of the proposed Seabrook lock until its feasibility as a feature of the Mississippi River-Gulf Outlet navigation project can be determined. Areas which will be enclosed by the levee and floodwall construction will be provided protection against tidal surge resulting from the Standard Project Hurricane (SPH). The estimated project cost for work (October 2002) is $525,742,000 Federal and $10,000,000 non-Federal.

Local cooperation. Requirements are described in full on page 11-5 of the FY 92 Annual Report.

Operations and results during fiscal year. Preparation of design memorandums and plans and specifications continued by hired labor, Architect-Engineer Contractors, and the local sponsors.

A change from the original Barrier Plan to the current high level plan was approved in February 1985 by the Office, Chief of Engineers.

A draft mitigation report with corresponding EIS was prepared and distributed for public review on Mar. 16, 1988, and subsequently approved. The Louisiana Department of Natural Resources agreed to fund the Local Sponsor's share of mitigation and a segmented shoreline protection dike was constructed in FY 97.

Condition as of Sep. 30. Construction started May 1967 and is 90 percent complete. In FY 03, seven construction contracts were ongoing in the project.

9. LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION)

Location. In coastal section of Louisiana, along Bayou Lafourche, and includes lands on both banks of the bayou from Larose to 2 miles south of Golden Meadow. (Refer to Geological Survey quadrangles Cutoff, Lake Felicity, Bay Dosgris, Golden Meadow Farms, Bay Tambour, Mink Bayou, Caminada Pass, Leeville, Belle Pass, Pelican Pass, and Calumet Island; Engineer quadrangles New Orleans, Hahnville, Point a la Hache, Barataria, and Fort Livingston; and Coast and Geodetic Survey Charts Nos. 1115 and 1116.)

Existing project. Provides a loop levee about 40 miles long along both banks of Bayou Lafourche from Larose to South Golden Meadow; enlargement of 3 miles of existing levee at Golden Meadow; floodgates for navigation and hurricane protection in Bayou Lafourche at upper and lower bayou crossings; about 8 miles of low interior levees to regulate intercepted drainage. Estimated cost for new work (October 2002) is $81,000,000 Federal and $35,000,000 non-Federal.

Local cooperation. Requirements are described in full on page 11-6 of the FY 92 Annual Report.

Operations and results during fiscal year. One 2nd Lift contract was completed in FY 03.

Condition as of Sep. 30. In FY 03, the Post authorization change report for the Leon Theriot Lock continued.

10. NEW ORLEANS TO VENICE, LA, HURRICANE PROTECTION

Location. Includes land subject to inundation by hurricane tides extending along both banks of the Mississippi River below New Orleans from vicinity of Phoenix to Venice, LA.

Existing project. Provides for improvements along Mississippi River below New Orleans, LA, for prevention of hurricane tidal flood damages by increasing heights of existing back levees and modifying existing drainage facilities where necessary in three separate reaches: Reach A, on the west bank from St. Jude to Tropical Bend, 18 miles, 4,340 acres protected; Reach B, on the west bank from Tropical Bend to Venice, 21 miles, 4,900 acres protected; and Reach C, on the east bank from Phoenix to Bohemia 16 miles, 5,470 acres protected, and raising the river levee on the west bank (MR&T levee) from City Price to Venice, to a grade high enough to prevent over-topping by tidal surges from the east, generally called the West Bank River Plan. Reach B was later divided into two units, Reach B-1 from Tropical Bend to Fort Jackson and Reach B-2 from Fort Jackson to Venice, LA, as a result of a request made by the local agency.

Estimated cost of new work (October 2002) is $175,000,000 Federal and $75,000,000 non-Federal.

Local cooperation. Provide all lands, easements, and rights-of-way including borrow areas and spoil disposal areas necessary for the construction of the

project, at costs presently estimated at $9,032,000; accomplish all necessary alterations and relocations to roads, pipelines, cables, wharves, and other facilities required by the construction of the project at costs presently estimated at $5,698,000; bear 30 percent of the first cost, a sum presently estimated at $75,000,000, and cash contribution or equivalent work presently estimated at $60,270,000 to be paid either in a lump sum prior to initiation of construction or in installments prior to start of pertinent work items.

The local sponsor has requested that an area extending from the upstream limits of Reach A at City Price to St. Jude, Louisiana be incorporated into the project. This work involves upgrading 3.3 miles of existing non-Federal levees to project standards. The local sponsor has elected to pay all of the costs of this reach of levee. While the sponsor will not receive credit for these costs, the increased protected area is eligible for Federally subsidized flood insurance. Savings to the project achieved by a portion of levee no longer being required at the upstream end of Reach A, is creditable to the local sponsor. A Post Authorization Change report was prepared for this reach and was approved by the Lower Mississippi Valley Division on Mar. 6, 1992. Supplemental assurances for the City Price to St. Jude reach were accepted on Feb. 18, 1993.

Assuring Agency: Plaquemines Parish Government. Assurances for all reaches of the project have been furnished.

Requirements are described in full on page 11-7 of the FY 92 Annual Report.

Operations and results during fiscal year. Construction continued on WBRL, Sta. 1319-1797, 2nd Enlargement.

Condition as of Sep. 30. Construction began on the project in September 1968 and the total project is approximately 80 percent complete.

11. SOUTHEAST LOUISIANA URBAN DRAINAGE PROJECT (FLOOD CONTROL)

Location. The authorized project is located in Orleans, Jefferson and St. Tammany Parishes. Features in Orleans Parish (city of New Orleans) are located on the east bank of the Mississippi River. Work in Jefferson Parish is located on the east and west banks of the Mississippi River in the vicinity of New Orleans, LA. St. Tammany Parish features are located in the southern portion of the parish, near Lake Pontchartrain, in and around the communities of Slidell, Mandeville, Madisonville, Abita Springs, and Lacomb, LA.

Project features. The work in Orleans Parish consists of enlargement of a major pumping station and work on two other stations; and improvements to about seven drainage canals and underground drainage lines. Jefferson Parish features include improvements to five pumping stations and almost thirty drainage canals. Work in St. Tammany includes: channel improvements, retention ponds, levees, and structure raising.

Local cooperation. The project requires that the local sponsor(s) provide all lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) needed for project construction, as well as a minimum five percent cash contribution. The total (value) of the locals share must be a minimum of twenty-five percent of the project total, but not exceed fifty percent of the project total. Jefferson Parish and the Sewerage and Water Board of New Orleans executed the Project Cost-sharing Agreements (PCAs) in January 1997.

Operations and results during fiscal year. Local interests in Jefferson and Orleans parishes continued (and in some instances, completed) some of the design and construction of features authorized in the project, for which they will get credit. Architect-Engineer contractors, working for both the Corps and the parishes, are doing most of the design work. Federal construction began in March 1997.

In 2003, eight additional investigations continued, four in Jefferson Parish and four in Orleans Parish, to determine whether there are more Federally justified plans for improving drainage. These studies are required to justify additional improvements to Orleans and Jefferson primary drainage systems.

Condition as of Sep. 30. Funding constraints in FY 03 prevented the award of any new contracts. Construction continued on 19 ongoing contracts. Unfunded liabilities of $7.0 mil were paid in FY 04.

12. WEST BANK AND VICINITY, NEW ORLEANS, LA, HURRICANE PROTECTION

Location. The project is located in Jefferson, Orleans and Plaquemines parishes on the West Bank of the Mississippi River in the vicinity of New Orleans, Louisiana.

The project area generally extends from the Jefferson-St. Charles Parish line to the community of Oakville in Plaquemines Parish and is bounded by the Mississippi River on the north and east and Lakes Cataouatche and Salvador and the GIWW on the south and west. The originial project was from Westwego to Harvey Canal but has been expanded to include the area

East of Harvey Canal and also the Lake Cataouatche area. These two areas were authorized by WRDA 96.

Existing project. The total project consists of about 57 miles of new and enlarged earthen levee, 9 miles of floodwall, a navigable floodgate in the Harvey Canal below Lapalco Boulevard, a discharge channel and 1,000 cfs capacity increase at the Cousins Pump Station. The protection is designed to protect against tidal floodwaters resulting from the Standard Project Hurricane (SPH).

The SPH has a frequency of recurrence of one in 500 years. The elevation of the SPH protection varies from 9 feet NGVD to 12 feet NGVD. The project plan includes mitigation which consists of the construction of a timber pile and tire breakwater on the west bank of Lake Cataoutache adjacent to the Salvador Wildlife Management Area and the acquisition of approximately 1,300 acres of forested wetlands which will be managed to improve habitat quality.

The estimated project cost (October 2002) is $313,000,000. ($203,000,000 Federal and $110,000,000 non-Federal).

Local cooperation. The project requires that the local sponsor provide all lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) needed for project construction. The total (value) of the sponsors share must be a minimum thirty-five percent of the total project costs, in cash or creditable work.

Funds provided by non-Federal interests for interim hurricane protection on the Westwego to Harvey Canal area may be considered beneficial expenditures and may be credited as part of the non-Federal contribution of the project pursuant to the WRDA of 1986.

The Louisiana Department of Transportation and Development and West Jefferson Levee District executed amendment number 1 of the local cooperation agreement in April 1999.

Operations and results during fiscal year. Four construction contracts were awarded during FY 03 in the West Bank and vicinity project.

Conditions as of September 30. Project construction began in February 1991 and the total project is approximately 25 percent complete. The project is currently scheduled for completion in 2014.

13. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Various hurricane protection projects, as well as small flood control projects, were inspected during FY 03. Also, periodic inspection and continuing evaluation of completed civil works structures was conducted in accordance with ER 1110-2-100, at various times during the year on an as needed basis.

Fiscal year costs for the period were $399,687. Total costs to Sep. 30, 2003 were $6,994,298.

14. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities—repair, flood fighting, and rescue work. (Public Law 99, 84th Cong., and antecedent legislation.)

Disaster preparedness, fiscal year costs for the period were $359,513. There were no emergency or rehabilitation cost for FCCE in FY 03.

See Table 11-F.

15. PROTECTION OF NAVIGATION

During FY 03, operation and maintenance costs were $65,822 on Project Condition Surveys.

16. CATASTROPHIC DISASTER REPAREDNESS ROGRAM

During FY 03, operation and maintenance costs were $0 on Local Preparedness; $135,822 on National Preparedness; $26,808 on National Emergency Facilities; and $377 Disaster Training and Exercise. Total costs for FY 03 were $162,630.

17. COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION

Location. The coastal parishes of Louisiana.

Authority. Activities were authorized by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) (Title III of Public Law 101-646, dated Nov. 29, 1990), which established the Louisiana Coastal Wetlands Conservation and Restoration Task Force. The Task Force consists of the Secretary of the Army (chairman); the Administrator of the Environmental Protection Agency; the Governor of the State of Louisiana; the Secretary of the Interior; the Secretary of Agriculture; and the Secretary of Commerce.

Local cooperation. The conditions of local cooperation are established by this act.

Condition of Sep. 30. The first Priority List (PPL) was approved by the Task Force on Oct. 31, 1991. Fourteen projects were named on the list. Funds in the amount of $37.3 million ($28.1 million Federal, $9.2 million State) were made available for construction of these projects. The Task Force has given final approval for construction for all 14 projects. Of the 14 projects, construction has been completed on 11: Bayou Labranche Wetlands Restoration, Apr. 94; Cameron Prairie Refuge Shoreline Protection, Aug. 94; Sabine Wildlife Refuge Erosion Protection, Mar. 95; Vermilion River Cutoff Bank Protection, Feb. 96; Lake Salvador Shoreline Protection at Jean Lafitte, Mar. 96; Bayou Sauvage #1, May 96; Barataria Bay Waterway Marsh Creation, October 96; Vegetative Planting Demo, December 96; Cameron-Creole Watershed Hydrologic Restoration, Jan. 97; Isles Dernieres (Phase 0), June 99; and GIWW Clovelly Wetland Restorations, Oct. 00. One project is scheduled to begin construction in FY 03, West Bay Sediment Diversion.

The 2nd PPL was approved by the Task Force on Oct. 19, 1992. Fifteen projects were named on the list. Additional funds in the amount of $39.5 million ($28.2 million Federal, $11.3 million State) were made available for construction of these projects. The Task Force has given final approval for construction for 14 of the 15 projects. Of the 15 projects, construction has been completed on 13: Vermilion Bay/Boston Canal, Nov. 95; Mud Lake, Jun. 96; Clear Marais Bank Protection, Mar. 97; Point Au Fer, May 97; Bayou Sauvage #2, May 97; Atchafalaya Sediment Delivery, Mar. 98; West Belle Pass Headland Restoration, Jul. 98; Freshwater Bayou, Aug. 98; Big Island Mining, Oct. 98; and Isles Dernieres (Phase 1), Jun. 99; Hwy 384, Jan. 2000; Fritchie Marsh, Mar. 01; and Caernarvon Diversion Outfall Management, Jun 02. One project, Jonathan Davis, is under construction.

The 3rd PPL was approved by the Task Force on Oct. 1, 1993. Seventeen projects were named. Additional funds in the amount of $37.3 million ($29.9 million Federal, $7.4 million State) were made available for construction of these projects. Engineering and design of several of the projects has been completed, and the Task Force has given final approval for construction for 11 of the 17 projects. Of the 11 projects, construction has been completed on 10 projects; Channel Armor Gap Crevasse, Nov. 97; Lake Salvador Shore Protection, Jun. 98; Cameron Creole Maintenance, Jul. 98; Cote Blanche, Dec. 98; MR-GO Back Dike, Jan. 99; Lake Chapeau, May 99; Brady Canal, May 00; Whiskey Island, Jun. 00; and East Timbalier Island Restoration #1, May 01. One project is under construction: Sabine Refuge Structure–Hog Island. Additionally, one of the deauthorized projects, South West Shore White Lake Demo, was completed in Jul. 96.

The 4th PPL was approved by the Task Force on Dec. 16, 1994. Ten projects were named on the list. Additional funds in the amount of $33.5 million (30.0 million Federal, $3.5 million State) were made available for construction of these projects. Engineering and design on several of the projects has been completed, and the Task Force has given final approval for construction for four of the ten projects. Construction has been completed on three of the 4th PPL projects, Perry Ridge Bank Protection, Feb. 99; Plowed Terraces Demo, Aug. 00; and Barataria Bay Waterway Bank Protection West, Nov. 00. One project is under construction: East Timbalier Island Restoration #2.

The 5th PPL was approved by the Task Force on Feb. 28, 1996. Nine projects were named on the list. Additional funds in the amount of $40.6 million ($33.4 million Federal, $7.2 million State) were made available for construction of these projects. Engineering and design on several of the projects has been completed, and the Task Force has given final approval for construction for six of the nine projects. Six projects have been completed, Racoon Island Breakwaters Demo, Jul. 97, Freshwater Bayou Bank Stabilization, Jun. 98, Little Vermilion Bay Sediment Trapping, Aug. 99; Bayou Chevee, Dec. 01; Naomi Outfall Management, Jul. 02; and Sweet Lake/Willow Lake, Oct. 02.

The 6th PPL was approved by the Task Force on April 24, 1997. Thirteen projects were named on the list. Additional funds in the amount of $45 million (39.1 million Federal, $5.9 million State) were made available for construction of these projects and to fund 5th PPL phased projects. Engineering and design on several of the projects has been completed and five projects have completed construction: Barataria Bay Water Bank Protection (East), May 01; Marsh Island Hydrologic Restoration, Dec. 01; Flexible Dustpan Demo, Jun. 02; and Oaks/Avery Canals Hydrologic Restoration, Oct. 02. Three projects are under construction: Nutria Harvest for Wetland Restoration Demo, Sediment Trapping at the Jaws, and Delta-Wide Crevasses.

The 7th PPL was approved by the Task Force on Jan. 16, 1998. Four projects were approved on the list. Additional Federal funds in the amount of $45.8 million ($42.5 million Federal, $3.3 million State) were made available for construction of these projects. Engineering

and design on several of the projects has been completed. Construction has been completed on two projects, Thin Mat Float and Marsh Enhancement Demo, May 00; and Grande Terre, Jul. 01. The two remaining project, Barataria Basin Landbridge, Phase 1 and Phase 2, and Pecan Island Terracing are currently under construction.

The 8th PPL was approved on Jan. 20, 1999. Six projects were approved on the list. Additional funds in the amount of $44.2 million ($41.9 million federal, $2.3-million state) were made available for construction of these projects. Engineering and Design on several projects has begun. One project, Sabine Refuge Marsh Creation, is under construction

The 9th PPL was approved on Jan. 11, 2000. Nineteen projects were approved on the list. However, starting with PPL 9, the Task Force implemented cash flow management policy in which only the Phase 1 design of the projects was approved by the Task Force. After Phase 1 design is completed, the Phase 2 construction of the projects will need separate approval by the Task Force. Additional funds in the amount of $52.9 million ($47.9 million Federal; $5.0 million State) were made available for construction of the projects. Four projects have been approved to proceed to Phase 2 construction. One project, Chandeleur Islands Restoration, was completed Jul. 01. Another project, Perry Ridge to Texas, is under construction.

The 10th PPL was approved on Jan. 10, 2001. Twelve projects were approved for Phase 1 design on the list. Additional funds in the amount of $52.1 million ($47.7 million Federal; $4.4 million State) were made available for construction of the projects. Four projects have received Phase II approval: Delta management at Fort St. Philip, Grand-White Lake Landbridge Restoration, North Lake Mechant, and Terrebonne Bay Shore Protection Demo.

The 11th PPL was approved Jan. 16, 2002. Fourteen projects were approved for Phase I design on the list. Additional funds in the amount of $74.0 million ($57.3 million Federal; $16.7 million State) were made available for construction of the projects. One project has received Phase II approval and is under construction: Coastwide Nutria Control Program.

The 12th PPL was approved by the Task Force on January 16, 2003. Phase I funds in the amount of $8.4 million were approved for five projects. Additional funds in the amount of $56,938 Federal and $4 million were made available for construction of the projects. The Task Force is developing prioritization criteria to rank projects under PPLs 1-12 that have not yet been authorized for construction based upon the benefits to the environment.

In response to Section 303(b) of the CWPPRA, the Louisiana Coastal Wetlands Restoration Plan report was published in November 1993. Following public review of the final report, a Record of Decision was prepared, signed by the Task Force chairman and submitted to HQUSACE for transmittal to the ASA(CW). The report proposed $1.3 billion worth of projects that could prevent 65 percent of the coastal wetland losses over the next 20 years.

The State of Louisiana expressed its intention (by letter of Jan. 5, 1993) to develop a Conservation Plan in accordance with provisions of the CWPPRA. Once approved (by the Administrator of the EPA, the Director of the U.S. Fish and Wildlife Service, and the Secretary of the Army), the State's share in project construction will be reduced from 25 percent to 15 percent. The State submitted the plan to the approving agencies in May 1997. Approval was received on Nov. 21, 1997.

Section 532 of the Water Resources Development Act (WRDA) of 1996 amends the CWPPRA to provide for a further reduction in the State's share of CWPPRA projects. Upon approval of the Conservation Plan, the State's share of projects in 1996 and 1997 will be 10 percent. In a Sep. 3, 1996, speech in the House of Representatives, the Honorable Bud Shuster of Pennsylvania said that the intent of the legislation was to reduce the State's share of projects approved on the 5th and 6th Priority Project Lists. The amendment further provides that the Secretary of the Army must determine that a reduction in the non-Federal share is warranted.

In June 1997, the Task Force initiated a coast-wide grassroots planning effort termed the Coast 2050 initiative to develop a technically sound strategic plan to sustain coastal resources and provide an integrated multiple use approach to ecosystem management. The Coast 2050 plan differs from the 1993 restoration plan in that regional strategies, rather than basin strategies, will be developed and prioritized. Coast 2050 was completed in December 1998 and supports the Louisiana Coastal Area authority, Louisiana Ecosystem Restoration reconnaissance report, which was approved by HQUSACE in May 1999. Nine basin feasibility studies are planned for execution under the 1967 Louisiana Coastal Area authority. During FY 2003, a Comprehensive Cost-wide Ecosystem Restoration Study continued. This study investigated the Feasibility of implementing large-scale restoration plans coast wide, currently estimated to cost $15 billion. The study

will seek programmatic authority from Congress for implementation of these plans through WRDA 2004. This study, along with other supporting interim studies and reports is estimated to cost $30 million and is to be cost shared on a 50-50 basis with the State of Louisiana.

18. GENERAL REGULATORY PROGRAM

Permit Evaluation	$4,306,841
Enforcement	785,600
Environmental Inspection Statement	24,841
Appeals	21,811
Total General Regulatory Program	$5,139,093

TABLE 11-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 99	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
1.	Inner Harbor Navigation Canal Lock (Inland Waterway Trust Fund)	New Work						
		Approp.	--	3,534,000	14,296,000	6,300,000	18,880,000	47,246,000
		Cost		3,107,909	19,179,232	8,112,600	8,853,546	36,145,378
	(Regular Funds)	Maint.						
		Approp.	--	--	3,105,000	6,300,000	8,880,000	47,246,000
		Cost	--	--	3,105,000	9,207,200	9,657,280	48,914,480
2.	Mississippi River – Gulf Outlet, LA	New Work						
		Approp.	200,000	300,000	369,000	568,000	538,000	109,275,200
		Cost	446,971	372,297	289,445	773,800	581,005	108,429,725
	(Regular Funds)	Maint.						
		Approp.	40,417,000	15,970,000	20,300,731	11,593,000	11,535,000	335,787,201
		Cost	41,742,157	15,993,423	19,270,229	12,368,636	11,794,324	207,908,779
3.	Mississippi River Ship Channel – Gulf to Baton Rouge	New Work						
		Approp.	630,000	1,286,000	1,653,000	156,000	16,600	27,591,600
		Cost	519,422	1,577,854	1,516,510	351,900	26,736	27,592,250
	(Contrib. Funds)	New Work						
		Contrib.	--	--	--			4,750,000
		Cost	--	--	--			4,750,000
4.	Port Fourchon, LA	New Work						
		Approp.	24,000	373,000	2,189,000		287,000	3,222,000
		Cost	126,337	30,665	2,421,345	110,000	286,885	3,133,895
	(Contrib. Funds)	New Work						
		Approp.	--	1,341,000	264,000			1,605,000
		Cost	--	--	1,534,243			1,534,243
5.	Amite River & Tribs., East Baton Rouge Parish	New Work						
		Approp.	--	--	--	615,000	757,000	4,090,000
		Cost	--	--	--	557,100	809,563	1,366,663
6.	Comite River, LA (Diversion)	New Work						
		Approp.	930,000	930,000	1,250,000	3,181,000	4,949,000	17,511,000
		Cost	780,000	898,640	1,297,629	2,851,600	5,333,734	14,527,003
7.	Grand Isle and Vicinity, LA	New Work						
		Approp.	56,059	60,000	419,000	728,000	500,000	20,764,500
		Cost	43,249	23,809	139,989	617,500	501,071	20,337,056
		Maint.						
		Approp.	--	--	--	--		10,000
		Cost	--	--	--	--		8,616

TABLE 11-A (Continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 99	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
8.	Lake Pontchartrain and Vicinity, LA (Hurricane Protection) (Regular Funds)	New Work Approp.	16,000,000	26,204,000	14,295,000	9,134,219	10,163,400	385,653,000
		Cost	24,443,102	27,402,978	14,458,657	10,023,800	10,412,869	
	(Contrib. Funds)	New Work Contrib.	1,000,000	4,600,000	1,000,000	600,000	1,600,000	55,433,000
		Cost	--	9,274,120	488,288	1,234,400	1,407,104	
9.	Larose to Golden Meadow, LA (Hurricane Protection)	New Work Approp.	1,088,000	2,015,000	2,184,000	1,533,000	335,000	77,886,000
		Cost	1,071,952	2,030,154	2,298,922	1,627,500	333,794	77,883,766
	(Contrib. Funds)	New Work Contrib.	--	310,000	200,000	508,000	--	4,948,000
		Cost	--	--	498,371	408,800	53,365	
10.	New Orleans to Venice, LA (Hurricane Protection)	New Work Approp.	697,000	2,150,000	1,843,000	1,245,000	2,635,000	150,951,000
		Cost	701,055	2,077,000	1,781,255	1,251,800	2,768,566	150,947,910
	(Contrib. Funds)	New Work Contrib.	600,000	100,000	2,500,000	--	2,110,000	23,933,000
		Cost	1,754,507	100,000	--	--	2,111,162	23,712,430
11.	Southeast Louisiana, LA (Urban Drainage)	New Work Approp.	75,000,000	47,263,000	81,960,000	59,711,000	38,907,000	355,821,000
		Cost	53,229,795	69,197,930	81,694,393	61,210,700	39,326,596	355,807,700
	(Contrib. Funds)	New Work Contrib.	--	720,000	12,773,514	11,808,399	9,768,775	22,611,000
		Cost	--	5,661,572	8,830,336	17,254,100	9,858,801	
12.	West Bank and Vicinity, New Orleans, LA (Hurricane Protection)	New Work Approp.	5,809,000	9,805,000	11,724,000	47,773,300	9,068,700	82,191,000
		Cost	5,806,982	6,324,919	13,986,259		9,551,032	
17.	Coastal Wetlands Planning, Protection, and Restoration	New Work Approp.	46,864,079	52,907,300	52,659,220	32,616,000	56,938,097	508,185,679
		Cost	46,204,412	18,150,316	19,153,013	23,407,000	34,715,136	
	(Contrib. Funds)	New Work Contrib.	2,593,248	3,864,325	1,585,775	4,747,000	880,883	57,828,382
		Cost	935,300	1,734,222	1,741,830	4,686,700	255,664	21,901,306

TABLE 11-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	LAKE CHARLES, LA	
Water Resources Development Act, 1986	The project for deepening of the project for navigation, Lake Charles, Louisiana, to a depth of 45 feet, at a total cost of $1,070,000.	Public Law 99-662, Nov. 17, 1986
	MISSISSIPPI RIVER, BATON ROUGE TO GULF OF MEXICO, LA	
Mar. 2, 1945	Combines projects of Mississippi River, Baton Rouge to New Orleans, Mississippi River, South Pass, and Southwest Pass, adding thereto project for Mississippi River from New Orleans to Head of Passes, to provide a single project, "Mississippi River, Baton Rouge to the Gulf of Mexico," with channel dimensions as follows: Baton Rouge to New Orleans, 35 by 500 feet; port limits of New Orleans, 35 by 1,500 feet; New Orleans to Head of Passes, 40 by 1,000 feet; Southwest Pass, 40 by 800 feet; Southwest Pass Bar Channel, 40 by 600 feet; South Pass, 30 by 450 feet; South Pass Bar Channel, 30 by 600 feet.	H. Doc. 215, 76th Cong., 1st sess.
Oct. 23, 1962	Deepen existing channel from 35 to 40 feet by 500 feet wide from one-tenth mile below Louisiana Highway Commission bridge at Baton Rouge to upper limits of Port of New Orleans, and also 40 by 500 feet within presently authorized 35- by 1,500-foot channel in port limits of New Orleans.	S. Doc. 36, 87th Cong., 1st sess.
	MISSISSIPPI RIVER-GULF OUTLET, LA (See Sec. 1 of Text)	
Mar. 29, 1956	Construct a seaway canal 36 feet deep and 500 feet wide from Michoud to 38-foot contour in gulf and an inner tidewater harbor consisting of a 1,000- by 2,000-foot turning basin 36 feet deep and a connecting channel 36 feet deep and 500 feet wide to Inner Harbor Navigation Canal and provides, when economically justified, for construction of a lock to Mississippi River in the vicinity of Meraux, LA.	H. Doc. 245, 82d Cong., 1st sess.
Oct. 22, 1976	Amends above Act making the construction of bridge relocations a Federal responsibility when required by the the construction of the Mississippi River-Gulf Outlet channel.	Sec. 186, Water Resources Development Act of 1976 (PL 94-587) 2d sess.
Water Resources Development Act, 1986	The Mississippi River-Gulf Outlet feature is modified to provide that the replacement and expansion of the existing industrial canal lock and connecting channels or the construction of an additional lock and connecting channels shall be in the area of the existing lock or at the Violet site.	Public Law 99-662, Nov. 17, 1986
Water Resources Development Act, 1996	Amends above Act of 1986 to include a Community Impact Mitigation Plan as an authorized feature of the project to replace the Inner Harbor Navigation Canal Lock.	Public Law 104-303 Oct. 12, 1996

TABLE 11-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA (See Sec. 3 of Text)	
Approp. Act of 1985, dated Jul. 2, 1986 (PL 99-88)	Will provide more efficient deep-draft navigation access to the New Orleans and Baton Rouge reaches of the Mississippi River via Southwest Pass by enlarging the existing channel to a project depth of 55 feet and enlarging the adjacent channel along the left descending bank in New Orleans Harbor to a 40-foot depth, a turning basin at Baton Rouge, and training works in the passes to reduce maintenance.	H. Doc. 2577, 99th Cong., 1st sess.
Nov. 17, 1986 (PL 99-662)	Formalizes the cost sharing provisions of the project, permits the State of Louisiana to enact user fees to defray their portion of the project costs, and implements harbor maintenance fees to help pay for the Federal cost of the project. It also provides an option to the local sponsor to defer their initial payment for one year following initiation of construction. In terms of channel depths up to 45 feet, the cost sharing requirements are 75 percent Federal and 25 percent non-Federal for construction and 100 percent Federal for maintenance. For channels deeper than 45 feet, the cost sharing requirements are 50 percent Federal and 50 percent non-Federal for both construction and maintenance.	Water Resources Development Act of 1986, 99th Cong., 2d sess.
	PORT FOURCHON, LA	
Water Resources Development Act, 1996	Provides a Federal navigation channel with a project depth of 24 feet MLLW in Bayou Lafourche, Belle Pass, and the Gulf of Mexico to improve navigation access to Port Fourchon at a total cost of $4,440,000, with an estimated Federal cost of $2,300,000 and an estimated non-Federal cost of $2,140,000.	Public Law 104-303, 104th Congress (See Section 101) Oct. 12, 1996
	WATERWAY FROM INTRACOASTAL WATERWAY TO BAYOU DULAC, LA (Bayous Grand Caillou and LeCarpe, LA)	
Aug. 30, 1985	Channel 5 by 40 feet from Intracoastal Waterway at Houma through Bayou LeCarpe, Bayou Pelton, and Bayou Grand Caillou to Bayou Dulac, about 16.3 miles.	H. Doc. 206, 72d Cong., 1st sess.
Oct. 23, 1962	Channel 10 by 45 feet in Bayou LeCarpe from Gulf Intracoastal Waterway to Houma navigation canal.	
	BAYOU RIGOLETTE, LA	
Water Resources Development Act, 1986	A project to construct six additional floodgates at Bayou Rigolette, LA, adjacent to the existing drainage structure, at a total cost of $2,300,000.	Public Law 99-662, Nov. 17, 1986
	AMITE RIVER AND TRIBUTARIES, LOUISIANA, EAST BATON ROUGE PARISH WATERSHED	
Water Resources Development Act, 1999 August 17, 1999	Amite River and Tributaries, Louisiana, East Baton Rouge Parish Watershed. The project for flood damage reduction and recreation, Amite River and tributaries, Louisiana, East Baton Rouge Parish Watershed: Report of the Chief of Engineers Dated December 23, 1996, a total cost of $112,900,000, with an estimated Federal cost of $73,400,000 and an estimated non-Federal of $39,500,000.	Public Law 106-53 August 17, 1999

TABLE 11-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	COMITE RIVER, LA (Diversion) (See Sec. 6 of Text)	
Water Resources Development Act, 1992	Construct an eight-mile diversion channel from the Comite River to an outfall into Lilly Bayou, and then a four-mile diversion along Lilly and Cooper Bayous to the Profit Island Chute of the Mississippi River. Also included a diversion structure in the new channel near the diversion point, and an outfall structure near and at the outfall into Lilly Bayou, and three control structures at the intersections of Whites, Cypress and Baton Rouge Bayous.	Public Law 102-580 Section 101 (11) Oct. 31, 1992
Water Resources Development Act, 1996		Public Law 104-305 Section 301(b)(5) Oct. 12, 1996
Energy and Water Development Appropriations Act, FY 1999	Provided funding authority in the amount of $930,000 to initiate construction.	Public Law 105-245 Oct. 7, 1998
	GRAND ISLE AND VICINITY, LA (See Sec. 7 of Text)	
Adopted by Committee Resolutions Sep. 23, 1976, and Oct. 1, 1976[2]	To provide hurricane protection by placement of a berm and vegetated dune extending the length of Grand Isle's gulf shore and a jetty to stabilize the western end of the island at Caminada Pass.	H. Doc. 639, 94th Cong., 2d sess.
	LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION) (See Sec. 8 of Text)	
Oct. 27, 1965	Control of hurricane tides by construction of two independent units, the Lake Pontchartrain Barrier plan and the Chalmette Area plan.	H. Doc. 231, 89th Cong., 1st sess.
	NORTH PASS - PASS MANCHAC, LA	
Section 107, Rivers and Harbors Act of 1960, as amended	The Corps of Engineers may construct small river and harbor improvement projects not specifically authorized by Congress when they will result in substantial benefits to navigation.	Public Law 86-645 Jul. 14, 1960
	LAKE PONTCHARTRAIN, NORTH SHORE, LA	
Water Resources Development Act, 1986 Nov. 17, 1988	The project for navigation, Lake Pontchartrain North Shore, LA: Report of the Chief of Engineers, dated February 14, 1979, at a total cost of $1,310,000, with an estimated first Federal cost of $655,000 and an estimated first non-Federal cost of $655,000.	Public Law 99-662, Nov. 17, 1986, 99th Cong., 2d sess.
	LAKE PONTCHARTRAIN STORMWATER DISCHARGE, LA (See Section 9 of Text)	
Water Resources Development Act, 1992	Provides for design and construction of project to to address water quality problems associated with stormwater discharges.	Public Law 102-580

TABLE 11-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION) (See Sec. 10 of Text)	
Oct. 27, 1965	A loop levee about 40 miles long along both banks of Bayou Lafourche from Golden Meadow to Larose; enlargement of 3 miles of existing levee at Golden Meadow; floodgates for navigation and hurricane protection in Bayou Lafourche at upper and lower bayou crossings; about 8 miles of low interior levees to regulate intercepted drainage; and seven multibarreled culverts controlled by flapgates.	H. Doc. 184, 89th Cong., 1st sess.[1]
	MORGAN CITY AND VICINITY, LA, HURRICANE PROTECTION	
Oct. 27, 1965	Construction of new levees along Lake Palourde and Bayou Ramos, levee to tie-in with Bayou Boeuf lock levee and three gravity drainage structures in Morgan City unit and enlargement of bank levee, construction of new levee, and construction of one floodgate and five gravity drainage structures in Franklin and vicinity unit. The Franklin Area reparable element is currently under review for deauthorization in accordance with WRDA 1990.	H. Doc. 167, 89th Cong., 1st sess.
	MERMENTAU RIVER - GRAND CHENIER, LA (See Sec. 11 of Text)	
Section 14, Flood Control Act of 1946	Construction of emergency bank-protection works to prevent flood damage to highways, bridge approaches and public works.	Public Law 526, 79th Cong, 2d sess. Jul. 24, 1946
	NEW ORLEANS TO VENICE, LA, HURRICANE PROTECTION (See Sec. 12 of Text)	
Oct. 23, 1962	Improvements along Mississippi River below New Orleans, LA, for prevention of hurricane tidal flood damages by increasing heights of existing back levees and modifying existing drainage facilities where necessary in five separate reaches.	H. Doc. 550, 87th Cong., 2d sess.
	SOUTHEAST LOUISIANA, LA (See Section 13 of text)	
Energy and Water Development Appropriations Act, FY 1996	Provides for drainage canal and pump station improvements in Orleans and Jefferson Parishes, and drainage improvements, flood protection and structure raising in St. Tammany Parish.	Public Law 104-46 (Sec 108)
Water Resources Development Act, 1996		Public Law 104-303 (Sec 533)
	WEST BANK AND VICINITY, NEW ORLEANS, LA HURRICANE PROTECTION	
Water Resources Development Act, 1999	**Combination of Projects - Section 328(b) of WRDA 99 states:** The Secretary shall carry out work authorized as part of the Westwego to Harvey Canal project, the East of Harvey Canal project, and the Lake Cataouatche modifications as a single project, to be known as the "West Bank and Vicinity, New Orleans, Louisiana, Hurricane Protection", with a combined total cost of $280,300,000.	Public Law 106-53, Aug. 17, 1999

TABLE 11-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Water Resources Development Act, 1986	**Westwego to Harvey Canal - Section 401(b) of WRDA 86 states:** Structural and nonstructural measures to prevent flood damage to those areas identified in the Feb. 1984 draft Environmental Impact Statement for the West Bank Hurricane Protection Levee, Jefferson Parish, LA at a total cost of $61,500,000, with an estimated first Federal cost of $40,000,000 and as estimated first non-Federal Cost of $21,500,000. Funds provided by non-Federal interest for interim hurricane protection may be considered beneficial expenditures and may be credited as part of the non-Federal contribution of the project pursuant to Section 104 of this Act.	Public Law 99-662, Nov 17, 1986
Water Resources Development Act, 1996	**East of Harvey Canal - Section 101(a)(17) of WRDA96 states:** The project for hurricane damage reduction, West Bank of the Mississippi River in the vicinity of New Orleans (East of Harvey Canal), Louisiana: Report of the Chief of Engineers, dated May 1, 1995, at a total cost of $126,000,000, with an estimated Federal cost of 82,200,000 and an estimated non-Federal cost of $43,800,000.	Public Law 104-303
Water Resources Development Act, 1996	**Lake Cataouatche - Section 101(b)(11) of WRDA 96 states:** The project for hurricane damage prevention and flood control, West Bank Hurricane Protection (Lake Cataouatche Area), Jefferson Parish, Louisiana, at a total cost of $14,375,000 with an estimated Federal cost of $9,344,000 and an estimated non-Federal cost of $5,031,000.	Public Law 104-303
	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT (See Section 19 of Text)	
Coastal Wetlands Planning, Protection and Restoration Act	Directed the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force to initiate a process to identify and prepare a list of coastal wetlands restoration projects in Louisiana to provide for the the long-term conservation of such wetlands and dependent fish and wildlife populations in order of priority in creating, restoring, protecting, and enhancing coastal wetlands, taking into account the quality of such coastal wetlands, with due allowance for small-scale projects necessary to demonstrate the use of new techniques or materials for coastal wetlands restoration.	Public Law 101-64 Nov. 24, 1990 Section 301-306

1. Contains latest published map.
2. Permanent Appropriation Repeal Act.

TABLE 11-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost To September 30, 2003 Construction	Cost To September 30, 2003 Operation and Maintenance	Mo. and Yr. Completed Deauthorized or Reclassified
Alteration of Berwick Bay Bridge[1]	--	1967	$ --	$ --	--
Amite River and Bayou Manchac, LA	Complete	1978	28,234	69,087	1928
Aquatic Plant Control Program, LA	Complete	1984	17,098,851	--	
Atchafalaya River Bayous Chene Boeuf, and Black, LA	Complete	1984	30,356,691	183,155,950	
Atchafalaya River, Morgan City to Gulf of Mexico, LA	Complete	1981	501,963	37,167,654	1914
Barataria Bay Waterway, LA	Complete	1984	1,572,685	32,674,088	Nov. 1963
Bayou Bonfouca, LA	Complete	1974	30,997	320,758	1931
Bayou Dorcheat, Loggy Bayou and Lake Bisteneau, LA[2,3,4,5]	--	1887	5,000	--	--
Bayou Dupre, LA	Complete	1968	38,915	104,187	1939
Bayou Lacombe, LA	Complete	1967	4,716	133,691	1938
Bayou Lafourche and Lafourche Jump Waterway, LA		1984	1,624,424	2,243,444	
Bayou La Lautre, St. Malo, and Yscolskey, LA	Complete	1970	96,916	223,616	May 1956
Bayou Plaquemine Brule, LA	Complete	1950	33,410	36,780	1915
Bayou Queue de Tortue, LA	Complete	1970	33,355	28,315	Mar. 1923
Bayou Segnette Waterway, LA	--	1958	238,828	927,143	--
Bayou Teche, LA		1984	754,330	18,887,058	
Bayou Teche & Vermilion River, LA	Complete	1983	2,891,822	2,810,462	Mar. 1957
Bayou Terrebonne, LA[3,7]	Complete	1961	120,089	251,691	1916
Bayou Vermilion, LA[3]	Complete	1947	34,900	200,169	1896
Big Pigeon and Little Pigeon Bayous, LA	Complete	1936	--	37,169	[2]
Calcasieu River and Pass, LA	Complete	1984	27,830,835	233,597,952	Oct. 1968
Calcasieu River at Coon Island, LA[8]	Complete	1976	1,015,814[10]	--	Apr. 1974
Calcasieu River at Devil's Elbow, LA	Complete	1981	5,856,200	--	Sep. 1978
Cascasieu River Salt Water Barrier, LA[9]	Complete	1973	4,197,262	--	Jan. 1968
Cane River, LA[2,5]	--	1910	2,500	2,000	--
Chefuncte River and Bogue Falia, LA	Complete	1967	58,342	584,440	1959
Cypress Bayou and Waterway between Jefferson, TX, and Shreveport, LA[10]	Complete	1971	202,817	452,611	Dec. 1914
Freshwater Bayou, LA	Complete	1984	7,116,224	45,337,734	Aug. 1968
Grand Bayou Pass, LA	Complete	1950	7,676	14,480[10]	1939
Gulf Intracoastal Waterway between Apalachee Bay, FL, & Mexican Border	Complete	1985	63,284,470	619,460,284	--
Houma Navigation Canal, LA		1984	--	44,805,398	
Inland Waterway from Franklin to Mermentau River, LA[1,11]	Complete	1960	249,052	552,780	[2]
Intracoastal Waterway from the Mississippi River to Bayou Teche, LA[12]	--	1956	--	11,699	--
Lake Charles Deep Water Channel, LA[13]	--	1950	--	241,896	--
Leland Bowman Lock, LA	Complete	1987	32,200,010	--	Mar. 1985
Little Caillou Bayou, LA	Complete	1973	77,761	751,485	1929
Mermentau River, Bayou Nezpique, and Bay Des Cannes, LA	Complete	1977	5,197,975[14]	114,519	--
Mermentau River, LA	Complete	1985	4,672,579	48,365,276	Jul. 1952
Mississippi River Baton Rouge to Gulf of Mexico, LA	--	1991	84,568,128[16]	1,185,105,195[17,22]	--

TABLE 11-C OTHER AUTHORIZED NAVIGATION PROJECTS (Continued)

Project	Status	For Last Full Report See Annual Report For	Cost To September 30, 2003 Construction	Cost To September 30, 2003 Operation and Maintenance	Mo. and Yr. Completed Deauthorized or Reclassified
Mississippi River-Gulf Outlet,	--[21]	1996	88,535,000[20]	2,323,246,872	Jan. 1968[21]
Michoud Canal, LA	Complete	1976	2,499,555	1,271,252	Nov. 1974
Mississippi River Outlets, Venice, LA	Complete	1986	10,014,012	44,096,875	Complete
Navigation work under special authorization (Calcasieu Pass channel in Old River Bend at Cameron, LA)[15]	--	1957	--	139,755	--
North Pass-Pass Manchac, LA	Complete	1996	533,492	--	May 1995
Pass Manchac, LA	Complete	1950	79,845	124,681	1912
Petite Anse, Tigre, and Carlin Bayous, LA	Complete	1981	--	1,453,172	Nov. 1980
Removal of Aquatic Growth, LA		1984	--	49,519,614	
Sulphur River, AR and TX[2,5]	--	1919	45,989	--	--
Tangipahoa River, LA	--	1985	--	2,897,031	--
Tickfaw, Natalbany, Ponchatoula, and Blood Rivers, LA[3]	Complete	1973	8,115	94,164	1921
Waterway from White Lake to Pecan Island, LA[11]	--	1948	10,904	742	--
Waterway from Empire, LA, to Gulf of Mexico	Complete	1981	1,068,142	1,672,851	Jun. 1950
Waterway from Intracoastal Waterway to Bayou Dulac, LA	Complete	1990	641,608	2,018,977	Aug. 1964

1. Transferred to Department of Transportation. Authorized under Truman-Hobbs Act.
2. Completed. Date will be furnished when available.
3. Includes previous project costs.
4. No commerce reported.
5. Abandonment recommended in H. Doc. 467, 69th Cong., 1st sess.
6. Completed except that portion above mile 10.3 providing for widening from 40 feet to 60 feet, which is inactive.
7. By Public Law 88-404, that portion of Bayou Terrebonne between point where Barrow Street crosses said stream and a line determined by prolonging and extending eastern right-of-way line of New Orleans Boulevard southerly to south bank of said stream was declared nonnavigable.
8. Includes $66,000 contributed funds.
9. Operation and maintenance of the structure reported under project "Calcasieu River and Pass, LA."
10. Excludes $50,000 contributed funds.
11. Not completed; incorporated in navigation project "Mermentau River, LA."
12. Not completed; superseded for most of it length by present 12- by 125-foot Gulf Intracoastal Waterway, which coincides with or parallels it.
13. Maintenance project; no future work schedules.
14. Includes $57,555 ($29,974 of which was from Public Works funds) for new work on previous project. Includes $114,519 for maintenance of previous project.
15. Work is under continuing authority.
16. Includes $1,729,989 for previous project.
17. Does not include allotment of $40,000 (9613123).
18. Does not include expenditures of $63,370 (9613123).
19. Includes $169,055 for previous projects and $3,379,676 from permanent indefinite appropriation.
20. Includes $8,811,000 Non-Federal Costs.
21. Channel completed except for IHNC Lock replacement and foreshore protection.
22. Does not include expenditures of $7,614,000 for Dredge Wheeler Ready Reserve for 2003.

TABLE 11-D OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Operation and Construction	Cost to Sep. 2003 Mo. and Yr. Maintenance	Completed
Amite River and Tributaries, LA	1964	3,034,255[1]	--	Feb. 1964
Bayou Choupique, LA[2]	1954	129,930	--	Mar. 1954
Bayou Rapides, LA[2]	1952	95,179	--	Dec. 1951
Harvey Canal, Bayou Barataria Levee, LA	1979	1,018,005	--	--
Morgan City and Vicinity, LA	1992	1,975,628	--	--

1. In addition, the following was expended from contributed funds:
   Amite River and tributaries .... $ 430
   Harvey Canal, Bayou Barataria Levee, LA 425,209
2. Authorized by Chief of Engineers (Sec. 205, 1948 Flood Control Act, as amended)

TABLE 11-E DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Baton Rouge Harbor Segment Between Mi 2.5 and 5.0	1946	Nov. 2, 1979 Section 12, Public Law 93-251 (WRDA 74)	--	--
Bayou Grosse Tete, LA	1969	May 6, 1981 DAEN-CWP-A Letter Subj: Completed Action on 5th Deauthorization Rpt, dated Jun. 17, 1981	--	--
Lake Borgne and Chef Menteur Bulkheads and Jetties	1942	Nov 1979	--	--
Vinton Waterway, LA	1950	Nov. 2, 1979 Section 12, Public Law 93-251 (WRDA of 1974)		

TABLE 11-F FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, P.L. 858
80th Congress, as amended (preauthorization)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Armenco Canal, Iberia Parish, LA	176,000		176,000
Bayou Choupique, LA	14,000		14,000
Bayou Pigeon Flood Protection, LA	67,000		67,000
Bayou Sorrel Flood Protection, LA	4,000		4,000
Bayou Terrebonne, LA	16,000		16,000
Crown Point Basin, LA	0		0
Henderson Bayou, LA	0		0
St. Martin Parish, LA	97,000		97,000
Town of Carencro	31,700		31,700
Goose Bayou Basin, LA	4,800	2,600	7,400
Jean Lafitte, LA	122,300		122,300
Lockport to Larose, LA	10,600	77,600	88,200
Pailet Basin, Jeff Parish, LA	40,000	8,600	98,600
Rosethorne Basin, LA	213,200		213,200
Section 205 Coordination	10,000		10,000
Oakville to Lareussite, LA	22,700	800	30,700
Braithwhite Park, LA	600	35,100	35,700
Total Section 205	$511,300	$131,900	$693,200

Emergency StreamBank & Shoreline Protection
(Section 14 of 1946 Flood Control Act, P.L. 526)
(Section 27 of the 1974 Water Resources Development Act)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Bayou Des Glaises, LA	0	0	0
Highway 301 along Barataria Bay, LA	262,900	157,200	420,100
LA State Highway 75	28,900	0	28,900
Scotlandville Bluff, LA, Southern University	4,400	138,100	142,500
Highway 1185, Site #2, Avoyelles Parish	2,700	-2,700	0
Highway 77, Bayou Plaquemine, LA	91,700	49,400	141,100
Bayou Folse Road	499,800	251,100	700,900
Parish Road 120 at Lake Arthur, LA	115,700	49,100	164,800
Section 14 Coordination	13,000		13,000
Total Section 14	$969,100	642,200	$1,611,300

Clearing and Snagging For Flood Control
(Section 208, 1954 Flood Control, as amended)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Section 208 Coordination	10,000	0	10,000
Total Section 208	$10,000	0	10,000

Shoreline Protection of Publicly Owned Property
(Section 103 River and Harbor Act of 1962, PL 87-874, as amended)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Fort Livingston, Grand Terre	3,100	0	3,100
Section 103 Coordination	10,000	0	10,000
Highway 70, Lake Palourde	$ 88,600	0	88,600
Total Section 103	$101,700	0	101,700

TABLE 11-G ENVIRONMENTAL WORK UNDER SPECIAL AUTHORIZATION

Wetland/Other Aquatic Habitat Creation
(Section 204, Public Law 102-560)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Atchafalaya River	16,700		16,700
Houma Navigation Canal, Barrier Island Restoration	12,400	24,800	37,200
CDSMAD, Sediment Trap for Marsh	7,500		7,500
MR-GO Mile 14-12	435,000	145,000	580,000
MR-GO South Jetty Wong Dike	300		300
Section 204 Coordination	9,600		9,600
Total Section 204	$481,500	$169,800	$651,300

Aquatic Ecosystem Restoration
(Section 206, Public Law 102-560)

Project	FISCAL YEAR COST Federal	Non-Federal	Total
Buras Marine	60,500		60,500
City of Mandeville	76,100		76,100
False River	67,200		67,200
Lake Martin Ecosystem Restoration	58,900		58,400
LA State Pen, Lake Killarney	415,000		415,000
Lake Fausse Point	138,000		138,000
Lake Verret, Assumption Parish	15,500		15,500
Miller Lake Ecosystem Restoration	8,900		8,900
Vermilion River Ecosystem Restoration	9,100		9,100
Total Section 206	$712,100		$712,100

Project modifications to improve environment
(Section 1135, Public Law 99-662)

Project	Fiscal Year Cost Federal	Non-Federal	Total
Calcasieu River Hydrologic Restoration	13,900		13,900
Gulf Intercoastal Waterway, Plaquemines Lock, LA	31,700		31,700
New River Restoration	47,300		47,300
Houma Navigation Canal	23,300		23,300
GIWW Miles 220 to 222.5 W of Harvey Lock, LA	29,700		29,700
MRGO	5,900		5,900
Section 1135 Coordination	9,600		9,600
Total Section 1135	**$161,400**		**161,400**

Navigation Section 107

Project	Fiscal Year Cost Federal	Non-Federal	Total
Short Cut Canal	45,500	0	45,500
Cameron Oil Port	5,500	0	5,500
Port Fourchon Extension	24,900	0	24,900
Section 107 Coordination	9,200	0	9,200
Bayou DuLarge	4,100	16,600	20,700
Total	**$89,200**	**$16,600**	**$105,800**

TABLE 11H

ACTIVE GENERAL INVESTIGATIONS
(96×3121)

Item and CWIS Number	Fiscal Year Cost		
	Federal	Non-Federal	Total
SURVEYS (Category 100)			
Navigation (110)			
Intracoastal Waterway Locks, LA	170,747		170,747
Atchafalaya River and Bayous			
Chene, Boeuf, and Black, LA	423,163	375,330	798,993
Calcasieu River Ship Channel Enlargement, Port of Iberia, LA	4,874		4,874
Calcasieu Lock, LA	485,104		485,104
Subtotal	$1,083,888	$375,330	$1,459,218
Flood Damage Prevention Studies (120)			
Calcasieu River Basin, LA	455		455
Lafayette Parish, LA		283,016	283,016
West Shore, Lake Pontchartrain	16,553	455,727	472,280
Hurricane Protection, LA	89,899		89,899
Jefferson Parish, LA	262,340	58,868	21,208
Orleans Parish, LA		348,226	348,226
St. John the Baptist Parish, LA	31,236		31,236
St. Charles Parish Urban Flood Control, LA	5,372		5,372
Plaquemines Parish Urban Flood Control, LA	146,664	236,276	382,940
St. Bernard Parish Urban Flood Control, LA	62,170	253,722	315,892
Subtotal	$2,073,897	$1,635,835	$3,709,732
Ecosystem Restoration Studies			
GIWW Bank Stabilization & Ecosystem Restoration	46,506		46,506
LCA Ecosystem Restoration	5,697,204	1,106,784	6,803,988
Subtotal	$5,743,710	$1,106,784	$6,850,494
Special Studies (140)			
West Baton Rouge Parish, LA	231,944		231,944
Subtotal	$231,944		$231,944
Miscellaneous Activities (170)			
Interagency Water Resources Development	20,536		20,536
Special Investigations	26,532		26,532
Gulf of Mexico Program	160,193		160,193
National Estuary Program	6,098	6,098	
North American Waterfowl Management Plan	3,863		3,863
Subtotal	$217,222		$217,222

TABLE 11H
(Continued)

ACTIVE GENERAL INVESTIGATIONS
(96×3121)

Item and CWIS Number	Fiscal Year Cost		
	Federal	Non-Federal	Total
Planning Assistance to States (180)			
Chitimacha Master Planning	25,000	30,800	55,800
Chitimacha River Corridor	100	3,400	3,500
Tunica Reservation Master	98,700	36,900	135,600
Assumption Parish Master	0	30,000	30,000
Baton Rouge Park & Recreation	21,500	2,800	24,300
Calcasieu Parish Data Management	0	2,800	2,800
Chacahoula Basin Hydro Monitoring	1,600	24,000	25,600
Donaldsonville Master Plan	800	0	800
Eagle Point Advanced Plan	0	47,400	47,400
East Baton Rouge Levee Improvements	42,800	50,000	92,800
East Baton Rouge City/Parish	0	40,400	40,400
Gretna Levee Top Plan	37,500	27,400	64,900
Iberia Parish Master Plan	20,000	4,000	24,000
St. Martin Parish Master Plan	0	25,000	25,000
Jefferson Parish	10,400	65,600	76,000
Lower St. Martin Parish Master Plan	4,000	30,000	34,000
Opelousas Master Planning	0	24,000	24,000
Pointe Coupee Parish Master Plan	20,000	25,000	45,000
Plaquemines Parish Master Plan	20,000	25,000	45,000
Port Fourchon	-5,200	5,900	700
St. Charles West Bank Recreation	2,700	6,900	9,600
State Penitentiary H&H	0	2,400	2,400
Town of Henderson Master Plan	20,000	0	20,000
Subtotal	$319,900	$509,700	$829,600
TOTAL (Category 100)	$3,709,629	$2,520,825	$6,230,484

TABLE 11H
(Continued)

ACTIVE GENERAL INVESTIGATIONS
(96×3121)

Item and CWIS Number	Fiscal Year Cost		
	Federal	Non-Federal	Total
Collection and Study of Basic Data (Category 200)			
Bi-State Hurricane Transportation	2,800		2,800
Covington, LA	1,500		1,500
Digitized Records	26,600		26,600
GIS, LA	748,100		748,100
Town of Livingston, LA	1,100		1,100
Southeast Louisiana Hurricane Evac	49,800		49,800
Flood Plain Management Services	16,800		16,800
Floodproofing Workshop	15,500		15,500
FPM-Quick Responses	4,400		4,400
NFPC	7,600		7,600
Southwest Louisiana Hurricane Evac	500		500
Technical Services, General	49,000		49,000
Subtotal	$923,700		$923,700
Total (Category 200)	$923,700		$923,700
Preconstruction Engineering and Design (Category 600)			
Flood Control Projects (650)			
Port Fourchon, LA	2,421,345		2,421,345
Subtotal	$2,421,345		$2,421,345
Total (Category 600)	$2,421,345		$2,421,345
GRAND TOTAL GENERAL INVESTIGATIONS	**$7,054,674**	**$2,520,865**	**$9,575,539**

VICKSBURG, MS, DISTRICT

This district comprises western and central Mississippi, southern Arkansas, northern Louisiana, and a very small portion of southwestern Tennessee, embraced in drainage basins of eastern tributaries of Mississippi River south of Horn Lake Creek to and including Buffalo River; Pearl River Basin in Mississippi; independent tributaries of the Gulf of Mexico south of the Buffalo River Basin to the Mississippi-Louisiana state line; western tributaries of Mississippi River between White and Atchafalaya Rivers including Arkansas River Basin below a point 3 miles upstream from Pine Bluff and Arkansas River below mile 36.1 near Pendleton, AR; Ouachita and Black Rivers in Arkansas and Louisiana; and Red River in Louisiana and Arkansas to the Texas-Arkansas state line. The Vicksburg District territory encompasses 68,000 square miles.

IMPROVEMENTS

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Navigation

1. OUACHITA AND BLACK RIVERS BELOW CAMDEN, AR

Location. Ouachita River rises in Polk County, AR, and flows southeasterly and southerly about 600 miles. Below its confluence with the Tensas and Little Rivers at Jonesville, LA, it is called Black River, which enters Red River 35.5 miles from the Mississippi River.

Previous projects. See page 683 of Annual Report for 1962 for details.

Existing project. See page 684 of Annual Report for 1962 for details of the old 6.5-foot navigation project. Modified project and project for Red River below Fulton, AR, provide for a channel 9 feet deep and 100 feet wide in Red River between Old River and mouth of Black River, and in Black and Ouachita Rivers from mouth of Black River to Camden, AR. Authorized features for the modified project include four new locks and dams, in-river construction dredging to achieve a 9-foot navigation channel depth, and channel realignment. All 4 locks and dams are complete and in operation and initial channel dredging is complete providing 9-foot navigation depth. Remaining work consists of realignment of 25 restricted bendway sites between river miles 195 at Sterlington, LA, and river mile 335 at Camden, AR, on the Ouachita River. With these improvements in place the river system will be navigable by a four-barge tow (two abreast) to Crossett, AR, river mile 237, and a two-barge tow (abreast) to Camden, AR. Mitigation features include the 65,000-acre Felsenthal National Wildlife Refuge in Arkansas, the 18,000-acre D'Arbonne National Wildlife Refuge in Louisiana, a series of recreation facilities along the waterway, and improvements to Catahoula Lake to preserve it for migratory waterfowl. Estimated total cost for the nine-foot navigation project is $281,009,000 which includes $263,000,000 Federal costs and $18,009,000 non-Federal costs.

Local cooperation. Local interests are required to furnish the construction rights-of-way for the realignment work. Seven of the 25 sites are within the Felsenthal National Wildlife Refuge and are already owned by the Federal Government. However, there have been no indications that the land for the remaining 18 sites will be forthcoming because of strong opposition to the realignment work by local environmental groups. The six remaining recreation facilities are unscheduled at this time due to the lack of required cost sharing agreements.

Terminal facilities. Public loading docks are at Columbia, LA, and Camden and Crossett, AR. Privately owned docks and loading and unloading facilities are at Columbia, Monroe, and Sterlington, LA, and El Dorado, Calion, and Camden, AR. Two grain-handling facilities and a petroleum-loading facility are in the vicinity of Jonesville, LA, a grain-handling facility is in the vicinity of Acme, LA, and a petroleum-loading facility is in the vicinity of Smackover, AR.

Operations and results during fiscal year.

In FY 03, maintenance dredging was performed from Camden, AR, to the mouth of the Black River by the contract Dredge Butcher and Dredge Tulsa, 827,601 cubic yards of material were moved from the navigation channel.

Condition as of Sep. 30. The project is 92 percent complete and provides limited navigation as far north as Camden, AR. All four locks and dams associated with the project are complete and in operation. Design and construction of the remaining features is on hold pending a consensus between the states of Arkansas and Louisiana concerning the type of development desired or the additional studies needed to reach a decision.

2. RED RIVER EMERGENCY BANK PROTECTION

Location. In northwest Louisiana, southwest Arkansas, and northeast Texas, along the Red and Old Rivers between the Mississippi River and the head of the levee system above Index, AR.

Existing project. Provides for realigning the banks by means of cutoffs and training works and for stabilizing banks by means of revetments, dikes, and other methods as emergency conditions may require in advance of developing the design for the entire Red River Waterway project. Estimated cost for this work (October 2003) is $133,400,000 Federal and $2,182,000 non-Federal, including a cash contribution of $7,000.

Local cooperation. Fully complied with. For details see pages 11-19 to 11-20, Annual Report FY 80.

Operations and results during fiscal year. Construction was completed on Pleasant Valley Revetment and Hunter's Island Revetment in ARK.

Condition as of Sep. 30. Construction was initiated in October 1972 and is 99 percent complete.

3. RED RIVER WATERWAY PROJECT

J. Bennett Johnston Waterway

Location. From east central to northwest Louisiana along the Red and Old Rivers between the Mississippi River and Shreveport, LA.

Existing project. Provides a navigation route from the Mississippi River at the junction with Old River via Old and Red River to Shreveport, LA, developing a channel approximately 236 miles long, 9 feet deep, and 200 feet wide. The development includes five locks and dams, realignment and contraction of the river as necessary to develop an efficient channel, and bank stabilization as necessary to hold the newly developed channel in position. Facilities to provide and acquisition of wildlife mitigation lands opportunities for recreation and for fish and wildlife development and acquisition of wildlife mitigation lands are an integral part of the project. Estimated cost for new work (October 2003) is $1,902,398,000 Federal and $107,455,000 non-Federal. The Federal cost includes $601,000 for aids to navigation by U.S. Coast Guard.

Local cooperation. For details see page 11-21, Annual Report FY 80.

The Red River Waterway Commission, governing body of the Red River Waterway District, executed an act of assurance for all project features in Louisiana on Feb. 26, 1969, supported by resolution dated Jan. 30, 1969. The assurances were accepted for and on behalf of the United States on Apr. 15, 1969. The Commission furnished amended assurances covering the provisions of Public Law 91-646 and Public Law 91-611 on May 23, 1973, for the portion of the project within Louisiana. These were accepted for and on behalf of the United States on Nov. 14, 1973. A Local Cooperation Agreement between the Department of the Army and the Red River Waterway Commission for the acquisition of mitigation lands in the vicinity of Loggy Bayou Wildlife Management Area was executed on Jun. 16, 1993, and a project cooperation agreement between the same agencies for the acquisition of mitigation lands in the vicinity of Bayou Bodcau was executed on July 17, 1996.

Terminal facilities. Local interests are to provide adequate terminal facilities along the waterway. The Corps entered into an agreement with the City of Alexandria, LA, whereby material excavated from the Philip Bayou Realignment could be used as fill for port construction at mile 109. Construction of the realignment and port fill are complete. Construction of the Caddo—Bossier and Natchitoches Parish ports are complete. Construction of the Red River Parish Port will start in FY 03.

Operations and results during fiscal year. The following contracts were completed in FY 03: Alligator Bayou/Blakewood Lake ACM, Pool 1 Reinforcements, Piermont Reinforcements, and Nicholas reinforcement. Several channel training works will be initiated and completed in FY 04 to refine the reliability and safety in the navigation channel.

Maintenance dredging was performed along the waterway by the Contract Dredge Butcher and Contract Dredge Tulsa, during Fiscal Year 2003. 773,000 cubic yards of material were removed from the navigation channel.

Condition as of Sep. 30. Construction was initiated in July 1973, and project is 93 percent complete.

Feasibility phase studies were authorized by WRDA 96 to determine the feasibility of extending navigation on the Red River from the vicinity of Shreveport, LA, to the vicinity of Index, AR, or to any justifiable interim point were initiated in Mar 99. Feasibility studies were completed in Sep 02. The Arkansas Red River Commission is the non-Federal sponsor.

4. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 87-645, as amended.

In FY 03, $14,995 was expended on Section 107 Coordination Accounts; $130,202 on Yazoo Diversion Canal, MS; $234,458 on Natchez-Adams County Port, MS.

Flood Control

5. ALOHA-RIGOLETTE AREA, LA

Location. The project is located in north-central Louisiana between the towns of Winnfield and Pineville on the left descending bank of the Red River.

Authorized Project. The recommended plan consists of a three-barrel floodgate structure installed at the mouth of Bayou Darrow to reopen it to the Red River, 8.2 miles of clearing and snagging on Bayou Darrow from its mouth upstream to Bayou Rigolette, construction of a closure and low-flow structure on

Bayou Rigolette just below its junction with Bayou Darrow, and realignment of Sam's Bayou and appropriate mitigation features.

Local Cooperation. The City of Colfax, LA, has agreed to cost share this project. The Project Cooperation Agreement was signed on Sept. 19, 1994.

Operations And Results During Fiscal Year. Construction is complete on the Bayou Darrow Structure. Construction on Item 3 is underway.

Condition as of Sep. 30. Construction underway on Item 2, and Item 3.

6. MCKINNEY BAYOU, AR

Location. The project area is located in southwestern Arkansas in the vicinity of Texarkana, AR and TX. The McKinney Bayou area is a crescent-shaped watershed located adjacent to the Red River containing approximately 340 square miles.

Existing project. The authorized project consists of flow diversion to the Red River at the state line between Arkansas and Texas, flow diversion into the Red River at Buzzard Bluff, improvement of McKinney Bayou channel, and land acquisition for mitigation. The State Line Diversion, Buzzard Bluff Diversion, and channel improvement features have subsequently been reclassified to the inactive category due to a lack of local support or lack of economic justification. Alternative plans developed to reduce flooding consisted of various channel improvements on the lower 27.6 miles of McKinney Bayou. A clearing and snagging alternative with project first costs of $3.2 million and a plan combining clearing and snagging with channel improvement with project first costs of $4.9 million were found economically feasible. Shortly after initiation of reconnaissance studies, Headquarters, U.S. Army Corps of Engineers, in an effort to streamline the study process, approved proceeding directly from the reconnaissance phase to preconstruction engineering and design (PED), subject to reconnaissance study finding being substantially in accordance with the authorized McKinney Bayou project and with previous U.S. Army Corps of Engineers, New Orleans Disrict, study findings. Under this arrangement, the cost-shared feasibility phase would be eliminated. Study findings substantiated this decision. As a result, it was recommended that the study effort progress into PED. The reconnaissance report was approved by the U.S. Army Corps, Mississippi Valley Division, on May 12, 1997. The plan recommended for implementation would be developed during PED.

The local cost-sharing sponsors, the Miller County Improvement and Drainage District and the McKinney Bayou Drainage District have indicated by letters dated Sep. 24, and Sep. 30, 1997, respectively, that they do not have the financial resources to undertake project construction. Therefore, they do not wish to continue into the next project development phase, PED. The project is being held in abeyance pending further developments regarding the local sponsor's ability to cost-share. If this cost-sharing issue cannot be resolved, all activities associated with the project will be terminated and it will be classified as inactive.

Condition as of Sep. 30. A new start reconnaissance study was initiated in January 1996. This restudy of the authorized project to address the feasibility of channel improvements on McKinney Bayou to reduce flooding of agricultural and other properties was completed in March 1997. Project is approved to proceed directly into preconstruction engineering and design pending execution of a PED cost sharing agreement.

7. OUACHITA RIVER LEVEES, LA

Location. East bank of Ouachita River between Bastrop, LA, and Sandy Bayou. Loop levees on the west bank at West Monroe, Columbia, and Bawcomville.

Existing project. There are 105.8 miles of levee on the east bank and 11.6 miles of levee in the three loops on the west bank. A Summary Report authorized gravel surfacing 117.4 miles of levee, and enlarging 36.6 miles of levee. Estimated Federal cost is $30,417,000. Estimated non-Federal cost is $5,404,000.

Local cooperation. Requirements and assurances of local cooperation are fully described on page 12-6 of FY 80 Annual Report. A supplemental agreement for the Bawcomville segment was executed in FY 90.

The 1991 Water and Energy Appropriations Act gave the Federal government responsibility for the repair and/or replacement of the deteriorated drainage structures. The Assurances Agreement for Local Cooperation was supplemented to reflect this change in responsibility. The supplemental agreement covered work performed since Fiscal Year 1992.

Condition as of Sep. 30. Item 1 of the Monroe to Sandy Bayou Levee enlargement project was completed Jul. 7, 1978. Additional work was deferred pending results of a comprehensive study of the entire Ouachita River Levee System. A summary report indicating that it is economically feasible to raise portions of the

existing levee to authorized grade and that complete rehabilitation of the levee system as necessary was approved by MVD on Oct. 1, 1986. The study results were disseminated to the project sponsor and interested parties in October 1986. The Project was reclassified as an active project on May 7, 1987. The final summary report was sent to the Office of the Chief of Engineers in July 1988 and design was initiated on the Bawcomville segment of the Ouachita River levees. A construction contract for the Bawcomville levee enlargement is complete. All of the deteriorated culverts have been replaced and/or rehabilitated. A contract to repair the last structure was awarded in FY 02. Item 1 of the Bastrop to Monroe Levee enlargement was completed in October 2001. Item 2 was awarded on 2 December 2003.

8. OUACHITA RIVER AND TRIBUTARIES, AR AND LA

Location. Improvements comprising comprehensive projects are on main stem Ouachita River, AR and LA, on its tributaries, Caddo and Little Missouri Rivers, and in Pine Bluff, AR. Description of Ouachita River Basin is presented in greater detail on page 690 of Annual Report for 1962.

Existing project. The authorized general plan for flood control and other purposes in the Ouachita River Basin includes the projects listed in Table 12-E. The 1966 Flood Control Act modified the Bayou Bartholomew and Tributaries, AR and LA, project to include 10 water-retention lakes in the western tributaries of Bayou Bartholomew in Arkansas and 6 local levee units along the main stem of the bayou in Louisiana.

Local cooperation. Fully complied with for completed features of comprehensive project. (See individual statements for further details.)

Operations and results during fiscal year. Operations for Blakely Mt. Dam-Lake Ouachita, DeGray Lake, Narrows Dam-Lake Greeson, Bayou Bartholomew and Tributaries, and Ouachita River Levees are shown in individual reports in 1985.

Condition as of Sep. 30. Pertinent data on those features which are complete or not started are in Table 12-E. Conditions of Blakely Mt. Dam-Lake Ouachita, DeGray Lake, and Narrows Dam-Lake Greeson are given in the individual reports in 1985 report.

Reconnaissance studies of flooding problems in Ouachita Parish, LA, were initiated in January 1994. Study efforts are concentrating on the developing urban area around Monroe, LA. The reconnaissance report, completed in January 1995, recommended a feasibility study be conducted on flood reduction for the River Styx Bayou area under authority of Section 205 of the Flood Control Act of 1948, as amended. The study addressed alternative sized pumping stations. The final Detailed Project Report was completed in November 1995. The construction contract is complete.

9. PEARL RIVER BASIN, MS AND LA

Location. The basin comprises most of the South-central portion of Mississippi and a small part of southeast Louisiana. The Pearl River begins in Neshoba County, MS, and flows southwesterly 113 miles to the vicinity of Jackson, MS, then southeasterly 233 miles to the vicinity of Bogalusa, LA. At that point, the Pearl River splits into the East and West Pearl Rivers, and flows southerly 44 and 48 miles, respectively, before entering the Rigolets and Lake Borgne.

Existing projects. The Jackson-East Jackson Flood Control Project provides for improvements of the Pearl River at Jackson, MS. This project includes two levee systems totaling 13.2 miles in length, with two pumping stations, four gated outlets, and 18.9 miles of channel rectification including three cutoffs with a total length of 2.2 miles in the Pearl River. This project was authorized by the Flood Control Act of Jul. 14, 1960. Construction began in July 1964 and work was completed in FY 68. Total Federal cost of the project was $7,190,200. The FY 83 Jobs Bill authorized extension of the Jackson-East Jackson West Bank levee system along the Fortification Street I-55 exit. This extension was initiated and completed in FY 84.

Public Law 98-63, dated Jul. 29, 1983, authorized the vicinity of Jackson project. This authority provided for additional measures to prevent recurring flood damages along the Pearl River at Jackson and included 3.3 miles of floodway clearing and enlarging the opening at the Highway 25 Bridge. This work has been completed. Mitigation lands for the clearing were purchased by the local sponsor in May 1985 and the Corps has reimbursed the local sponsor to cover the cost of these lands. Total Federal cost of this project is $1,800,000.

Authorized projects. Public Law 99-88, dated Aug. 15, 1985, authorized planning, design, engineering, and construction of a levee system in Slidell, LA, to protect 3,265 residential and commercial structures from floods in the West Pearl. Public Law 99-662, dated Nov. 17, 1986, authorized

construction of Shoccoe Dam and various flood control measures for Carthage-Leake County, MS.

Local cooperation. Requirements are described in full on page 12-6 of the FY 92 report.

Condition as of Sep. 30. An overall basin study is essentially complete, except for alternative studies to Shoccoe Dry Dam as discussed below. Flood control feasibility studies for Slidell, LA, recommending a 15-mile levee system, and for Jackson, MS, recommending Shoccoe Dam have been completed. Detailed engineering and design studies for the Slidell levees have been terminated due to the lack of a local sponsor. As a result of upstream opposition, Shoccoe Dam is not implementable. In response to a request by the local sponsor, the Pearl River Basin Development District, reconnaissance studies to evaluate alternatives to Shoccoe for flood damage reduction in the Jackson Metropolitan Area have been completed and a potentially feasible levee plan identified. A Feasibility Cost Sharing Agreement was signed with the Local Sponsor on Sep. 25, 1991. The feasibility studies focused on a comprehensive levee system and other flood control measures across the basin to reduce damages associated with flooding from the Pearl River. The Feasibility Study was suspended in July 1998 due to the lack of a cost sharing sponsor. Discussions are continuing with potential sponsors to restart feasibility studies to investigate other alternatives to include a lakes plan extending downstream of Ross Barnett Reservoir through the Jackson Metropolitan area. The feasibility cost sharing agreement necessary to resume feasibility studies is anticipated to be signed with the Rankin-Hinds Pearl River Flood and Drainage Control District in early FY 04. Studies of various flood control measures for Carthage-Leake County, Columbia and Picayune, MS; Bogalusa, LA, and the Bogue Chitto Subbasin have been completed. None were found economically feasible. Navigation studies have been conducted on the East and West Pearl Rivers. Results of these studies indicate that maintenance necessary to reopen the existing West Pearl River navigation project is economically justified. The final EIS was filed with EPA in March 1994. Studies indicate that the West Pearl River Navigation Project is economically justified, engineeringly feasible, and in the overall public interest. Maintenance dredging was to resume in the spring of 1995; however, environmental litigation seeking declaratory and injunctive relief was filed and the Corps was enjoined to dredge any portion of the project. Also in 1995, the Corps officially placed the project in a caretaker status by directing that limited funds for the project be used for maintenance of the project in caretaker status. Investigation directed toward project deauthorization were initiated in FY 03.

10. PEARL RIVER, SLIDELL, ST. TAMMANY PARISH, LA

Location. The project is located in the southeastern portion of the State of Louisiana and consists of the area bounded by the West Pearl River on the east, Interstate 10 on the west, and Lake Pontchartrain on the south.

Authorized project. The project is broken into two segments of levees. The segment north of I-10 will consist of 4.0 miles of levee, a pumping station, a floodgate structure, and minor drainage structures. This levee will protect the Slidell area north of I-10 from flooding associated with a 200-year hydrological event on the Pearl River. The segment south of I-10 will consist of 9.0 miles of levees, three pumping stations, floodgates, and minor drainage structures. This levee will protect the Slidell area south of I-10 from flooding associated with a 200-year hydrological event on the Pearl River and provides the same level of protection against hurricane surges. These two levee segments total 13 miles of levee and would protect some 3,029 homes. Estimated Federal cost is $28,437,000. Estimated non-Federal cost is $9,479,000.

Local cooperation. The project sponsor, St. Tammany Levee Board, and the Assistant Secretary of the Army (Civil Works), in an agreement consistent with the Fiscal Year 1985 Supplemental Appropriation Act Public Law 99-88) and Senate Report 1567, signed the Local Cooperation Agreement Jun. 30, 1986. The 1997 Louisiana Regular Legislative Session abolished the St. Tammany Levee District.

Operations and results during fiscal year. This project has been terminated due to the abolishment of the project sponsor.

Condition as of Sep. 30. Completed resolution of comments on the General Design Memorandum for north levee only. Preparation of plans and specifications has been terminated. No construction has taken place.

11. RED RIVER BELOW DENISON DAM (VICKSBURG DISTRICT)

Location. On Red River and its tributaries below Denison Dam, in Oklahoma, Arkansas, Texas, and Louisiana. (Refer to Geological Survey State maps and folio “Maps of Red River” - 1958 edition.)

Existing project. Flood Control Act of 1946 approved general plan for flood control on Red River below Denison Dam, TX and OK, which provides for construction of six flood control reservoirs in

combination with existing or authorized Federal and non-Federal levee improvements, modified as required, and channel stabilization at locations where levee set-backs are impossible or uneconomical. This act further authorized incorporation of several separate existing projects for flood damage prevention along Red River below Denison, above jurisdiction of the MRC, into this project. By Public Law 780, 83rd Cong., 2nd sess., as amended by Public Law 218, 84th Cong., lst sess., and Public Law 645, 86th Cong., lst sess., plan of improvement was amended to include additional projects as indicated in following lists of reservoirs and local protection works considered in general flood control plan for the Red River below Denison Dam, and existing flood control projects incorporated into project in Vicksburg District. (See Table 12-F for new projects and Table 12-G for incorporated projects.)

Local cooperation. See individual reports herein.

12. RED RIVER BELOW DENISON DAM, LEVEES AND BANK STABILIZATION (VICKSBURG DISTRICT)

Location. Along the main stem of the Red River from the head of the levee system immediately above Index, AR, through the southwest corner of Arkansas to the vicinity of Boyce, LA, on the right bank, and Pineville, LA. on the left bank.

Existing project. Raising and strengthening existing and authorized Red River levees to provide protection against flooding and bank protection works at locations where levee setbacks are impossible or uneconomical. The plan consists of raising and strengthening existing and authorized Red River levees to provide against a flood approximately 20 percent greater than the flood of 1945, the flood of record, as modified by authorized reservoirs. Bank protection works are to be constructed at locations where levee setbacks are impossible or uneconomical. Estimated cost for new work (October 2003) is $81,975,000 Federal and $3,241,000 non-Federal.

Local cooperation. Requirements of local cooperation are fully described on page 12-10 of FY 1984 Annual Report.

Operations and results during fiscal year. Construction is complete on Dilard Revetment. Construction on Levee Item 5 is underway.

Condition as of Sep. 30. Construction is underway on Levee Item 5 and Dillard Revetment. Construction was initiated in February 1948 and the levee and bank stabilization are complete with the exception of levee rehabilitation within the state of Arkansas. Construction was initiated on the rehabilitation of levee Item 5 in Arkansas.

13. WEST AGURS, LA, LEVEE

Location. The West Agurs, LA, Levee is located in Caddo Parish in northwestern Louisiana, immediately adjacent to the northern corporate limits of Shreveport.

Existing Project. The West Agurs levee was constructed by local interests in 1961 and incorporated into the Federal project Red River Below Denison Dam Project in 1983. The levee extends from U.S. Highway 71 at the north end of the area to the Texas and Pacific Railroad at the lower end, a distance of approximately 3 miles. In addition to the levee, appurtenant interior drainage works include a borrow pit channel at an approximate bottom elevation of 150.0 feet NGVD, a 55 CFS pumping station, and one 10- by 10-foot floodgate. The entire system was designed to protect the 700-acre West Agur area from Twelve Mile Bayou headwater and Red River backwater flooding. Total Federal cost is $0.

Local Cooperation. The Caddo Levee District completed levee improvements consisting of a temporary ponding area required for the levees to be incorporated into the Federal project in 1983. The West Agur levee was incorporated into the Federal system in 1983. Operation and maintenance of the levee is the responsibility of the Caddo Levee District.

Condition as of Sep 30. Studies of flooding problems in the West Agur area conducted under the authority of Section 205 of the 1948 Flood Control Act as amended were completed in March 99. The report completed in December 1998 recommends an additional 55 cfs pump to provide flood protection to commercial and industrial properties located within the leveed area. Construction was initiated in FY 03 and will be completed in FY 04.

14. TENSAS RIVER BASIN, LOUISIANA

Location. The Tensas River Basin is bounded by the Mississippi River on the east and the Ouachita-Black Rivers on the west, and extends southward from the Louisiana/Arkansas state line to Old River control Structure in Concordia Parish, Louisiana. Parts or all of Catahoula, Concordia, East Carroll, West Carroll, Ouachita, Franklin, Madison, Morehouse and Tensas Parishes lie in the basin. It encompasses approximately 3.3 million acres with over 50 lakes and streams, 4

national wildlife refuges, 11 wildlife management areas, 1 state wildlife refuge, 1 game and fish preserve, 2 state parks, 2 ports, and a historical site at Poverty Point. Four pumping plants and numerous weirs and drainage structures are also located in the area.

Existing Project. Flooding, water supply, and the decline of environmental resources are problems in the basin. In particular, this ecosystem is being rapidly degraded from pollution of water, sedimentation, and frequent and excessive flooding. Possible solutions to the problems include channel improvements, drainage structure(s), and weir(s).

A comprehensive study is required to balance these competing demands and is critical for this area to ensure the wise and efficient use of the basin's water resources. The study scope is more in accord with that requiring a comprehensive watershed approach to these problems, based on the size and complexity of the area (5,141 square miles with very sensitive environmental resources and complex hydrologic conditions), the need for multi-agency coordination, and the potential for multiple sponsors due to the potentially large project implementation cost.

Conditions as of Sep. 30. Funds were not added in FY 03. Therefore, $188,000 had to be reprogrammed to the subject project to complete the reconnaissance report. In order to adequately investigate the basin and provide the local sponsor with enough information for their decision to participate in a Feasibility Cost-Sharing Agreement, the total study cost estimate is $350,000 and the required study duration is 18 months.

14. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspection of completed work was accomplished at a cost of $283,336 for the fiscal year. Total cost as of Sep. 30, 2003, is $6,371,006.

15. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities—repair, flood fighting, and rescue work. (Public Law 99, 84th Cong., and antecedent legislation.)

FY 03 costs for the period were $457,300 for disaster preparedness.

Snagging and clearing of navigable streams and tributaries in the interest of flood control (Sec. 208 of 1954 Flood Control Act, Public Law 780, 83rd Cong.)

In FY 03, $15,000 was expended on Section 208 coordination account; $9,136 on Bakers Creek, Clinton, MS.

Emergency bank protection (Sec. 14 of 1956 Flood Control Act, Public Law 780, 83rd Cong.)

In FY 03, $14,980 was expended on Section 14 coordination account; $292,054 on Little Black Creek, Eupora, MS; $127,202 on Bayou Pierre, Copiah County, MS; $503,712 on Loggy Bayou, Bienville Parish, LA; $17,997 on Fort Lookout, Ouachita River, AR; $500,266 on Parker Bayou, Pearl River County, MS; $9,062 on Lynch Creek, Jackson, MS; $31,027 on Eubanks Creek, Jackson, MS; $48,302 on Port Bienville Industrial Park Drainage Ditch; and $58,552 on Dillon's Bridge, Bogue Chitto River, MS.

Flood control activities pursuant to Sec. 205, Public Law 858, 80th Cong., as amended (preauthorization).

In FY 03, $15,009 was expended on Section 205 coordination account; $80,732 on Red Chute Bayou levee, LA; $613,554 on Two Bayou, Camden, AR; $17,117 on Twelve Mile Bayou, LA; $116,001 on King's Point Island, MS; $10,070 on City of Richland, MS; $10,025 on City of Florence, MS; $23,000 on Gin Bayou, MS Valley State, MS; $2,600 on North Natchez, Adams County, MS; $39,796 on Tchula Lake, Tchula, MS; $16,724 on Moorhead Bayou, Sunflower County, Moorhead, MS; $28,711 on McKinney Bayou, Tunica County, MS; $9,965 on Patterson Bayou, Blue Cane, Tallahatchie County, MS. During FY 03,m $2,793,987 was expended on permit evaluations; $174,226 on enforcement; $4,414 on appeals. A total of $2,972,627 was expended in FY 03.

16. ECOSYSTEM RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Project modifications for improvement of environment pursuant to Sec. 1135, Public Law 99-662, as amended (preauthorization).

In FY 03, $14,991 was expended on Section 1135 coordination account; $332,357 on Sulphur River, LA; $50,075 on Bayou Macon, AR; $41,820 on Remmel Dam, AR; $25,865 on Fraziery/Whitehorse Oxbow, LA; $5,122 on Old River, Lake Providence, LA; $183,456 on Lake Whittington, MS; $37,951 on Bayou Macon, LA; $64,293 on Dump Lake, Yazoo County,

MS; $49,445 on Boeuf River, Point Jefferson, LA; $95,573 on Steep Bank Creek, AR; $1,003 on Snake Creek, Yazoo River, Humphreys County, MS; $208 on Tchula Lake, MS; $8,743 on Cannon Brake/Lower Vallier, AR; and $4,835 on Sunflower River, MS Delta Section, MS; $4,001 on Lower Deer Creek, MS Delta Section, MS; and $44,280 on upper Deer Creek, MS Delta Section, MS.

Aquatic Restoration pursuant to Section 206, P.L. 104-303.

In FY 03, $14,987 was expended on Section 206 coordination account on Indian Bayou, Indianola, MS; $52,868 on Lake Bruin, Tensas Parish, LA; and $10,000 on Lake Chicot Nursery Pond, Chicot County, AR.

17. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

During FY 03, $57,600 was expended on continuity of Government, and $13,100 on EOC Support and Facilities. Total costs for FY 03 were $70,700.

18. GENERAL REGULATORY PROGRAM

During FY 02, $2,349,840 was expended on Permit Evaluation; $160,026 on Enforcement; and $3,645 on appeals. A total of $2,509,866 was expended in FY 02.

TABLE 12-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 99	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
	Ouachita and Black Rivers below Camden, AR (6.5-foot navigation project)	New Work						
		Approp.$	--	--				$ 5,248,619[1]
		Cost	--	--				5,248,619[1]
1.	Ouachita and Black Rivers below Camden, AR (9-foot navigation project)	New Work						
		Approp.	150,000	--	--			230,759,251[2]
		Cost	3,573	42,650	66,715			230,223,172[2]
		Maint.						
		Approp.	7,403,000	8,637,285	6,467,033			161,844,421
		Cost	7,683,567	8,638,451	6,488,189			161,630,608
2.	Red River Emergency Bank Protection	New Work						
		Approp.		7,355,000	4,766,900	1,369,000	5,655,541	84,647,441
		Cost		7,830,942	4,907,647	1,392,000	5,662,449	85,780,449
	(Contrib. Funds)	New Work						
		Contrib.	--	--	--			6,825
		Cost	--	--	--			6,825
3.	Red River Waterway Mississippi River to Shreveport, LA	New Work						
		Approp.		17,494,000	17,520,000	20,123,000	17,255,202	1,770,080,200
		Cost		18,418,154	18,000,234	20,232,000	17,577,824	1,749,748,824
		Maint.						
		Approp.	9,309,400	13,820,867	13,987,686			117,723,744
		Cost	9,374,662	13,808,395	13,328,794			115,968,594
	(Contrib. Funds)	New Work						
		Contrib.	-150,893	--	--			4,916,659
		Cost	--	--	--			4,879,967
5.	Aloha-Rigolette, LA	New Work						
		Approp		748,000	--	200,000	237,000	9,495,800
		Cost		823,559	38,007	235,000	261,107	9,176,313
6.	Contrib. Funds	New Work						
		Approp.	138,000	250,000	150,200			938,200
		Cost	156,900	397,923	6,022	48,377		1,036,498
	(Contrib. Funds)	New Work						
		Approp.	--					--
		Cost	--					32,553

TABLE 12-A (Continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 99	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
7.	Ouachita River Levees, LA	New Work						
		Approp.	--	300,000	-43,000	405,000	53,000	25,178,758
		Cost	462,763	1,370,435	86,337	365,937	97,289	24,648,495
9.	Pearl River Vicinity of Jackson, MS	New Work						
		Approp.	--	--	--	80,000	39,070	2,199,000
		Cost	--	--	--	78,905.04	40,016	2,198,920
	Pearl River Walkiah Bluff	New Work						
		Approp.	1,560,000	1,000,000	1,144,000	100,000	15,000	7,619,000
		Cost	1,561,608	1,963,685	1,109,135	11,668	23,310	7,618,656
		Maint.						
		Approp.	124,400	--	--			2,760,900
		Cost	128,840	--	--			2,667,808
	(Contrib. Funds)	New Work						
		Approp.	977,500	220,000	--			2,050,054
		Cost	680,951	636,852	--			2,020,788
10.	Pearl River, Slidell, St. Tammany Parish, LA	New Work						
		Approp.	--	--	--			3,586,000
		Cost	--	--	--			3,682,404
11.	Red River below Denison Dam Levees and Bank Stabilization (Vicksburg District)	New Work						
		Approp.	--	--	100,000	3,609,200	2,742,073	2,751,073
		Cost	1,466,232	809,399	385,808	3,662,000	2,738,251	2,858,160
	Natchez Bluff	New Work						
		Approp.	4,000,000	1,962,000	300,000	138,000	59,300	19,169,300
		Cost	5,404,158	4,260,032	3,255,301	360,000	159,631	12,222,377
		(Contrib. Funds)						
		Approp.	741,000	939,200	1,455,300	--		3,735,500
		Cost	985,665	1,191,494	1,358,551	823,547		4,462,057

1. Includes $674,068 for new work on previous projects.
2. Includes $3,312,000 PL 98-8 Jobs Bill. Excludes $47,854,000 previously allocated to New Orleans District.
3. Excludes New Orleans District allocation and cost.

TABLE 12-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	OUACHITA AND BLACK RIVERS BELOW CAMDEN, AR (See Section 1 of Text)	
May 17, 1950	Modification of existing project to provide for 9-foot channel and deepening canal to Felsenthal, AR.	S. Doc. 117, 81st Cong., 1st sess.
Jul. 14, 1960	Modification of 9-foot project to provide four new locks and dams and channel improvements.	S. Doc. 112, 86th Cong., 2d sess.
Dec. 31, 1970	Migratory waterfowl refuges on Bayou D'Arbonne in connection with the pool of the Columbia Lock and Dam and in the pool of the Felsenthal Lock and Dam.	Report of the Chief of Engineers dated Nov. 25, 1970, and H. Doc. 92-109, 92d Cong., 1st sess.
	RED RIVER EMERGENCY BANK PROTECTION (See Section 2 of Text).	
Aug. 13, 1968	Realining the banks by dredging cut-offs and training works and stabilizing banks by means of revetments and dikes.	H. Doc. 304, 90th Cong., 2d sess.
	RED RIVER WATERWAY-MISSISSIPPI RIVER TO SHREVEPORT, LA (See Section 3 of Text)	
Aug. 13, 1968	Develop a 9 by 200 feet, approximately 236 miles long from Mississippi River at junction of Old River via Old River and Red River to Shreveport, LA, consisting of realinement, bank stabilization, and construction five locks and dams.	H. Doc. 304, 90th Cong., 2d sess.
	ALOHA-RIGOLETTE AREA, LA (See Section 5 of Text)	
Aug. 18, 1941	Original author incorporated into RRBW Protection FCA 1946 project modified to provide Bayou Darrow outlet.	Public Law 101-101 Cong., 2nd sess.
	BAYOU BODCAU AND TRIBUTARIES, AR AND LA	
Oct. 27, 1965	Extend Cypress Bayou-Red Chute Bayou levee, construct stream closure landside drainage channel and three culverts on Red Chute Bayou and clearing and snagging channel; extend Flat River-Loggy Bayou levee, close Flat River near junction with Cutoff Bayou, and construct control structures on Flat River near junction with Red Chute Bayou; and enlarge Flat River channel to 20 to 35 feet, a distance of 11.6 miles.	H. Doc. 203, 89th Cong., 1st sess.
	CANAL 43, AR	
Jun. 30, 1948	Channel enlargement	Sec. 205 of the Flood Control Act of 1948, as amended Authorized by Chief of Engineers, October 31, 1988.
	CANEY CREEK, MS	
Nov. 17,1986	Authorizes construction of such bank stabilization measures for Caney Creek in the vicinity of Jackson, MS, between McDowell Road and Raymond Road as the Secretary determines necessary for flood damage prevention and erosion control along approximately 3,000 feet of the creek.	Public Law 99-662, 99th Cong., 2d sess.

TABLE 12-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	NATCHEZ BLUFFS, MS	
Water Resources Development Act of 1996	Authorizes bluff stabilization in accordance with the Natchez Bluff study at a total cost of $17,200,000, estimated federal cost of $12,900,000 and non federal cost of $4,300,000.	Public Law 104-303
	CHAUVIN BAYOU, LA	
Jun. 30, 1948 as amended	Construction of a 250-cfs pumping plant located adjacent to Chauvin Bayou at the Ouachita River levee and a water control structure in Canal L-11.	Sec. 205 of the Flood Control Act of 1948, as amended. Authorized by the Chief of Engineers Feb. 6, 1990.
	LEAD BAYOU, MS	
Jun. 30, 1948, as amended	Channel enlargement.	Sec. 205 of the Flood Control Act of 1948, as amended. Authorized by Chief of Engineers Jun. 10, 1980.
	MCKINNEY BAYOU, AR AND TX (See Section 6 of text)	
Jul. 29, 1983	Authorizes a comprehensive study and recommendations for development and efficient utilization of water and related resources for the McKinney Bayou area, a tributary of Red Water.	Public Law 98-63 98th Cong., 1st sess.
	MONROE AND WEST MONROE, LA, AND OUACHITA PARISH, LA	
Nov. 17, 1986	Authorizes such structural and nonstructural measures as the Secretary deems feasible to prevent flood damage to the cities of Monroe and West Monroe, LA, and Ouachita Parish, LA.	Public Law 99-662, 99th Cong., 2d sess.
	OUACHITA RIVER AND TRIBUTARIES, AR AND LA (See Section 8 of Text)	
May 17, 1950	Authorized DeGray Lake; Murfreesboro Lake; extension of floodwall at Monroe to partially close the existing gap; local protection at Bawcomville, LA (subsequently constructed under Sec. 6, Act of May 15, 1928, with local interests contributing one third of cost); Bayou Bartholomew channel improvement, including Deep Bayou and Overflow Creek; Pine Bluff local protection; local protection at Calion, AR; and incorporation, into the Ouachita River and Tributaries project, of all existing projects and portions thereof in the basin above the lower end of the levees on the east bank of the Ouachita River. In addition, the Chief of Engineers authorized on Nov. 14, 1966, additional work on the levees.	S. Doc. 117, 81st Cong., 1st sess.

TABLE 12-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	PEARL RIVER, MS AND LA (See Section 9 of Text)	
Jul. 14, 1960	Construction of levee system and channel rectification, Pearl River, vicinity of Jackson, MS	H. Doc. 441, 86th Cong., 1st sess.
Jun. 13, 1983	Accomplish the clearing and channel improvements at Hwy 25 bridge on the Pearl River in the vicinity of Jackson, MS.	S. Doc. 153, 98th Cong., 1st sess.
Jul. 29, 1983	Design and construct protection to prevent flooding along the Pearl River in the vicinity of Jackson, MS	Public Law 98-63, 98th Cong., 1st sess.
Aug. 15, 1985	Planning, design, engineering, and construction of a levee system for Slidell, LA, pending binding cost-sharing arrangements acceptable to the Secretary of the Army or under terms and conditions provided in subsequent legislation when enacted into law.	Public Law 99-88, 99th Cong., 2d sess.
Nov. 17, 1986	Authorizes the Pearl River Basin, including Shoccoe, MS, for the construction of the Shoccoe Dam plus upstream flood control measures at east-central Leake County, south part of Carthage, MS, Highway 35 vicinity, upstream reservoirs on the Pearl River and upstream channels on the Pearl River and elsewhere in Leake County.	Public Law 99-662, 99th Cong., 2d sess.
	PEARL RIVER, SLIDELL, ST. TAMMANY PARISH, LA (See Section 10 of Text)	
Nov. 17, 1986	Authorizes flood control improvements for Pearl River Basin, St. Tammany, LA, subject to a favorable Chief's report and approval by the Secretary of the Army for Civil Works.	Public Law 99-662 99th Cong., 2d sess.
	PORTER BAYOU, MS	
Jun. 30, 1948, as amended	Selective snagging and clearing of Porter Bayou, MS, from mile 12.5 to mile 32.3	Sec. 205 of the Flood Control Act of 1948, as amended. Authorized by Chief of Engineers, Feb. 18, 1982.
	RED RIVER WATERWAY, LA (See Section 11 of Text)	
Nov. 17, 1986	Water Resources Development of 1986 authorized for construction the project for mitigation of wildlife losses, Red River Waterway, LA, which may include all or such portion of any land adjacent to the Loggy Bayou Wildlife Management Area.	Public Law 99-662, 99th Cong., 2d sess.
Nov. 28, 1990	Water Resources Development Act of 1990 modified the mitigation project to authorize the Secretary to acquire an additional 12,000 acres adjacent to or close to the Bayou Bodcau Wildlife Management Area.	Public Law 101-640, 101st Cong., 2d sess.
Water Resources Development Act of 1996	WRDA 96 modified the mitigation project to authorize the Secretary to acquire lands adjacent to Loggy Bayou Wildlife Management Area in Caddo and Red River Parishes and increasing the authorized cost to $10,500,000.	Section 301, Public Law 104-303

TABLE 12-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Water Resources Development Act of 1996	WRDA 96 modified the project to include dredging of the entrance to the Oxbow Lakes designated for preservation in project documentation and stated that the cost sharing for this dredging should be the same as the general navigation features.	Section 301, Public Law 104-303
Water Resources Development Act of 2000	WRDA 2000 modified the mitigation project to authorize the acquisition of lands in any of the parishes that comprise the Red River Waterway District, consisting of Auoyelles, Bossier, Caddo, Grant, Natchitoches, Rapides, and Red River Parishes.	
	RED RIVER BELOW DENISON DAM LEVEES AND BANK STABILIZATION (VICKSBURG DIST.) (See Section 12 of Text)	
Jul. 24, 1946	Levee and bank stabilization.	H. Doc. 602, 79th Cong., 2d sess.
Aug. 13, 1968	Deauthorization of Morringsport Dam and Reservoir on Cypress Creek; realining and stabilizing the banks of the Red River; and recreational facilities from the Mississippi River to Denison Dam, OK and TX.	H. Doc. 304, 90th Cong., 2d sess.
	RED RIVER WATERWAY-SHREVEPORT, LA, TO INDEX, AR	
Aug. 13, 1968	Provides for realinement of the channels of the Red River from Shreveport, LA, to Index, AR.	H. Doc. 304, 90th Cong., 2d sess.

TABLE 12-C

OUACHITA AND BLACK RIVERS, AR AND LA (9-FOOT PROJECT), LOCKS AND DAMS (See Section 1 of Text)

Location	Miles from Nearest Town	Miles Above Mouth of Black River	Width of Lock Chamber (feet)	Greatest Available Length for Full Width of Lock Chamber (feet)	Max. Lift at Low Water (feet)	Elev. Normal Pool Surface (feet msl)	Min. Depth on Lower Miter Still at Normal Pool Level (feet)	Character or Foundation	Kind of Dam	Type of Construction	Per-cent Com-plete	Total Estimated Project Cost
Jonesville, LA	10	25	84	600	30	34	14	Piling	Moving	Tainter gated dam; bascule gated navigation pass; steel mitering lock gates	100[2]	$ 43,585,000
Columbia, LA	5	117	84	600	18	52	13	do	do	Tainter gated dam; fixedcrest navigation pass; steel mitering lock gates	95[2]	46,235,000
Felsenthal, AR	1	227	84	600	18	70[1]	13	Earth	do	Tainter gated dam; hinged crest gated navigation pass; steel mitering lock gates.	88[2]	102,161,000
Calion, AR (H. K. Thatcher)	7	283	84	600	12	77	13	do	do	Tainter gated dam; hinged crest gated navigation pass; steel mitering lock gates.	88[2]	71,019,000
	Estimated Federal Cost											$263,000,000
	Estimated Non-Federal Cost											18,009,000
	Total Estimated Cost											281,009,000

1. Fish and wildlife impoundment level. Navigation pool elevation 65.
2. The percent complete reflects all work within the pool.

TABLE 12-D OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Bayou Bartholomew, LA and AR[1,2,3,4]	--	1931	$ 45,874	$ 42,857	[1]
Bayous D'Arbonne and Corney, LA[1,2,4]	--	1941	19,000	37,804	[1]
Big Black River, MS[1,4,5]	--	1895	15,000	--	[1]
Big Sunflower River, MS[1,4,6,7]	--	1942	560,027	459,328	[1]
Boeuf River, LA[1,3,4,7,8,9]	--	1949	30,000	103,737	[1]
Claiborne County Port, MS	--	1985	2,000,000	775,509	Dec. 1983
Cypress Bayou and Waterway between Jefferson, TX, and Shreveport, LA[15]	Complete	1971	202,817	452,611	Dec. 1914
Homochitto River, MS[4]	--	1910	15,482	8,518	[1]
Lake Providence Harbor, LA	--	1985	208,537	7,273,493	Nov. 1963
Little Missouri River, AR[1,4,5]	--	1873	19,992	--	[1]
Little River, LA[1,4,5,10]	--	1890	1,500	--	[1]
Little Tallahatchie River, MS[1,7]	--	1913	19,000	--	[1]
Madison Parish Port, LA	--	1985	656,000	1,340,169	Dec. 1980
Mouth of Yazoo River, MS[1,7,11]	--	1953	1,179,211	11,323,203	[1]
Ouachita and Black Rivers, AR and LA, Felsenthal Canal	--	1937[12]	--	4,387,192	[1]
Overton-Red River Waterway, LA	--	1985	--	--	[1]
Pearl River, MS	--	1985	8,562,908	4,017,386	1956
Red River below Fulton, AR[1,16,17,18]	--	1978	1,963,806	2,147,890	[1]
Red River Waterway LA, AR, OK, and TX[1,17,18]	--	1969	1,752,402	--	[1]
Red River Waterway, Shreveport, LA to Daingerfield, TX[1]	--	1976	150,800	--	[1]
Removings snags and wrecks from Mississippi River below mouth of Missouri River and from Old and Atchafalaya Rivers[11]	--	1948	--	272,500	[1]
Rosedale Harbor, MS	--	1985	2,000,000	7,823,357	Sep. 1978
Saline River, AR[1,3,4,5]	--	1931	26,900	12,792	[1]
Tallahatchie and Coldwater Rivers, MS[1,4,5]	--	1939	43,481	173,066	[1]
Tensas River and Bayou Macon, LA[1,8,13]	--	1949	38,367	85,352	[1]
Yalobusha River, MS[1,4,5,14]	--	1937	7,000	15,936	[1]

TABLE 12-D OTHER AUTHORIZED NAVIGATION PROJECTS (Continued)

Project	Status	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Yazoo River, MS	--	1987	9,341,826	1,217,492	[1]
Yellow Bend Port, AR	Complete	1991	3,793,069	1,300,030	Aug. 1991

1. Status and Date unavailable.
2. Abandonment recommended in H. Doc. 1962, 64th Cong., 2d sess., and H. Doc. 467, 69th Cong., 1st sess.
3. Channels adequate for existing commerce.
4. Inactive project. No commerce.
5. Abandonment recommended in H. Doc. 467, 69th Cong., 1st sess.
6. Project curtailment recommended by elimination of work between Pentecost and mouth of Hushpuckena River. (Abandonment of entire project erroneously recommended in H. Doc. 467, 69th Cong., 1st sess.)
7. See report of Mississippi River Commission for operations in connection with Yazoo Basin.
8. Report of New Orleans District, pp. 919-920 for Fiscal Year 1949.
9. Project curtailment recommended by elimination of work above Girard, LA. (Abandonment of entire project recommended erroneously in H. Doc. 467, 69th Cong., 1st sess.)
10. Due to decline of traffic, local interests not sufficiently interested to provide rights-of-way and dumping privileges.
11. No additional funds available under this project. Work is being carried on under appropriation flood control, Mississippi River and tributaries.
12. Year authorized.
13. Inactive. Channel adequate for commerce.
14. See report of Mississippi River Commission for operations in connection with Yazoo Basin flood control project including channel clearing and rectification and Grenada Lake on Yalobusha River.
15. Excludes $50,000 contributed funds.
16. Includes $1,553,878 for previous projects.
17. Incorporated in the project “Red River Waterway-Mississippi River Shreveport, LA” Sept. 30, 1976.
18. Emergency bank protection on this project is reported separately as “Red River Emergency Bank Protection.” Two reaches, “Red River Waterway-Mississippi River to Shreveport, LA” and “Red River Waterway-Shreveport, LA, Daingerfield, TX,” are also reported separately.
19. Includes $674,068 for new work on previous projects.

TABLE 12-E OUACHITA RIVER AND TRIBUTARIES: EXISTING PROJECT (See Section 10 of Text)

Project	For Last Full Report See Annual Report for:	Estimated Federal New Work Cost
Blakely Mt. Dam-Lake Ouachita, AR	1985	$ 44,100,000
DeGray Lake, AR	1985	72,034,000[2]
Narrows Dam-Lake Greeson, AR	1985	20,900,000
Calion, AR	1960	970,996[3]
Columbia, LA	1941	204,740[3]
Existing levees and extensions thereto from Bastrop, LA, to mouth of Boeuf River and at West Monroe, LA	1961	3,025,181[3]
Little Missouri River below Murfreesboro, AR	1957	354,802[3]
Ozan Creek, AR	1957	57,742[3]
Terre Noire Creek, AR	1948	123,700[3]
Pine Bluff, AR, local protection	1954	172,582[3]
Monroe, LA, floodwall extension (Plan B)	1984	2,561,000[3]
Ouachita River Levees (additional work)	([1])	6,001,000
Total		$150,505,743[4]

1. See individual reports herein.
2. Includes $5,800,000 for water supply to be reimbursed by local interests.
3. Actual cost of completed project.
4. Excludes the authorized Murfreesboro Lake, AR, project, which is inactive. The latest estimated cost (1954) was $4,190,000.

TABLE 12-F RED RIVER BELOW DENISON DAM (VICKSBURG DISTRICT): NEW PROJECTS (See Sec. 13 of Text)

Project	Stream	Drainage Area (square miles)	Conservation Storage (acre-feet)	Flood Control (acre-feet)	Estimated Federal Cost
Bayou Bodcau and tributaries, AR[2] and LA	--	1,158	--	--	$25,100,000[3]
Bayou Nicholas-Coushatta, LA	--	--	--	--	70,717[4]
Bayou Pierre in vicinity of Shreveport, LA[5]	--	--	--	--	243,336[3]
Caddo Lake, LA[1]	Caddo Lake	--	--	--	3,586,000
Campti-Clarence Area in Natchitoches Parish, LA	Red River	--	--	--	1,950,000[3]
Garland City, AR[1,6]	--	--	--	--	1,450,000[3]
Maniece Bayou, AR	--	--	--	--	970,032[3]
McKinney Bayou, AR[7,8]	--	--	--	--	5,610,000[3]
Posten Bayou, AR and LA[2,6,9]	--	--	--	--	560,000
Red River below Denison Dam levees and bank stabilization, TX, AR, and LA[1,3]	--	--	--	--	81,975[3]
Total					99,191,885

1. Details presented in individual report herein.
2. Construction on this project not started.
3. In addition, non-Federal funds are:

Bayou Bodcau and tributaries, AR and LA	$5,300,000
Bayou Pierre in vicinity of Shreveport, LA (cash contribution)	89,047
Caddo Lake, LA	28,000
Campti-Clarence Area in Natchitoches Parish, LA	480,000
East Point	67,000
Garland City, AR	6,000
Maniece Bayou, AR (cash contribution)	18,000
McKinney Bayou, AR (cash contribution)	508,000
Red River below Denison Dam, levees and bank stabilization, TX, AR, and LA	3,241,000

4. For last full report, see Annual Report for 1964.
5. For last full report, see Annual Report for 1951.
6. Inactive.
7. Includes $4,330,200, Code 711, and $399,739 accelerated Public Work funds.
8. Joint-use pool (sediment).
9. Deauthorized by resolution Dec. 17, 1970, which also authorized new project "Posten Bayou, AR," under provision of Sec. 201 of Flood Control Act of 1965.

TABLE 12-G RED RIVER BELOW DENISON DAM (VICKSBURG DISTRICT): INCORPORATED PROJECTS (See Sec. 13 of Text)

Project	Type of Work	Flood Control Act	For Last Estimated Federal Cost	Full Report See Annual Report For:
Aloha-Rigolette Area, Grant and Rapides Parishes, LA	Levee and appurtenances	1941	$ 1,653,237[1]	1956
Bayou Bodcau Reservoir, LA[2]	Flood-control reservoir	1938	5,120,740	[4]
Bayou Bodcau, Red Chute, and Loggy Bayou, LA	Channel improvement	1941	319,200[1]	1948
Bayou Pierre, LA	Channel enlargement	1936	255,529[1]	[4]
Black Bayou Lake, LA[5,6]	Flood-control reservoir	1936	714,000	1945
Colfax, Grant Parish, LA	Cutoff	1938	70,348[1,7]	1938
Grant Parish, below Colfax, LA	Levees	1938	38,809[1]	1941
Hempstead County levee district No.1, AR	Levee enlargement	1938	88,006[1]	1941
Natchitoches Parish, LA	Levee and appurtenances	1936	1,529,927[1,8]	1956
Pineville, Red River, LA	Levee and appurtenances	1941	232,426[1]	1953
Red River in vicinity of Shreveport, LA	Bank protection	1944	3,908,000[1]	1953
Red River Parish, LA	Levee enlargement	1936	149,435[1]	1939
Saline Point, LA	Cutoff	1936	124,111[1]	1945
Wallace Lake, LA	Flood-control reservoir	1936	1,219,371[1,3]	[4]
West Agurs, LA	Levee and appurtenauces	1976	0	
Total			$15,467,134	

1. Actual cost.
2. Project transferred to Vicksburg District, August 1982.
3. Includes amounts indicated for recreational facilities under Code 711, Bayou Bodcau Reservoir, LA, $1,027,000; Wallace Lake, LA, $17,164.
4. Included in this report.
5. Work not started.
6. Inactive.
7. Completed under provisions of Sec. 7 of Flood Control Act of 1928, as amended by Sec. 9 of Flood Control Act of 1936, and included in 1939 Annual Report of President, Mississippi River Commission, p. 2214.
8. In addition, $25,000 was expended from contributed funds.

TABLE 12-H OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Aloha-Rigolette Area, Grant and Rapides Parishes, LA[1]	1956	$ 1,896,826	$ --	Apr. 1955
Bayou Bodcau and Tributaries AR and LA	1995	1,037,952	1,600,919	--
Bayou Bodcau, Red Chute, and Loggy Bayou, LA[1]	1948	319,200	353,298	Jan. 1948
Bayou Bodcau Reservoir, LA	1985	--	7,282,329	Apr. 1961
Bayou Pierre, LA	1985	--	406,121	FY 1939
Bayou Pierre in vicinity of Shreveport, LA[1,2]	1951	243,336[2]	--	Jun. 1939
Big Black River, MS[3]	1956	910,185	670,750	[3]
Big Choctaw Bayou, LA[3,4]	1966	248,823	--	[3]
Black Bayou Reservoir, LA[1,5,6]	1945	--	--	--
Blakely Mt. Dam - Lake Ouachita, Ouachita River, AR	1985	34,023,108	118,814,487	Oct. 1955
Caddo Lake Dam, LA	1986	--	2,523,177	--
Campti-Clarence Area in Natchitoches Parish, LA	1978	1,655,700	--	Jul. 1978
Canal 43, AR	1997	898,061	--	Aug. 1990
Chauvin Bayou, LA	1995	4,245,863	--	--
Colfax, Grant Parish, LA[1,7]	1938	70,348	--	--
DeGray Lake Caddo River, AR	1985	72,033,992	86,301,685	Dec. 1971
East Point, LA	1969	286,069	3,051,536	Aug. 1968
Garland City, AR	1976	1,335,841	--	Jul. 1974
Grant Parish below Colfax, LA[1,3]	1941	38,809	--	[3]
Hempstead County Levee District No. 1, AR[1,3]	1941	88,006	--	[3]
Homochitto River, MS[3]	1956	205,000	144,650	[3]
Maniece Bayou, AR[1,2]	1970	970,932[2]	--	Aug. 1969
Monroe Floodwall, LA	1984	2,560,000	--	--
Murfreesboro Dam and Lake[4]	1951	--	--	--
Narrows Dam-Lake Greeson, Little Missouri River, AR	1985	16,516,689	85,120,503	May 1950
Natchez Port Area, MS[3,4]	1969	538,000	--	[5]

TABLE 12-H (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Natchitoches Parish, LA[1,2]	1956	1,529,478	--	Aug. 1955
Pearl River, Jackson-East Jackson, MS	1986	2,790,127	--	1987
Pineville, Red River, LA[3,4]	1953	232,426	--	Dec. 1951
Lead Bayou, MS	1991	1,961,089	--	Nov. 1988
Porter Bayou	1995	1,049,278	--	Sep. 1993
Posten Bayou, AR[8]	1973	--	--	--
Poverty Point, LA	1986	250,000	--	Oct. 1985
Red River Parish, LA[1,3]	1939	149,435	--	[3]
Red River in vicinity of Shreveport, LA[1]	1953	3,908,000	--	Mar. 1953
Red River Waterway, Shreveport, LA to Index, LA[9]	1994	855,497	--	--
Saline Point, LA[1,3]	1945	124,111	--	--
Twelvemile Bayou, LA[4]	1966	335,433	--	May 1965
Wallace Lake, LA	1985	--	2,715,205	Dec. 1946

1. Authorized under project "Red River Below Denison Dam."
2. In addition, the following was expended from contributed funds:

Amite River and tributaries	$ 430
Bayou Pierre in vicinity of Shreveport, LA	89,047
Choctaw Bayou and Tributaries, LA	170,799
Harvey Canal, Bayou Barataria Levee, LA	425,209
Maniece Bayou, AR	39,293
Natchitoches Parish, LA	250,000

3. Completion Date Unavailable.
4. Authorized by Chief of Engineers under authority of Sec. 205, Flood Control Act of 1948, as amended.
5. Construction not initiated.
6. Inactive.
7. Completed under provisions of Sec. 7 Flood Control Act of 1928, as amended by Sec. 9, Flood Control Act 1936, and included in 1939 Annual Report of President, Mississippi River Commission, p. 2214.
8. Posten Bayou Project, authorized by Senate and House Resolutions, Dec. 17 and 15, 1970, deleted the plan authorized by the Flood Control Act dated Aug. 3, 1955.
9. Excludes New Orleans District allocation and cost.

TABLE 12-I DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Extended	Contrib Funds Exp
Bayou Bartholomew and Tributaries, AR and LA	1990	May 17, 1950 S. Doc. 117, 81st Cong., 1st sess.	974,000	--
Buffalo River, MS[1]	1940	Nov 1986	--	--
McKinney Bayou, Finn Bayou Segment, AR	1963[2]	Aug 1977	--	--

1. Deauthorized by Sec. 1002, Water Resources Development Act of 1986.
2. Date Authorized.

TABLE 12-J ACTIVE GENERAL INVESTIGATIONS (96X3121)

Item and CWIS Number	FY 03 COSTS Federal	Non-Federal	Total
SURVEYS (Category 100)			
Navigation Studies (110)			
Red River Navigation Study, S.W. Ark. - 010436	397,042	500,403	897,445
Subtotal	397,042	500,403	897,445
Flood Damage Prevention (120)			
Jackson Metro - 012742	40,015		40,015
Subtotal	40,015		40,015
Reconnaissance (121)			
Ouachita and Black Rivers, LA & AR – 013743	24,983		24,983
Hot Springs Creek Study, AR – 081494	12,818		12,818
Subtotal	37,801		37,801
Miscellaneous Activities (170)			
Interagency Water Resources (173) -14713	17,007		17,007
Special Investigations (171) -17250	13,996		13,996
North American Water - 053904	2,095		2,095
Subtotal	33,098		33,098
COORDINATION WITH OTHER AGENCIES AND NON FEDERAL INTERAGENCIES (180)			
COOP With Other Water Agencies – 053907	1,991		1,991
PAS – Negotiation Funds - 014800	2,004		2,004
PAS – LA-Areawide Optimization – 22066	18,067	67,405	85,472
PAS – Cross lake Storage Capacity – 22078	57,748	14,437	77,185
PAS – Pearl River County FP GIS, Ph. II – 28015	65,926	56,669	122,595
PAS – Port Bienville, Hancock County, MS – 28013	51,996	58,696	110,692
Subtotal	197,732	202,207	399,939
TOTAL (Category 100)	705,688	702,610	1,408,298
COLLECTION AND STUDY OF BASIC DATA (Category 200)			
Flood Plain Management Services (250)			
Flood Plain Management Services – 82030	22,009		22,009
Quick Response - 82045	5,995		5,995
Special Studies – Scott County, MS Flood Hazard Evaluation – 83305	38,003		38,003
Technical Services – 82040	49,935		49,935
Subtotal	115,942		115,942
Hydrologic Studies (260)			
Hydrologic Studies (260) -53820	4,848		4,848
Subtotal	4,848		4,848
TOTAL (Category 200)	120,790		120,790
GRAND TOTAL GENERAL INVESTIGATIONS	$826,478	$702,610	$1,529,088

MEMPHIS, TN, DISTRICT

This district comprises a portion of southeastern Missouri and southern Illinois, western portions of Kentucky and Tennessee, a small portion of northern Mississippi, and the northeastern portion of Arkansas; includes area embraced in drainage basins of eastern tributaries of the Mississippi River south of Ohio River Basin to Nonconnah and Horn Lake Creeks, inclusive, and those of western tributaries south of Little River diversion channel and Commerce, MO, including St. Francis River Basin and White River and tributaries below Peach Orchard Bluff, AR, on the right bank and below Augusta, AR, on the left bank; also includes left bank Mississippi River levee from vicinity of Memphis south to about mile 620, and right bank levees from Cape Girardeau, MO, to about mile 605.

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Flood Control

1. MAIN DITCH NO. 8, PEMISCOT COUNTY, MO

Location. This project is located in Pemiscot County in the vicinity of Hayti, Missouri, about 50 miles southeast of Poplar Bluff, Missouri.

Existing project. The purpose of the project is control of channel flooding on agricultural lands, while minimizing damage to the environment. The project consists of approximately 15.4 miles of selective clean-out of vegetation and excessive sediment deposits from the bottom of the channel and selective clearing of trees, brush, and other types of blockages from upstream of Elk Chute Ditch to approximately 1.0 mile above the intersection with State Highway P, where Lateral No. 27 flows into Main Ditch No. 8. A detailed project report was approved in December 1995 for preparation of plans and specifications. A project cooperation agreement was signed on 12 September 1997. The sponsor completed acquisition of right-of-way on 22 January 2001. A construction contract was awarded on 29 June 2001 for $1,078,795 and completed October 2002.

Local cooperation. Pemiscot County is the local sponsor for the project.

Operations during fiscal year. The construction on the project is 98% complete as of Sep 30, 2002.

2. MUD CREEK, DRESDEN, TN

Location. Mud Creek is located in Weakly County Tennessee, about 50 miles north of Jackson, Tennessee.

Existing project. The city has a multiple cell sewage lagoon system located along Mud Creek on the eastern limits of the city. Mud Creek is a naturally meandering stream and this stream bank erosion is threatening the stability of the containment dikes for the lagoons. A detailed project report was approved in February 2002, and a project cooperation agreement was signed on 19 June 2002. The project was approved for construction and all construction was completed by September 30, 2002. The construction Costs for the project is $160,000 and of that $56,000 is non-Federal.

Local Cooperation. The City of Dresden Tennessee is the local sponsor for the project.

Operations during fiscal year. The project was substantially completed in Sep 2002. Project closeout and final accounting is in process in FY 03.

3. STEELMAN ROAD, TN

Location. Steelwater Road is located in Lauderdale County, Tennessee, in the community of Dowole Bridges, TN.

Existing Project. This project is a continuing Authorities Project Section 14 that will stabilize 600 feet of the east bank of Mill Creek to protect Steelman Road.

Local Cooperation. Lauderdale County, Tennessee, is the non-Federal sponsor.

4. TUNICA WEIR, TUNICA, MS, AR

Location. Tunica Weir is located on the outlet for Tunica Lake approximately 30 miles southwest of Memphis, TN. on the Mississippi River.

Existing project. This project is the environmental restoration of the 1500-acre Tunica Cutoff Lake formed on a previous cutoff project of the Mississippi River and was approved for construction under the authority of Section 1135 (b) of WRDA 1986 as amended. The weir will stabilize water levels in the lake that had been steadily declining. A construction contract was awarded on Nov 15, 2001 in the amount of $993,201. Construction is substantially complete.

Operations during fiscal year. The construction is substantially complete and project closeout and final accounting in progress in FY 03.

5. TURKEY CREEK, MEDINA, TN

Location. Turkey Creek is located in Gibson County about 7 miles north of Jackson, TN in Medina, TN

Existing project. This project is streambank protection for the sewage lagoon at Medina, TN and was approved for construction under the authority of Section 14 of the flood control act of 1946. A PCA was signed on Sep 27, 2002. Construction was substantially complete in FY 03.

Operations during fiscal year. Construction was substantially complete in FY 03.

General Investigations

6. DESOTO COUNTY REGIONAL WASTEWATER SYSTEM, DESOTO COUNTY, MS

Location. DeSoto County is located in north Mississippi, just south of Memphis, TN. The county's rapid growth demands expansion of existing sewer systems and the development of new systems into one unified county–wide system.

Existing project. Section 219 of WRDA 1992, as amended in Section 502 of WRDA 1999 and Section 108 of the Consolidated Appropriations Act, 2001 authorized $20,000,000 for the design and construction of a regional wastewater system in DeSoto County, Mississippi.

Local cooperation. DeSoto County is the local sponsor for the project. A PCA Amendment to include current Corps of Engineers authorized participation was executed on 19 August 2003. The local sponsor's A-E firm is conducting design activities and preparing plans and specifications for contracting and construction in coordination with the Memphis District.

Operations during fiscal year. Memphis District has awarded contracts on the Short Fork Creek Wastewater Treatment Plant and Byhalia Road Pump Station. Contracts for the Camp Creek Canal Interceptor will be awarded in early 2004. Completion of the currently authorized project is scheduled to be completed in FY 2005.

7. WHITE RIVER TO NEWPORT, AR

Pre-Construction Engineering and Design

Location. The project is located in Arkansas on the White River, starting at Newport, AR (mile 254) to the Arkansas Post Canal (mile 10)

Existing project. Project was authorized by WRDA of 1986, subsequently deauthorized by WRDA of 1988, and reauthorized by WRDA of 1996. The existing authority is for 4.5 ft deep by 100 ft wide from Augusta (River Mile 198) to Newport (Mile 254); and 8 ft deep by 125 ft wide from the Arkansas Post Canal (Mile 10) to river mile 198 at stages equivalent to or exceeding 12 ft on the Clarendon gage, with a 5 ft minimum depth at lower stages.

Operations during fiscal year. Funds are being used to continue the general reevaluation of the authorized White River to Newport, AR project. During this period $86,100 was expended

8. COORDINATION WITH OTHER AGENCIES

During this period $118,221 was expended.

9. COLLECTION AND STUDY OF BASIC DATA

During this period $71,171 was expended.

Environmental

10. REELFOOT LAKE, TENNESSEE AND KENTUCKY

Location. The project is located in northwest Tennessee in Lake and Obion counties and southwest Kentucky in Fulton County.

Existing project. The project includes a new spillway, with an inlet and outlet channel; relocation of a highway bridge; circulation channels in the lake; a sediment retention basin and restoration of Shelby Lake; waterfowl management units. The project was authorized for construction in Section 101(b) of the Water Resource Development Act of 1999. The Estimated Federal Cost for construction for the project is $18,900,000 and the Estimated Non-Federal Cost for construction for the project is $12,000,000.

Local cooperation. The Tennessee Wildlife Resources Agency (TWRA) has agreed to act as non-Federal sponsor. The PED phase was initiated in FY 2000 subsequent to executing a PED agreement with TWRA.

Operations during fiscal year. No FY 2003 funds were received. Awaiting Congressional funding to start construction on spillway.

11. WOLF RIVER, MEMPHIS, TN

Location. The project is located in Shelby and Fayette Counties, Tennessee. The Wolf River basin covers approximately 819 square miles in southwest Tennessee and north Mississippi. The Wolf River flows northwestward approximately 86 miles to its confluence with the Mississippi River at Memphis, Tennessee, meandering through bottomland hardwood forests in its upper reaches and a man-altered channel in its lower reaches.

Existing project. A severe headcut is threatening a bridge and destroying fish and wildlife habitat and development is encroaching on wetlands, bottomland hardwoods and other fish and wildlife habitat in the Wolf River and its floodplain. The project will include six main channel stabilization weirs with two cutoff prevention weirs; eighteen tributary weirs; wildlife corridors and trails in Shelby County; and three boat ramps, two in Shelby County and one in Fayette County. The project was authorized for construction in Section 101, Water Resources Development Act of 2000. The Estimated Federal Cost for construction for the project is $6,350,000 and the Estimated Non-Federal Cost for construction for the project is $3,555,000.

Local cooperation. The Chickasaw Basin Authority and Shelby County, Tennessee are the non-Federal sponsors for this project and signed a PED cost sharing agreement in July 2001. Costs sharing of features in Fayette County are contingent upon receipt of funds from Fayette County and/or the state of Tennessee. The PED phase was completed in February 2003. The project cooperation agreement is scheduled for execution in January 2004.

Operations during fiscal year. The $1,000,000 added to the FY 2004 budget will be used to initiate construction on the first item of work, which includes construction of three (3) of the six main channel weirs, two cutoff prevention weirs, and associated access roads.

Other Activities

12. INSPECTION OF COMPLETED WORKS

Completed projects were inspected at a cost of $186,851 during this period. Total cost as of Sep. 30, 2003, was $3,875,929. This included in-depth inspection of projects.

13. WORKS UNDER SPECIAL AUTHORITIES

Navigation activities pursuant to Sec. 107, Public Law 87-645, as amended.

During this period, $1,028 Federal and $4,466 non-Federal was expended on Blytheville Harbor, AR; $234 Federal and $1,304 non-Federal on Northwest Tennessee Regional Harbor, TN.

Flood control activities pursuant to Sec. 205, Public Law 858, 80th Cong., as amended (preauthorization).

During this period $14,928 was expended on Section 205 Coordination Account; $34,938 was expended on Anderson Creek, TN; $10,230 was expended on Bayou De Chein, KY; $6,001 was expended on Baxter Bottom, TN; $96 was expended for Bono, AR; $778 was expended on Covington, TN; $755 was expended on Crockett Creek, TN; $38,057 was expended on Dresden, TN; $890 was expended on Dyer County Levee, TN; $25,473 was expended on Higginson, AR; $201,554 was expended on Indian Bayou Ditch, AR; $18,801 was expended on Lilbourn, MO; $8,184 was expended on Little River Diversion, MO; $12,278 was expended on Main Ditch 8, MO; $832 was expended on Oliver Creek, TN; $172 was expended on Rossville, TN; $35,950 was expended on Sandy Creek, TN; $36,810 was expended on Truman, AR.

Emergency bank stabilization activities pursuant to Sec. 14, Public Law 526, 79th Cong., as amended.

During this period, $14,978 was expended on Section 14 Coordination Account; $33,185 was expended on Colt, AR; $101,224 was expended on Dresden Sewage Lagoon, TN; $3,253 was expended on Heathcott Road, TN; $26,732 was expended on Hollywood Interceptor, TN; $72,413 was expended on Mt. Moriah Culvert, TN; $3,040 was expended on Poplar Estates Park, TN; $57,637 was expended on Steelman Road, TN; $104,478 was expended on Turkey Creek, TN.

Snagging and clearing of navigable streams and tributaries in the interest of flood control (Sec. 208 of 1954 Flood Control Act, Public Law 780, 83rd Congress).

During this period, $14,991 was expended on Section 208 Coordination Account During this period $463 was expended on Ditch 2 Craighead County, AR; $136 was expended on Lateral No 3 MO.

Project Modifications for improvement of environment pursuant to Sec. 1135, Public Law 99-662, as amended (preauthorization).

During this period $14,940 was expended on Section 1135 Coordination Account; $40,169 was expended on Ditch 28 Structure & Levee, AR; $160,675 was expended on Duck Creek, MO; $200,318 was expended on Horseshoe Lake, AR; $23,671 was expended on Lower Obion River, TN; $4,952 was expended on Mellwood Lake, AR/MS; $210,143 was expended on Tunica County Weir, AR/MS.

Aquatic Ecosystem Restoration, Public Law 104-303, Sec. 206

During this period, $15,411 was expended on Aquatic Ecosystem Restoration Coordination Account Funds. $10,000 was expended on Brownsville Branch, AR.

14. ENVIRONMENTAL IMPROVEMENT PROJECTS

Environmental Infrastructure

During this period, Federal cost was $4,477,429 for DeSoto County Wastewater Treatment, MS

15. EMERGENCY RESPONSE ACTIVITIES

Emergency flood control activities, Public Law 99, 84th Cong.

During this period, Federal cost was $237,755 for disaster preparedness.

Catastrophic Disaster Preparedness Program

Local Preparedness	
National Preparedness	77,382
National Emergency Facilities	2,722
Readiness Training & Exercise Task Force	
Total	$80,104

16. GENERAL REGULATORY PROGRAM

Permit Evaluations	$ 29,859
Enforcement	0
Appeals	0
Total	$29,859

TABLE 13-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
1.	Main Ditch No. 8 Pemiscot County, MO	New Work					
		Approp.	0	505,500	453,200	13,000	1,200,800
		Cost	277	474,886	490,355	12,300	1,201,594
2.	Mud Creek, Desden, TN.	New Work					
		Approp.		35,000	99,000	0	134,000
		Cost		32,279	101,224	0	133,502
3.	Steelman Road, TN	New Work					
		Approp.		28,000	9,000	57,500	94,500
		Cost		23,884	12,977	57,637	94,498
3.	Tunica Cutoff Weir, Tunica, MS / AR	New Work					
		Approp.	25,000	115,000	715,000	210,000	1,215,000
		Cost	23,529	112,965	717,924	210,143	1,214,479
4.	Turkey Creek, Medina, TN	New Work					
		Approp.			31,670	105,100	136,770
		Cost			31,484	104,478	135,962
5.	Desoto County Regional Wastewater System, Desoto County, MS	New Work					
		Approp.	--	144,000	651,000	4,261,000	5,056,000
		Cost	--	--	431,122	4,477,429	4,908,551
6.	White River to Newport, AR	New Work					
		Approp.	421,000	417,000	169,000	68,000	2,413,000
		Cost	394,595	403,587	403,587	86,051	2,200,414
9.	Reelfoot Lake, Tennessee and Kentucky	New Work					
		Approp.	296,000	348,231	25,000	0	671,231
		Cost	29,061	586,510	55,003	0	670,574
10.	Wolf River, Memphis, Tennessee	New Work					
		Approp.	--	94,548	166,450	5,000	265,998
		Cost	--	91,442	169,556	0	260,998

TABLE 13-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA as amended 1948, Sec 205	**Main Ditch No. 8 Pemiscot County, MO** The purpose of the project is control of channel flooding on agricultural lands, while minimizing damage to the environment.	Public Law 858, 80th Congress Jun. 30, 1948
Section 14 of the Flood Control Act of 1946	**Mud Creek, Dresden, TN** The city has a multiple cell sewage lagoon system located along Mud Creek on the eastern limits of the city. Mud Creek is a naturally meandering stream and this stream bank erosion is threatening the stability of the containment dikes for the lagoons.	Public Law 526, 79th Congress 2nd session, Jul. 24, 1946
Section 14 of the Flood Control Act of 1946	**Steelman Road, Double Bridges, TN** This project is streambank protection of Mill Creek to protect the road.	Public Law 526, 79th Congress 2nd session, Jul. 24, 1946
WRDA as amended 1986 Section 1135(b) of	**Tunica Weir, Tunica, MS, AR.** This project is the environmental restoration of the 1500-acre Tunica Cutoff Lake formed on a previous cutoff project of the Mississippi River. The weir will stabilize water levels in the lake that had been steadily declining.	Public Law 99-662, 99th Congress 2nd session, Jul. 14, 1960
Section 14 of the Flood Control Act of 1946	**Turkey Creek, Medina, TN.** This project is streambank protection for the sewage lagoon at Medina TN	Public Law 526, 79th Congress 2nd session, Jul. 24, 1946
Section 219 of WRDA 1992, as amended in Section 502 of WRDA 1999 and Section 108 of the Consolidated Appropriations Act, 2001	**Desoto County Wastewater Treatment, MS** DeSoto County is located in north Mississippi, just south of Memphis, TN. The county's rapid growth demands expansion of existing sewer systems and the development of new systems into one unified county–wide system.	Public Law 106-53, 106th Congress Aug. 17, 1999
WRDA as amended 1999, Sec 101(b)	**Reelfoot Lake, Tennessee and Kentucky** A new spillway, with an inlet and outlet channel; relocation of a highway bridge; circulation channels in the lake; a sediment retention basin and restoration of Shelby Lake; waterfowl management units.	Public Law 106-53, 106th Congress Aug. 17, 1999
WRDA as amended 2000 , Sec 101(b)	**Wolf River, Memphis Tennessee** A severe headcut is threatening a bridge and destroying fish and wildlife. The project will include six main channel stabilization weirs with two cutoff prevention weirs; eighteen tributary weirs; wildlife corridors and trails in Shelby County; and three boat ramps.	Public Law 106-541, 106th Congress Dec. 11, 2000

TABLE 13-B (Cont.) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
WRDA of 1986, subsequently deauthorized by WRDA of 1988, and reauthorized by WRDA of 1996.	**White River to Newport, AR.** Current engineering studies indicate that a channel with a bottom width of 125 feet and a depth of nine feet is potentially economically and environmentally feasible, providing a 95 percent annual availability from Newport, AR to the Arkansas Post Canal.	Public Law 99-662, 99th Congress Jul. 14, 1960 / Public Law 100-676, 100th Congress Nov. 17, 1988 / Public Law 104-303, 104th Congress Oct. 12, 1996

TABLE 13-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For:	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Caruthersville Habor, MO	Annual Dredging	1984	$768,992	$9,745,757
Helena Harbor, AR	Annual Dredging	1984	90,847	9,121,580
Elvis Stahr Harbor, KY	Annual Dredging	1984	149,827	10,103,599
New Madrid Harbor, MO[6]		1984	196,373	--
Obion River, TN[1,3]	Complete	1911	28,716	--
Osceola Harbor, AR	Annual Dredging	1984	269,115	13,280,218
Removing snags and wrecks from Mississippi River below mouth of the Missouri River and Old and Atchafalaya River[4,5]	Complete	1948	--	--
White River, AR (below Newport)	Annual Dredging	1984	169,994	50,910,941
Wolf River Harbor, TN	Annual Dredging	1984	586,50	16,179,160
New Madrid County Harbor, MO	Annual Dredging	2000	824,267	3,326,888

1. No commerce.
2. Existing project is for maintenance only.
3. Recommended for abandonment in H. Doc. 467, 69th Cong., 1st session.
4. Completion date not available.
5. No funds available under this project. Work being carried on under "Appropriation, Flood Control, Mississippi River and Tributaries."
6. WRDA 92 (Section 102) modified authorization by directing the Secretary to assume responsibility for maintenance of New Madrid County Harbor constructed by non-Federal interest.

TABLE 13-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For:	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Big Creek Canal, Millington, TN	--	1977	$ 70,36	$ --
Bradford, TN	Complete	1984	95,	--
Cottonwood Slough pumping plant, IL[1]	Complete	1964	147,0	--
Cypress Creek, McNairy City, TN	--	1998	10,	--
Dails Creek, Holly Grove, AR	--	1996		--
Drinkwater Sewer, MO	Complete	1984	1,494,828	--
Dyersburg, TN[1]	Complete	1962	229,649	--
Dyersburg, TN (SW)	Complete	1981	1,820,869	--
Fletcher Creek at Memphis, TN	Complete	1993	421,8	--
Grays Creek Canal Shelby Co., TN	Complete	1985	155,2	--
Hatchie River, Alcorn Co., MS	Complete	1987	85,	--
Humboldt, TN	Complete	1989	1,141,407	--
Memphis, Wolf River, and Nonconnah Creek, TN	Complete	1960	11,141,199	--
Main Ditch #8	Complete	2002	1,971,700	--
Loosahatchie Intreceptor Sewer, Shelby	Complete	1998	394,0	--
Millington, TN	Complete	1996	830,8	--
Mounds and Mound City, Ohio River Basin, IL[3]	Complete	1955	1,132,704	--
Nixon Creek, TN[1]	Complete	1952	62,	--
Nonconnah Blvd. Nonconnah Creek, TN	Complete	1983	249,9	--
Nonconnah Creek, Interceptor Sewer, Memphis, TN	Complete	1987	259,0	--
Nonconnah Creek at Perkins Street, Memphis, TN	Complete	1993	830,7	--
N. Second St., Memphis, TN (Wolf River Bridge)	Complete	1983	249,9	--
N. Second St. at Wolf River, Memphis, TN	Complete	1991	367,0	--
Plainview Road Bridge, Chester County, TN	Complete	1991	124,9	--
Quince Road Bridge, Memphis, TN	Complete	1993	156,5	--
Raft Creek, AR	--	1997		--
Sandy Creek Jackson, TN	Complete	1985	238,0	--
St. Francis River Highway No. 90, AR	Complete	1985	161,0	--
Tar Creek, Chester County, TN	--	1997	1	--
Treasure Island, MO	Complete	1981	861,5	--
Turner Creek, Corinth, MS	Complete	1987	100,6	--
US Hwy 51, Nonconnah Creek, TN	Complete	1984	369,2	--
W. Hickman, Area, Hickman, KY	Complete	1983	1,674,180	--

1. Authorized by Chief of Engineers under small project authority, Sec. 205, Flood Control Act of 1948, as amended.
2. Includes $21,863 contributed funds.
3. Work being completed under Mississippi River and Tributaries project.
4. Exclusive of Cache River Pumping Station.

TABLE 13-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003		
		Date Deau-thorized	Federal Funds Ex-pended	Contributed Funds Ex-pended
Big Creek and L'Anguille River, White River Basin, AR	1977	May 6, 81	$ --	--
Clarendon to Laconia Circle White River Basin, AR	1937	May 6, 81	--	--
Huntingdon, TN	1983	Sep 80	$2,900,281	--
Long Lake Area, Helena, AR	1983	Jul 83	61,281	--
Memphis Harbor, Memphis, TN	--	Nov 29, 95	--	--

TABLE 13-H ACTIVE GENERAL INVESTIGATIONS (96X3121)

Item and CWIS Number	Federal Cost FY 03	Totals by Categories
SURVEYS (Category 100)		
Miscellaneous Activities (170)		
Special Investigations (171) -17250	$22,200	
Intra Agency Water Resources Development-14713	10,700	
North American Waterfowl Mgmt (176) - 53904	4,500	
	$37,400	
Coordination Studies with Other Agencies (180)		
Coop with Other Water Agencies (181) - 53907	$1,700	
PAS Negotiation Funds	5,800	
PAS – MS – Tunica County (186) - 028009	0	
PAS – TN – Chickasaw Stormwater Study (186) - 047014	100	
PAS – TN – Memphis Riverfront (186) - 047015	800	
PAS – TN – Shelby County (186) - 047011	1,100	
PAS – MS – DeSoto County (186) – 28012	36,500	
PAS – MS – Buck Island Bayou (186) – 28016	13,700	
PAS – TN – Dyersburg (186) – 47016	17,100	
PAS – AR – East Arkansas Enterprise Community (186) – 00512	50,000	
TOTAL (Category (100)		$126,800
COLLECTIONS AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Mgmt Services - 082030	$10,900	
Technical Services - 082040	29,000	
Quick Responses - 082045	2,600	
Jonesboro, AR - 083180	0	
Kennett, MO – 083181	4,600	
Dexter, MO – 083441	11,200	
TOTAL (Category 200)		$58,300
Preconstruction Engineering and Design (Category 600)		
White River to Newport, AR (621) - 060740	$86,000	
TOTAL (Category 600)		$86,000
GRAND TOTAL GENERAL INVESTIGATIONS		$308,500

ST. LOUIS, MO, DISTRICT

This district comprises those portions of southwestern Illinois and eastern Missouri which lie in the drainage basin of Mississippi River and its western tributaries, exclusive of the Missouri River, from the mouth of the Ohio River to mile 300, and of its eastern tributaries to Hamburg Bay at mile 261 on the left bank, exclusive of tributary basin of Illinois Waterway upstream of new La Grange Lock and Dam at mile 80.15 above confluence of the Illinois and Mississippi Rivers. The St. Louis District territory encompasses 27,000 square miles. The District also includes a drainage basin in Missouri tributary to the Little River diversion channel. The Mississippi River between the Missouri River and mile 300 is included in a separate report on the Mississippi River between the Missouri River and Minneapolis, MN. The portion of the Illinois River downstream of new La Grange Lock and Dam is included in the report of the Chicago District on the Illinois Waterway, Illinois and Indiana.

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Navigation

1. ILLINOIS WATERWAY, IL (ST. LOUIS DISTRICT)

See report on Illinois Waterway, IL and IN, under Rock Island District.

2. KASKASKIA RIVER, IL

Location. The river rises in Champaign County, IL, about 5 miles northwest of Urbana, in the east-central part of the state. It flows southwesterly about 325 miles and empties into the Mississippi River about 8 miles above Chester, IL, or about 118 miles above the mouth of the Ohio River. (See Cincinnati sheet of maps of United States published by Army Map Service, scale 1:500,00.)

Previous project. For details, see Annual Report for 1986.

Existing project. Improvement for navigation provides a channel 9 feet deep and 225 feet wide from the mouth to Fayetteville, IL. Improvements included channel enlargement and a dam at mile 0.8 with a single lock 84 feet wide and 600 feet long. Federal cost totaled $147,387,000; non-Federal cost totaled $7,665,000, which included $1,118,160 local contributions.

Local cooperation. State of Illinois passed legislation authorizing Illinois Department of Public Works and Buildings to enter into assurances of local cooperation with the United States. These assurances have been furnished and were accepted on behalf of the United States on Sep. 10, 1965; these assurances were supplemented on Aug. 7, 1972, to incorporate the provisions of Public Law 91-646.

Operations and result during fiscal year. Hired labor performed operation ($2,011,637) and maintenance ($478,677) of the project.

3. MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MN (ST. LOUIS DISTRICT)

See separate section entitled "Mississippi River between Missouri River and Minneapolis, MN," printed in the Annual Report of the Chief of Engineers. This section includes Lock & Dam 24 Major Rehabilitation, Lock & Dam 25 Major Rehabilitation, and Melvin Price Locks & Dam.

4. ST. LOUIS HARBOR, MO AND IL

Location. The project area includes both sides of the Mississippi River from miles 138.8 to 208.8 above the Ohio River (generally, the limits of the Port of Metropolitan St. Louis).

Existing project. The project was authorized by the Water Resources Development Act of 1986. The authorized project includes improvements in two areas: the North Riverfront area in Missouri (which is served by the St. Louis Municipal Docks) and the Tri-City Port area along the east bank of the Chain of Rocks Canal in Illinois. The principal project at the St. Louis Municipal Docks is an L-dike sediment control structure in the river to provide reliable water access to the dock when the river is low. The principal project at the Tri-City Port area is a 210 ft. wide harbor along 6,900 ft. of the Chain of Rocks Canal. The North Riverfront project and half the Tri-City harbor (3.450 ft.) would be constructed in Phase 1, and the second half of the Tri-City harbor in Phase 2 approximately 10 years later. Estimated cost of the project (2000) is $15,524,000 Federal and $30,624,000 Non-Federal. A March 1986 Reevaluation Report described model tests which showed that the L-dike sediment control structure recommended for the St. Louis Municipal Docks would not be effective but that appropriate configuration of a new outer wall for the docks, referred to as the Prototype River Access Improvement Structure (PRAIS), would divert currents so as to control scour and sedimentation and maintain sufficient water depths for the needs of the harbor.

Local cooperation. The District coordinated with the two local sponsors and found that (1) the city of St. Louis is unable to continue as a sponsor for the PRAIS project and (2) the Tri-City Regional Port Authority wants the Corps to consider a project location just below the mouth of the Chain of Rocks Canal adjacent to the former Charles Melvin Price Support Center that the sponsor recently acquired. The proposed reconfigured harbor facility is considerably smaller than the authorized 6,900-foot facility.

Operations and results during the fiscal year. The District submitted a plan formulation package for Division and Headquarters review in April 2002. Policy review in FY 2003 resulted in a recommendation against constructing the project. A draft negative report will be prepared in FY 2004.

5. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

No activity in FY 03.

Flood Control

6. ALTON TO GALE ORGANIZED LEVEE DISTRICTS, IL & MO

Location. The levee system is located adjacent to the Mississippi River between Alton and Gale, Illinois.

Existing Project. The project is authorized by the Flood Control Acts of 1936, 1938 and 1946. Construction of the Alton to Gale levee system was completed in 1977. Some reaches of this levee system have, for many years, been experiencing a significant number of slides associated with design deficiencies increasing the probability of levee failure during flood events. The recommended plan will correct these slides by a lime stabilization procedure. Estimated cost (1997) is $109,018,000 Federal and $4,374,000 non-Federal. Resumption of project initiated. New slides were discovered during the 1997 spring levee inspections. The contract to repair the Blue Waters Levee in the Metro East Drainage and Levee District was completed Oct. 1997.

Local cooperation. The cost sharing applicable for the Alton to Gale Levee Slide repairs is in accordance with policies established for the Water Resources Development Act of 1986, PL 99-662. The local sponsor is required to operate and maintain all works after completion. Supplemental assurances have been completed for a portion of the remedial work that was 100% federally funded. In Nov. 2000, ASACW granted an exception to the policy requiring non-Federal cost sharing for deficiency corrections. As a result, 44 levee slides were repaired at 100 percent Federal cost.

Operations and results during fiscal year. A draft letter report, which addresses future deficiency corrections, has been developed. Resolution of comments on the letter report is ongoing.

7. CAPE GIRARDEAU-JACKSON, MO

Location. Missouri, along the right bank of the Mississippi River between River Miles 50 and 55 above the Ohio River.

Existing Project. The project includes a 157 acre dry detention reservoir; approximately one mile of channel improvements on Cape La Croix Creek and two miles of channel improvements on Walker Branch, eight bridge replacements; recreational/environmental features and non structural features which are not going to be implemented at this time. The project is authorized by the Water Resources Development Act of 1986 (PL 99-662). The estimated Federal project cost is $36,806,000. Non-Federal cost is $13,787,000.

Local Cooperation. The city of Cape Girardeau, MO, local sponsor, is strongly supportive of the project. The Local Cooperation Agreement (LCA) was executed on May 25, 1990 with a modification to the LCA executed on Oct. 27, 1992. Requirements of local cooperation are fully described in the FY 1991 Annual Report.

Operations and results during fiscal year. Construction of the detention reservoir was 99% complete in FY 2003.

8. CHESTERFIELD, MO

Location. The Chesterfield, Missouri, project includes the Monarch-Chesterfield Levee, which is located in St. Louis County along the right bank of the Missouri River between river miles 46 and 38.5.

Existing project. The project was authorized by the Water Resources and Development Act of 2000 (PL 106-541). The project includes a 5-7 foot levee raise, approximately 12 miles long; seepage berms; relief wells; closure structures; pump stations; and several gravity drains.

Local cooperation. The Monarch-Chesterfield Levee District signed a Design Agreement in August 2001.

Operations and results during fiscal year. Continued preconstruction engineering and design.

9. EAST ST. LOUIS AND VICINITY , IL

Location. Project is in St. Clair and Madison Counties, IL, on the left bank of the Mississippi River between river miles 175 and 195 above the Ohio River. Project includes all bottom lands between bluffs on the east and Mississippi River and Chain of Rocks Canal on the west, and extends from Cahokia diversion channel on the north to Prairie du Pont Creek on the south. (See Corps of Engineers Navigation Charts, Middle and Upper Mississippi River, Cairo, IL, to Minneapolis, MN.)

Existing project. The 1936 Flood Control Act authorized raising and enlarging existing levee systems by construction or reconstruction of 19.8 miles of levee, including 3.1 miles of floodwall, together with necessary appurtenant works consisting of gravity drainage structures, highway and railroad closure

structures, alterations and reconstruction of existing pumping plants, alterations to railroad bridges and approaches at levee crossings, service roads on levee crown, and seepage control measures. The completed 10 miles of levee along Chain of Rocks Canal and Lock 27 provide flood protection on the landward side integral with and to the same degree as the East St. Louis levee. Final cost of work under this authorization is $22,550,100. The Flood Control Act of 1965 modified existing project to provide for channel improvements, diversion ditches, flood plain detention areas, a reservoir on Little Canteen Creek, and a pumping plant to considerably reduce damages resulting from interior flooding. This act also authorized reconstruction of a channel stabilization dam in Cahokia Creek diversion channel to provide protection to adjacent levees and bridges from scour and eventual loss. Post authorization studies in the early 1980's justified a project that was constructed for the Blue Waters Ditch area, which included channel improvements and a pumping station with a final project cost of $11,530,000 and $2,950,000 non-Federal. However, flood plain detention areas, the reservoir on Little Canteen Creek and other related flood control measures in the Cahokia-Harding Ditch Area are not economically feasible.

Severe flooding, which has resulted in National Disaster Declarations each year from 1993 to 1996, resulted in a new Congressional appropriation in FY 1997 to restart a cost-shared general reevaluation of the interior area. Congress added funds each year since FY 1997 to continue this effort. The project has been reformulated as an ecosystem restoration project that provides incidental flood damage reduction. Preparation of the general reevaluation report continued in FY 03. Project costs are estimated to be $210 million. The 1988 Energy and Water Development Appropriations Act authorized repair and rehabilitation of pump stations and appurtenant works, channels and bridge structures. The estimated total cost of this work (2002) is $38,946,000 Federal and $16,465,000 Non-Federal.

Local cooperation. For work under the Energy and Water Development Appropriations Act of 1988, PL 100-202, local interests have entered into three Local Cooperation Agreements (LCA) which cover all of the work in the Flood Protection Rehabilitation project. Construction work under the first two LCAs complete, and construction work under the third LCA is underway. In May 1998, a PED agreement was executed by the local interests to cover costs associated with the reevaluation of the Cahokia-Harding Ditch area.

Operations and results during fiscal year. Construction was completed on Canteen Creek Phase II and North and East pump station repairs.

10. MERAMEC RIVER BASIN (VALLEY PARK), MISSOURI

Location. The project is located in St. Louis County, Missouri, adjacent to the left bank of the Meramec River between miles 20.7 and 22.1 above the confluence with the Mississippi River.

Existing project. The project was authorized for construction by Section 2(h), Public Law 97-128, Dec. 29, 1981, and the Water Resources Development Acts of 1986 and 1999. It protects Valley Park from the 100-year flood on the Meramec River. The project includes 3.2 miles of earthen levee with six gravity drains, three closure structures, interior ponding areas and 41 relief wells required for under-seepage control. Estimated total project cost (2002) $44,489,000; $33,256,000 Federal, and $11,233,000 non-Federal.

Local cooperation. The city of Valley Park, Missouri is the local sponsor. A Local Cooperation Agreement was executed on August 12, 1992.

Operations and results during fiscal year. The project is about 60 percent complete, including about 1.6 miles of levee and 3 closure structures. The tree clearing contract was completed, and the construction contract was awarded in Sep 03 for the remaining 1.6 miles of levee (which includes two "engineered fills" for material from the ruins from an abandoned glass plant).

11. NUTWOOD DRAINAGE AND LEVEE DISTRICT, IL

Location. The levee district is in Green and Jersey Counties, IL, on the left bank of the Illinois River between miles 15.2 and 23.7 above the Mississippi River. (See Quincy, IL-MO, sheet of maps of the United States, published by Army Map Service, scale 1:250,000.)

Existing Project. Project was authorized by the 1962 Flood Control Act (H. Doc. 472, 87th Cong., 2d sess.). Project provides for raising and enlarging 11.4 miles of levee, construction of 1.0 miles of new levee, altering a pumping station and construction of seepage control measures. This project would provide protection to 10,360 acres of land, 9,365 of which are highly productive agricultural lands. A General Design Memorandum (GDM), completed in 1986, indicated that the plan was not economically justified at the

interest rate used at the time. The project was declared inactive on Jun. 3, 1987. As a result of the Great Flood of 1993 and the inundation of Illinois State Highway 16/100 within the project area, the 1995 Energy and Water Development Appropriations Bill included funding to perform a flood damage reduction study.

Local Cooperation. Requirements of local cooperation are described on page 14-11 of FY 1980 Annual Report except that cost sharing policies established by the Water Resources Development Act of 1986, PL-99-662, will also apply. The Nutwood Drainage and Levee District is the local sponsor. The cost sharing agreement for preconstruction engineering and design (PED) was executed in July 1997.

Operations and results during fiscal year. Construction funding was received in FY 2002. Work efforts to acquire necessary permits and prepare plans and specifications continued. The present total Federal project cost (2002) is $12,575,000; non-Federal cost is $4,192,000.

12. RIVER DES PERES, MO

Location. River des Peres drains a 111-square mile area in the city of St. Louis and St. Louis County, Missouri, and empties into the Mississippi River.

Existing project. The project was authorized by the Water Resources and Development Act of 1990 (PL 101-640). The authorized project consists of two subprojects, Deer Creek and University City. The Deer Creek portion consists of 2.5 miles of channel widening and stabilization improvements through the cities of Rock Hill, Webster Groves, Brentwood, and Maplewood. The University City portion consists of channel enlargement and stabilization along about 2.5 miles of the University City branch of upper River des Peres, a 2.53-mile recreation trail, and a small recreation park to be constructed by non-Federal interests on non-project lands.

Local cooperation. The Metropolitan St. Louis Sewer District (MSD) and the mayors of Brentwood, Rock Hill, Webster Groves, and Maplewood signed a Design Agreement on 17 May 2001 to serve as the local sponsors for the Deer Creek portion of the project. MSD and the city of University City signed a Letter of Intent in February 2001. The Deer Creek portion is currently deferred as the cities of Rock Hill and Brentwood withdrew their support in FY 03.

Operation and results during fiscal year. The remaining sponsors have asked the Corps to revise the reevaluation study to analyze floodproofing as a flood damage reduction measure.

13 ST. LOUIS FLOOD PROTECTION, MO

Location. The St. Louis Flood Protection project is located in St. Louis, Missouri, on the right bank of the Mississippi River between miles 176.3 and 187.2 above the mouth of the Ohio River.

Existing project. The project was authorized by Public law 84-256, 9 August 1955, and was completed in 1974. The reevaluation of the project consists of analyzing possible structural deficiencies and geotechnical concerns and the enhancement of recreation features within the project area.

Local cooperation. The city of St. Louis signed the Design Agreement on 2 February 2000.

Operations and results during fiscal year. Continued the reconstruction evaluation.

14. STE. GENEVIEVE, MO

Location. The City of Ste. Genevieve is located in Ste. Genevieve County at the edge of the Mississippi River floodplain about 54 miles south of St. Louis, MO.

Existing project. The project was authorized by the Water Resources Development Act of 1986 (PL 99-662). The authorizing language states "Congress finds that, in view of the historic preservation benefits resulting from the project, the overall benefits of the project exceed the costs of the project." The overall project consists of four parts. Part 1 is a major levee and associated features that will protect the town from the Urban Design Flood on the Mississippi River. Parts 2 and 3 are channel improvements on tributary streams that flow through the town, North and South Gabouri Creek, respectively. Part 4 is recreation features on flood control lands. Estimated total project cost (2002) is $49,063,000; $35,449,000 Federal, and $13,614,000 is non-Federal.

Local cooperation. The project sponsor is the Ste. Genevieve Joint Levee Commission. The City of Ste. Genevieve, Ste. Genevieve County Levee District Number 2, and Ste. Genevieve County Levee District Number 3 hold membership on the Commission.

Operations and results during fiscal year. The Corps of Engineers and the project sponsor have essentially completed Part 1 and are reformulating the plans for Parts 2, 3, and 4.

15. WOOD RIVER DRAINAGE AND LEVEE DISTRICT, IL

Location. The Wood River Drainage and Levee District project is located in the Mississippi River floodplain of Madison County, Illinois, just upstream of the city of St. Louis.

Existing project. The project was authorized by the Flood Control Act of 1938 and modified by the Flood Control Act of 1965. The original project provided for local flood protection works. The modified project provides for a pumping station with collector ditches and necessary appurtenant facilities for removal of water impounded by the existing levees. The pump station was never built.

Local cooperation. The Wood River Drainage and Levee District signed a Design Agreement in May 2000.

Operations and results during fiscal year. Continued plans and specifications.

16. WOOD RIVER LEVEE, IL

Location. The Wood River Levee project is located in the Mississippi River floodplain of Madison County, Illinois, just upstream of the city of St. Louis.

Existing project. The project was authorized by the Flood Control Act of 1938 and constructed in the 1950s. The existing project provides urban level protection for the 500-year Mississippi River flood stage. A reconstruction evaluation is underway to address the aging infrastructure and determine Federal interest. The recommended project includes the rehabilitation of the levee system to bring it into original performance compliance.

Local cooperation. The Wood River Drainage and Levee District signed a Design Agreement on 6 April 2000.

Operations and result during fiscal year. Continued the reconstruction evaluation.

17. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspection of completed work was accomplished at a cost of $403,713 for the Fiscal Year 2003. Total cost as of end of fiscal year is $12,712,442.

18. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Sec. 205, Public Law 858, 80th Cong., as amended (preauthorization).

See Table 14-F.

Emergency bank stabilization activities pursuant to Sec. 14, Public Law 526, 79th Cong., as amended.

See Table 14-F.

Emergency flood control activities - repair flood fighting, and rescue work (Public Law 99, 84th Cong., and antecedent legislation).

Federal costs for the fiscal year were $343,741 for Disaster Preparedness, $9,199 for Emergency Operations, and $717,339 for Rehabilitation.

Miscellaneous

19. ECOSYSTEM RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Project Modifications for improvement of environment pursuant to Sec. 1135, Public Law 99-662, as amended (preauthorization).

Aquatic Ecosystem Restoration Public Law 104-303, Sec. 206.

Multiple-Purpose Project Including Power

20. GENERAL REGULATORY FUNCTIONS

Permit Evaluations	$1,353,130
Enforcement	108,713
Studies	1,830
Environmental Inspection Statement	8,807
Appeals	0
Total Regulatory	$1,472,480

21. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

Local Preparedness	$ 477
National Preparedness	41,365
National Emergency Facilities	0
Readiness Training	0
Total	$41,842

22. OTHER PROGRAMS AND ACTIVITIES

In FY 03, $1,474,092 was expended on Native American Grave Protection for operation and maintenance.

23. UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM

Location. The portion of the Upper Mississippi River within the boundaries of the St. Louis District extends from the mouth of the Ohio River (river mile 0) to river mile 300, downstream of Lock and Dam 22.

Existing project. The project is composed of five elements: Habitat Rehabilitation and Enhancement Projects, Long-term Resource Monitoring, Recreation Projects, Studies of Recreation Impacts and Navigation Traffic Monitoring. (The St. Louis District's involvement has been limited to Habitat Rehabilitation and Enhancement Projects and Long Term Resource Monitoring.) The overall program, involving five states and three engineer districts, is administered by the Mississippi Valley Division. In the St. Louis District, five habitat rehabilitation projects have been completed. These are Clarksville Management Area, Dresser Island, Pharrs Island, and Stag Island in Missouri and Stump Lake in Illinois. Through FY 2003, funds allocated to the St. Louis District have amounted to $39,051,000 for design and construction of Habitat Rehabilitation and Enhancement Projects (HREP), $1,850,400 for Long Term Resource Monitoring (LTRM), $2,409,300 for Program Management; and $968,900 for Habitat Needs Assessment.

During FY 03, expenditures of $1,932,379 included the following:

Local cooperation. The terms of local cooperation, as established by Public Law 99-662, will vary according to the nature of the project, land ownership and pre-existing management responsibilities. The local sponsor for Habitat Rehabilitation and Enhancement projects is usually the U.S. Fish and Wildlife Service in coordination with the state of Missouri or the state of Illinois. A PCA agreement with the state of Missouri was completed in FY 97 for the Cuivre Island project.

Operations and results during the fiscal year. During FY 2003, construction was completed on Batchtown (Phase II) and initiated on Calhoun Point. Design continued on the final phase of Batchtown (Phase III). Habitat and biological response monitoring activities continued on numerous projects in Missouri and Illinois.

24. FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

On October 13, 1997, Congress transferred the management of the Formerly Utilized Sites Remedial Action Program (FUSRAP) to the Corps of Engineers, via the Energy and Water Development Appropriations Act, 1998. The St. Louis District was chosen to remediate low-level radioactive contamination, which resulted from activities conducted by the Manhattan Engineer District/Atomic Energy Commission, at the five St. Louis area sites. These sites include the Madison Site in Madison, Illinois, Hazelwood Interim Storage Site (HISS)/Latty Avenue Vicinity Properties (VPs), St. Louis Airport Site (SLAPS), St. Louis Airport Site Vicinity Properties (SLAPS VPs), and St. Louis Downtown (SLDS), in St. Louis, Missouri. A sixth site, the Iowa Army Ammunition Plant (IAAAP), was declared eligible for inclusion in FUSRAP in FY 01. Cleanup will follow the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act.

Major accomplishments in FY 03 include the disposal of 109,256 cubic yards of material from the Missouri sites (9,052 from SLDS; 99,763 from SLAPS; 441 from HISS/Latty Avenue).

The Corps of Engineers made significant progress in its remediation efforts at SLDS under the approved Record of Decision. Remediation and restoration of the Mallinckrodt Plant 1, Plant 6 East/East Half, Plant 7 East, Midwest Waste (DT-7), Heintz Steel (DT-6) were completed in FY03. Remedial activities in FY04 will focus on Mallinckrodt Plant 6W and properties owned by the City of Venice in support of the McKinley Bridge replacement project.

TABLE 14-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
4.	Mississippi River Between Ohio and Missouri Rivers (Includes Chain of Rocks original project and deficiency corrections)	New Work					
		Approp.	5,323,000	6,437,000	3,613,000	1,670,700	$271,287,274[1]
		Cost	5,176,900	5,784,758	4,284,721	1,666,730	270,998,578[1]
		Approp.	15,012,000	13,480,719	18,098,861	24,293,500	475,173,201[2]
		Cost	15,194,684	13,299,366	15,955,383	25,165,997	473,681,277[2]
7.	Alton to Gale Organized Levee Districts, IL & MO	New Work					
		Approp.	0	2,130,000	856,000	62,400	11,907,400
		Cost	1,185	930,417	2,055,705	62,386	11,907,261
	(Contrib. Funds)	New Work					
		Approp.	0	0	0	0	143,750
		Cost	0	0	16,416	0	116,712
8.	Cape Girardeau, Jackson, MO	New Work					
		Approp.	1,479,000	2,219,000	2,634,000	150,000	35,355,000
		Cost	1,580,879	2,197,980	2,685,687	150,932	35,354,902
	(Contrib. Funds)	New Work					
		Approp.	110,439	344,000	220,000	260,000	3,139,759
		Cost	124,001	130,660	331,982	238,169	3,015,013
10.	East St. Louis and Vicinity, IL	New Work					
		Approp.	2,415,000	1,079,000	186,000	1,539,900	49,011,226[3]
		Cost	2,387,095	1,105,629	278,956	1,546,425	49,008,249[4]
	(Contrib. Funds)	New Work					
		Approp.	406,835	100,765	250,000	0	8,315,200
		Cost	359,108	62,391	11,024	256,761	8,202,830
	East St. Louis and Vicinity (Ecosystem Restoration and Flood Damage Reduction), IL	New work					
		Approp.	479,000	370,000	567,000	507,100	2,914,100
		Cost	503,950	330,832	632,394	509,910	2,914,083
	(Contrib. Funds)	New Work					
		Approp.	162,000	50,000	254,000	180,000	894,000
		Cost	224,157	192,517	8,416	319,561	781,530
11.	Meramec R. Basin, Valley Park, MO	New Work					
		Approp.	2,574,000	1,909,000	73,000	1,623,100	20,266,100
		Cost	2,908,181	1,948,177	178,289	1,644,978	20,266,081
	(Contrib. Funds)	New Work					
		Approp.	266,558	300,000	500,000	-378,000	1,529,058
		Cost	272,097	300,000	401,922	-279,930	1,529,050
	Bois Brule, MO (Design Deficiency)	New Work					
		Approp.			1,200,000	199,000	1,399,000
		Cost			797,310	452,060	1,249,370
	(Contrib. Funds)	New Work					
		Approp.			0	0	0
		Cost			0	0	0

TABLE 14-A (Continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Funds to Sep. 30, 2003
12	Nutwood Drainage and Levee District, IL	New Work					
		Approp.	0	0	121,000	124,300	245,300
		Cost	0	0	120,735	124,504	245,239
	(Contrib. Funds)	New Work					
		Approp.	0	0	0		0
		Cost	0	0	0		0
15.	Ste. Genevieve, MO	New Work					
		Approp.	11,780,000	2,284,000	1,659,000	310,700	25,798,700
		Cost	14,613,858	2,329,106	1,713,540	333,701	25,796,437
	(Contrib. Funds)	New Work					
		Approp.	2,300,000	306,605	-13,588	-62,530	6,551,650
		Cost	2,964,764	403,243	-7,346	7,535	6,482,296
25.	FUSRAP (Total)	New Work					
		Approp.	53,750,000	60,179,000	52,480,000	52,884,000	413,336,000
		Cost	57,476,272	60,160,402	52,563,423	53,059,736	412,542,851
	Madison	New Work					
		Approp.	1,754,000	80,000	0	0	2,284,000
		Cost	1,700,625	60,912	51,839	10,598	2,239,147
	Latty Avenue	New Work					
		Approp.	7,050,000	11,397,000	4,373,000	1,930,000	62,062,000
		Cost	9,158,737	11,427,731	4,379,910	1,969,028	61,936,413
	St. Louis Airport	New Work					
		Approp.	27,727,000	29,044,000	31,111,000	37,043,000	193,290,000
		Cost	28,629,141	28,981,853	31,099,607	37,136,346	193,073,908
	St. Louis Airport & Vic. Properties	New Work					
		Approp.	3,397,000	1,863,000	1,670,000	1,575,000	38,137,000
		Cost	3,686,467	1,787,194	1,762,701	1,582,424	38,026,626
	St. Louis Downtown	New Work					
		Approp.	13,782,000	17,720,000	15,316,000	12,286,000	117,188,000
		Cost	14,294,826	17,815,195	15,233,812	12,350,147	116,934,462
	Iowa Army Ammunition Plant	New Work					
		Approp.	40,000	75,000	10,000	50,000	175,000
		Cost	0	85,547	35,553	11,195	132,294
	Oakridge Transition	New Work					
		Approp.	0	--	0	0	200,000
		Cost	6,476	1,969	0	0	200,000

1. Excludes previous project cost of $1,416,620.
2. In addition $1,139,000 was expended for rehabilitation.
3. Includes $8,072,326 for work authorized by Flood Control Act of 1965.
4. Includes $7,921,939 for work authorized by Flood Control Act of 1965.
5. Excludes previous project cost (prior to FY97) of $15,632,925.

TABLE 14-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	KASKASKIA RIVER, IL (See Section 2 of Text)	
Oct. 23, 1962	Construct canal, lock, and dam to provide a 9-foot navigation channel from mouth to Fayetteville, IL.	S. Doc. 44, 87th Cong., 1st sess.
Oct. 12, 1996	Modified to add fish and wildlife and habitat restoration as project purpose.	Public Law 104-303
Dec. 11, 2000	Modified to include recreation as a project purpose.	Public Law 106-541, Section 311
	MISSISSIPPI RIVER BETWEEN OHIO AND MISSOURI RIVERS (See Section 4 of Text)	
	Project for regulating works in 1881. (To obtain a minimum depth of 8 feet.)	Annual Report, 1881, p. 1536.
Jun. 3, 1896	Dredging introduced as part of the project.	
Jun. 13, 1902 Mar. 2, 1907[1] Mar. 3, 1905[1]	These acts practically abrogated that part of project for middle Mississippi which proposed regulating works.	
Jun. 25, 1910	Regulating works restored to project and appropriations begun with a view to completion of improvement between Ohio and Missouri Rivers within 12 years at an estimated cost of $21 million, exclusive of amounts previously expended.	
Jan. 21, 1927	For 9 feet deep and 300 feet wide from Ohio River to northern Rivers and Harbors boundary of city of St. Louis.	Committee Doc. 9, 69th Cong., 2d sess.
Jul. 3, 1930	Project between northern boundary of St. Louis and Grafton (mouth of Illinois River) modified to provide a channel 9 feet deep and generally 200 feet wide with additional width around bends.	Rivers and Harbors Committee Doc. 12, 70th Cong., 1st sess.
Mar. 2, 1945	Modified to provide construction of a lateral canal with lock at Chain of Rocks.	H. Doc. 231, 76th Cong., 1st sess.
Sep. 3, 1954[2]	Modified to provide construction of a small-boat harbor opposite Chester, IL.	H. Doc. 230, 83d Cong., 1st sess.
Jul. 3, 1958[3]	Modified to provide construction of a fixed crest rockfill dam 900 feet below Chain of Rocks Bridge.	
	MELVIN PRICE LOCKS & DAM (FORMERLY LOCK AND DAM NO. 26 (REPLACEMENT))	
Oct. 21, 1978	Construct new dam and a 1,200-foot lock approximately 2 miles downstream of the existing structure.	Public Law 95-502, 95th Cong.
Dec. 29, 1981	Change name from "Lock and Dam No. 26" to "Melvin Price Lock and Dam" upon termination of service in U.S. Congress.	Public Law 97-118, 97th Cong.
Aug. 15, 1985 and Nov. 17, 1986	Construct a second lock, 600 feet long at the Lock and Dam No. 26. (Replacement) Project.	Public Law 99-88 and Public Law 99-662, 99th Cong.

TABLE 14-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Nov. 28, 1990	Modified to provide construction of cost-shared recreation facilities within the state of Illinois	Public Law 101-640, 101st Cong.
Oct. 31, 1992	Modified to allow cost-shared recreation with other non-Federal interests and authorized a 24,000 square foot visitor center.	Public Law 102-580, 102nd Cong.
Oct. 12, 1996	Amended project for recreation to include other contiguous nonproject lands, including those referred to as the Alton Commons.	Public Law 104-303
	SOUTHEAST MISSOURI PORT, MO	
1960 River and Harbor Act as amended. Section 107	Construct harbor channel with adjacent landfill.	
	ST. LOUIS HARBOR, MO & IL (See Section 5 of Text)	
Nov. 26, 1986	As outlined in the Report of the Chief of Engineers, dated Apr. 30, 1984, the Water Resources Development Act of 1986 authorizes navigation improvements.	Public Law 99-662 99th Cong., 2d sess.
Oct. 12, 1996	The Secretary shall complete a limited reevaluation of the authorized St. Louis Harbor Project in the vicinity of the Chain of Rocks Canal, Illinois, consistent with the authorized purposes of that project, to include evacuation of waters collecting on the land side of the Chain of Rocks Canal East Levee	Public Law 104-303
	ALTON TO GALE ORGANIZED LEVEE DISTRICTS, IL & MO (See Section 7 of Text)	
Jun. 22, 1936 Jun. 28, 1938 1946	Authorized construction of levees to protect area from flooding from the Mississippi River.	Special report on record in OCE Flood Control Committee Doc. 1, 75th Cong., 1st sess.
	CAPE GIRARDEAU, JACKSON METROPOLITAN AREA, MO (See Section 8 of Text)	
Nov. 17, 1986	As outlined in the Report of the Chief of Engineers dated Dec. 8, 1984, the Water Resources Development Act of 1986 authorizes flood control and related recreational improvements in the Cape La Croix Creek Watershed.	Public Law 99-662, 99th Cong., 2d sess.
Oct. 12, 1996	As outlined in the Report of the Chief of Engineers, dated July 18, 1994, the Water Resources and Development Act of 1996 authorizes construction, including nonstructural measures, at a total cost of $45,414,000 ($33,030,000 Federal; $12,384,000 non-Federal)	Public Law 104-303, 104th Congress
	CHESTERFIELD, MO (See Section 9 of Text)	
Dec. 11, 2000	Authorized for construction, subject to completion of a favorable Chief of Engineers Report by Dec. 31, 2000. (Report was signed Dec. 29, 2000.)	Public Law 106-541 106th Congress

TABLE 14-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	COLDWATER CREEK, MO	
Nov. 28, 1990	As outlined in the report of the Chief of Engineers dated Aug 9, 1988, the Water Resources Development Act of 1990 authorizes flood control.	Public Law 101-640 101st Cong.
	EAST ST. LOUIS AND VICINITY, IL (See Section 10 of Text)	
Jun. 22, 1936	Raise and enlarge existing levee.	Special report on record in OCE.
Oct. 27, 1965	Construct pumping plant and other modifications to reduce interior flooding.	H. Doc 329, 88th Cong., 2d sess.
Oct. 22, 1976	Construct Blue Waters Ditch as independent section.	Public Law 94-587, 94th Cong.
Dec. 22, 1987	Repair and rehabilitate pump stations and appurtenant works, channels, and bridges.	Public Law 100-202, 100th Cong.
	ELDRED AND SPANKEY DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Raise and enlarge existing levee and other modifications.	H. Doc. 472, 87th Cong., 2d sess.
	HARTWELL DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Raise and enlarge existing levee and other modifications.	H. Doc. 472, 87th Cong., 2d sess.
	HILLVIEW DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Raise and enlarge existing levee and other modifications.	H. Doc. 472, 87th Cong., 2d sess.
	KASKASKIA ISLAND DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Raise and enlarge existing levee.	H. Doc. 519, 87th Cong., 2d sess.
	MALINE CREEK, MO	
Nov. 17, 1986	As outlined in the Report of the Chief of Engineers dated Nov. 2, 1982, the Water Resources Development Act of 1986 authorizes flood control, recreation, and environmental improvements.	Public Law 99-662, 99th Cong., 2d sess.
	MAUVAISE TERRE DRAINAGE AND LEVEE DISTRICT, IL	
Jul. 14, 1984	Raise and enlarge existing levee and other modifications.	Energy and Water Development Approp. Act of 1985, 98th Cong., 2nd sess.
	MERAMEC RIVER BASIN, MO (See Section 11 of Text)	
Jun. 28, 1938	Construct reservoirs and local protection project.	Flood Control Committee, Doc. 1, 75th Cong., 1st sess.
Nov. 7, 1966	Construct Pine Ford, Irondale, and I-38 dams and 19 Angler-use sites.	H. Doc. 525, 89th Cong., 2d sess.

TABLE 14-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Dec. 29, 1981	Undertake structural and nonstructural flood control measures.	Public Law 97-128, 97th Cong. Amended Section 1128, Public Law 99-662, 99th Cong.
Aug. 17, 1999	Modified to authorize construction at a maximum Federal expenditure of $35,000,000	Public Law 106-53, 106th Cong., 1st sess.
Dec. 1, 2003	Modified to authorize construction at a maximum Federal expenditure of $50,000,000.	H. Doc 150 88th Cong.
	MCGEE CREEK DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Reconstruct existing levee and construct pumping plant to reduce flooding.	H. Doc. 472, 87th Cong., 2d sess.
	MEREDOSIA LAKE AND WILLOW CREEK DRAINAGE AND LEVEE DISTRICT, IL	
Oct. 23, 1962	Raise and enlarge existing levee and other modifications.	H. Doc. 472, 87th Cong., 2d sess.
	NUTWOOD DRAINAGE AND LEVEE DISTRICT, IL (See Section 12 of Text)	
Oct. 23, 1962	Raise and enlarge existing levee and other modifications.	H. Doc. 472, 87th Cong., 2d sess.
	REND LAKE, BIG MUDDY RIVER, IL	
Oct. 23, 1962	Construct dam at Benton, IL, and subimpoundment dams on upper arms of reservoir.	H. Doc 541, 87th Cong., 2d sess.
	RIVER DES PERES, MO (See Section 13 of Text)	
Nov. 28, 1990	As outlined in the report of the Chief Engineers dated May 23, 1989, the Water Resources Development Act of 1990 authorizes flood control.	Public Law 101-640 101st Cong.
	ST. LOUIS FLOOD PROTECTION, MO (See Section 14 of Text)	
Aug. 9, 1955	Construct flood control improvements.	Public Law 84-256 84th Cong.
	STE. GENEVIEVE, MO (See Section 15 of Text)	
Nov. 17, 1986	As outlined in the Report of the Board of Engineers for Rivers and Harbors dated Apr. 16, 1985, the Water Resources Development Act of 1986 authorizes construction of a levee and a pumping plant to protect the city from Mississippi River and Gabouri Creek floods.	Public Law 99-662, 99th Cong., 2d sess.
	WOOD RIVER DRAINAGE AND LEVEE DISTRICT, IL (See Section 16 of Text)	
Jun. 28, 1938	Construct reservoirs and local protection projects.	Flood Control Committee Doc. 1, 75th Cong., 1st sess.
Oct. 27, 1965	Authorized substantially as recommended by the Chief of Engineers.	H. Doc 150 88th Cong.

TABLE 14-B (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	WOOD RIVER LEVEE, IL (See Section 17 of Text)	
Jun. 28, 1938	Construct reservoirs and local protection projects.	Flood Control Committee Doc. 1, 75th Cong, 1st sess.
	CLARENCE CANNON DAM AND RESERVOIR, SALT RIVER, MO	
Oct. 23, 1962	Modified act of Jun. 28, 1938 by deleting the reservoir therefrom and reauthorizing it as a separate multiple-purpose project.	H. Doc. 507, 87th Cong., 2d sess.
Oct. 27, 1965	Changes name of project from Joanna Dam to present designation.	Public Law 89-298, 89th Cong.
Oct. 13, 1997	**Formerly Utilized Sites Remedial Action Program (FUSRAP)** (See Sec. 25 of text.) Carry out remediation at five St. Louis Area sites - Madison, Illinois, Latty Avenue, St. Louis Airport, St. Louis Airport and Vicinity Properties, and St. Louis Downtown, MO.	Energy and Water Development Approp. Act of 1998

1. Also joint resolution, Jun. 29, 1906.
2. Inactive.
3. All work completed.

TABLE 14-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2002 Construction	Cost to Sep. 2002 Operation and Maintenance	Mo. and Yr. Completed
Cuivre River, MO[1]	1883	$ 12,000	$ --	--
Kaskaskia River, IL[2]	1989	147,387,000	36,306,318	1988
Moccasin Springs, MO	1969	76,436[3]	--	--
Southeast Missouri Port, MO	1993	3,466,522	2,724,824	Apr. 89
Wabash Railroad Bridges, Illinois River, Meredosia, and Valley City, IL	1961	2,653,194	1961	--

1. Inactive. River declared nonnavigable by act of Mar. 23, 1900.
2. Excludes $10,461 expended on previous project.
3. Excludes $56,605 contributed funds.

TABLE 14-D OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Clarence Cannon Dam and Reservoir, Salt River, MO	1996	313,180,128	103,363,239	--
Cache River Diversion, IL	1953	2,837,114	--	1953
Cape Girardeau, MO, No. 2	1965	5,157,805	--	1964
Carlyle Lake, IL	1981	42,819,400	113,388,707	Oct. 1976
Chouteau, Nameoki, and Venice Drainage and Levee District, IL	1955	185,700	--	1955
Columbia Drainage and Levee District No. 3, IL	1981	2,818,000	--	Aug. 1981
Degognia and Fountain Bluff Levee and Drainage District, IL	1959	5,889,500	--	1959
Dively Drainage & Levee District, IL	1976	1,720,000	--	1976
Emergency bank protection for certain highway and railroad facilities at Price Landing, MO (see Flood Control Act of 1944)[1]	1950	55,415	--	Oct. 1949
Emergency repairs to levees on Mississippi, Illinois, and Kaskaskia Rivers and flood fighting and rescue work (Sec. 5, Flood Control Act of 1941, as amended)[1]	1953	--	--	1951
Emergency protection for certain highway and railroad facilities at Chester, IL, bridge (Sec. 12, Flood Control Act of 1944)	1952	50,000	--	Jan. 1952
Emergency protection for Illinois approach, Chain of Rocks Bridge (Sec. 12, Flood Control Act of 1944)	1946	25,000	--	Aug. 1945
Fort Chartres and Ivy Landing Drainage District No. 5, IL	1970	1,154,800	--	1958
Grand Tower Drainage and Levee District, IL	1959	4,677,900	--	1959
Harrisonville Levee and Drainage District, IL	1981	6,829,069	--	Mar. 1981
Kaskaskia Island Drainage and Levee District, IL	1959	297,460	--	1949
Lake Shelbyville, IL	1981	44,000,000	116,566,017	Sep. 1978
Mauvaise Terre Drainage and Levee District, IL	1989	589,000	--	1988
McGee Creek Drainage and Levee District, IL	1989	25,043,300	--	1989
Meredosia Lake and Willow Creek Drainage and Levee District, IL	1944	249,738	--	1944
Miller Pond Drainage District, IL	1955	164,183	--	1955

TABLE 14-D (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For:	Cost to Sep. 2003 Construction	Cost to Sep. 2003 Operation and Maintenance	Mo. and Yr. Completed
Mississippi River Agricultural Area 8, MO	1987	2,137,000	--	--
Mississippi River at St. Louis, MO	1980	79,265,166	--	Jan. 1980
Mississippi River, Alton to Gale, IL, underseepage measures	--	85,422	--	Oct. 1962
North Alexander Drainage and Levee District, IL	1957	939,569	--	1957
Nutwood Drainage and Levee District, IL	1989	670,000	--	1984
Perry County Drainage and Levee[2] District Nos. 1, 2, and 3, MO	1987	7,968,700	--	1986
Pine Ford Lake, MO	1996	3,644,000	--	-
Prairie du Pont Levee and Sanitary District, IL[3]	1970	6,005,127	--	1970
Prairie du Rocher and vicinity, IL	1959	3,882,600	--	1959
Preston Drainage and Levee District, IL	1959	1,866,910	--	1959
Rend Lake, Big Muddy River, IL[4,5]	1989	43,700,900	89,548,650	1988
Strington, Ft. Chartres, and Ivy Landing, IL	1957	2,123,700	--	Aug. 1956
Urban areas at Alton, IL	1960	192,000	--	--
Village of New Athens, IL	1981	1,983,000	--	Sep. 1981
Valley City Drainage & Levee District, IL[6]	1967	91,952	--	1967
Wood River Drainage and Levee District, IL[7]	1989	17,163,821	--	1988

1. Work complete, now performed under Public Law 99.
2. Excludes $6,800,700 for previous project.
3. Includes $5,235,927 for previous project.
4. Excludes $550,000 Area Development Administration Funds allotted to the State of Illinois for increased construction costs of Interstate Highway 57 to meet project requirements, and excludes $449,093 Area Redevelopment Administration Funds allotted to the Corps.
5. Includes $6,103,711 credit to State of Illinois for work in kind.
6. Authorized by Chief of Engineers (Sec. 205, 1948 Flood Control Act, as amended).
7. Funds are for work authorized by Flood Control Act of 1938.

TABLE 14-E DEAUTHORIZED PROJECTS

Project Report For	For Last Full Report See Annual Authority	Date And Expended	Federal Funds Exp	Contrib Funds
Angler-use sites, Meramec Basin, MO	1967	WRDA 1986 Oct 86	--	--
Big Swan D&L District Illinois River, IL	--	WRDA 1986 Oct 86	--	--
Cape Girardeau, MO Reaches Nos 1, 3, and 4	1959	Oct 78	$ 22,000	--
Clear Creek Drainage and Levee District, IL	1964	PL 100-676 Jan 90	4,984,500	--
East Cape Girardeau and Clear Creek D&L District, IL	1963	PL 100-676 Jan 90	1,920,600	--
Eldred, IL	1962	Nov 79	--	--
Fort Chartres & Ivy Landing D&L District No. 5 and Stringtown Drainage and Levee District No. 4, IL	1971	WRDA 1986 Oct 86	--	--
Grafton Small Boat Harbor, IL	1962[1]	Nov 77	--	--
I-38 Lake, MO		PL 100-676 1 Jan 1990	--	--
Indian Creek Area Illinois River, IL	--	Nov 81	--	--
Irondale Lake, MO		PL 100-676 1 Jan 1990		
Keach Drainage and Levee District, IL	--	WRDA 1986 Oct 86	--	--
Levee Districts between Carlyle and New Athens, IL, Nos. 2, 5, 6 and 7	1979	Nov 79	--	--
Levee Districts between Carlyle and New Athens, IL Nos. 3, 4, 8, 10 and 13	1979	Nov 79	--	--
Levee Districts between Cowden and Vandalia, IL	1978	Oct 78	496,000	--
Meramec Park Lake, MO		Dec 81	37,682,514	--
Mississippi River Agricultural Area No. 10, MO	1967	Nov 79	--	--
Mississippi River Agricultural Area No. 12, MO	1967	WRDA 1986 Oct 86	--	--
Mississippi River at Alton, IL Small Boat Harbor	1958[1]	Nov 77	--	--
Preston Drainage and Levee District, IL	1959	PL 100-676 1 Jan 1990	1,866,910	--
Richland Creek, IL	1969	PL 100-676 10 Aug 89	401,000	--
Riverland Levee District, MO	1936	Aug 77	--	--
Scott County D&L District Illinois River, IL	--	WRDA 1986 Oct 86	--	--
Small Boat Harbor opposite Chester, IL 1954[1]		Nov 77	--	--
Small Boat Harbor opposite Hamburg, IL 1950[1]		Nov 77	--	--
Ste. Genevieve County Drainage and Levee District No. 1, MO 1936		Nov 77	--	--

[1] Year authorized.

TABLE 14-E (Continued) DEAUTHORIZED PROJECTS

Project Report For	For Last Full Report See Annual Authority	Date And Expended	Federal Funds Exp	Contrib Funds
St. Louis County Drainage and Levee District No. 1, MO	1936	Nov 77	--	--
Union Lake, MO	1979	PL 100-676 Jan 90	4,931,154	--
Wiedmer Chemical Drainage and Levee District, MO	1936	Nov 77	--	--

TABLE 14-F FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Project	FISCAL YEAR COST		
	Federal Cost	Non-Federal	Total
Flood Control (Section 205, P. L. 858, preauthorization)			
Bois Brule L&D District, MO	$ 36,441	$ 12,266	$ 48,707
Dardenne Creek, MO	9,536		9,536
Elsah, IL	20,592		20,592
Goose Creek, Jackson, MO	42,146		42,146
Grafton, IL	0		0
Festus and Crystal City, MO	3,808,115	221,941	4,030,056
Hubble Creek, Jackson, MO	34,152		34,152
Kaskaskia Island D & LD, IL	6,719		6,719
Keach D & LD, IL	857		857
Lower River des Peres, MO	141,444		141,444
Meredosia, IL	16,669		16,669
Modoc Levee & Drainage District, Prairie, IL	39,954		39,954
Monroe County, IL	37,051		37,051
Prairie du Pont L & DD, IL	32,386		32,386
Santa Fe D & LD, IL	1,976		1,976
Section 205 Coordination Account	9,779		9,779
St. Peters, MO	3,620		3,620
Wellston Branch, MO	0		0
West Frankfurt, IL	14,472		14,472
Williams Creek, Jackson, MO	37,701		37,701
Willow Creek DD, IL	23,076		23,076
	$4,316,686	**$234,207**	**$4,550,893**
Emergency StreamBank & Shoreline Protection (Section 14 of 1946 Flood Control Act, P.L. 526)			
Brush Creek, Monroe Co., MO	$ 10,737		$ 10,737
Caulks Creek, Metro St. Louis Sewer, MO	11,900		11,900
County Road 228, Hubble Creek, MO	35,306		35,306
Route 143, Big Creek, MO	61		61
Section 14 Coordination Account	10,304		10,304
O'Fallon Sewage Lagoons, MO	154,700	99,980	254,680
Shotwell Creek, MO	21,063		21,063
Salt River, Knox County, MO	14,146		14,146
Wildwood, MO Site 1	-5,253	5,292	39
Total Section 14	**$252,964**	**$105,272**	**$358,236**

TABLE 14-G ACTIVE GENERAL INVESTIGATIONS (96x3121)

Project	FISCAL YEAR COST		
	Federal Cost	Non-Federal	Total
SURVEYS (Category 100)			
Flood Damage Prevention Studies(120)			
Alexander and Pulaski Counties, IL-12217	$14,240	$36,014	$50,254
Festus and Crystal City, MO-10458	-2,080	2,232	152
Subtotal	$12,160	$38,246	$50,406
Watershed Comprehensive Studies (150)			
St. Louis Riverfront, MO & IL	231,903		231,903
Subtotal	$231,903		$231,903
Miscellaneous Activities(170)			
American Heritage Rivers Initiative–14410	148,426		148,426
Interagency Water Resources Development-14713	44,093		44,093
Review of FERC Licenses-53857	769		769
Special Investigations-17250	15,890		15,890
Waterfowl Management Plan-53904	1,178		1,178
Subtotal	$210,356		$210,356
Coordination Studies with Other Agencies(180)			
Coordination with Other Water Resources Agencies	3,022		3,022
PAS – Kaskaskia Riverbank Erosion	25	9,193	9,218
PAS – Findlay, IL, WWTP Study	1,608		1,608
PAS – St. Louis County	34,837	33,661	68,498
PAS – Negotiation Funds	1,100	0	1,100
PAS – Brooklyn Waterfront Development	39,871	44,000	83,871
PAS – East St. Louis Waterfront Development	109,173	77,878	187,051
PAS – Chouteau Island Environmental Study	2,930	6,136	9,066
PAS – Pool 25, MO, Riparian Study	2,075	10,312	12,387
PAS – Chouteau Lake, MO	463		463
PAS – Great Rivers Corridor Master Plan	40,900	10,766	51,666
Subtotal	$236,004	$191,946	$427,950
TOTAL (Category 100)	$690,423	$230,192	$920,615
COLLECTION AND STUDY OF BASIN DATA (Category 200)			
Flood Plain Management Services (250)			
Flood Plain Management Services (250)-82030, 82040, 82045, 83184	78,946		78,946
Hydrology Studies (260)-53820	8,087		8,087
TOTAL (Category 200)	$87,033		87,033

TABLE 14-G (Continued) ACTIVE GENERAL INVESTIGATIONS (96x3121)

Project	FISCAL YEAR COST		
	Federal Cost	Non-Federal	Total
PRECONSTRUCTION ENGINEERING AND DESIGN (Category 600)			
St. Louis Harbor, MO & IL-10184	$ 87,973		87,973
Chesterfield, MO-10457	440,445	24,683	465,128
Wood River D&LD, IL-20180	20,062		20,062
River de Peres, MO-12638	-30,395	55,628	25,233
Wood River Levee, IL-10524	112,403	144,819	257,222
St. Louis Flood Protection, MO-17360	107,627	3,715	111,342
TOTAL (Category 600)	$738,115	$228,845	$966,960
GRAND TOTAL GENERAL INVESTIGATIONS	**$1,515,571**	**$459,037**	**$1,974,608**

ROCK ISLAND, IL, DISTRICT

This district comprises most of the northern half of Illinois, portions of southern Wisconsin, southern and southwestern Minnesota, eastern and central Iowa, and northeastern Missouri, embraced in drainage basin of Mississippi River and its eastern and western tributaries between mile 300 (above mouth of Ohio River) and 614, and of its eastern tributaries only, between Hamburg Bay, at mile 261 and 300. This district also includes the Illinois Waterway above mile 80 with its tributaries and drainage basins. The section of the Mississippi River between river miles 300 and 614 is included in the report on Mississippi River between Missouri River and Minneapolis, MN.

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Navigation

1. ILLINOIS AND MISSISSIPPI CANAL, IL

Location. This canal extends for 75 miles from the Illinois River near LaSalle, IL, to the Mississippi River at Rock Island, IL. A feeder canal, 29 miles in length, extends from the summit level of the canal to the Rock River at Rock Falls, IL.

Existing project. See pages 1306-1308 of Annual Report for 1962 for details regarding project. The canal was constructed in the period 1892-1918. The canal has not been operated for navigation since June 1951 in accordance with Corps policy to discontinue operation of waterways affording little or no benefit to navigation. The River and Harbor Act of 1958 authorized the appropriation of $2,000,000 for the purpose of placing the canal in proper condition for public recreational use and to convey and transfer the canal to the State of Illinois as part of the State park system.

The repair and modification program was initated in 1961, and a number of canal features have been repaired or modified. In connection with this program, fee title of 1,062 acres and recreational flowage easements over 309 acres of land in Rock River at Rock Falls, formerly under navigation flowage easement, have been acquired. The State of Illinois accepted title to the canal as of August 1, 1970. The River and Harbor Act of 1970 authorized the additional appropriation of $6,528,000 to be expended for the repair, modification, and maintenance of bridges, title transfer, modification or rehabilitation of hydraulic structures, fencing, clearing auxiliary ditches, and for the repair and modification of other canal property appurtenances.

The repair and modification work was underway until a suit was filed by three Illinois counties and their Commissioners of Highway against the Federal Government and the State in 1974 over maintenance of highway bridges crossing the canal. After the lawsuit was filed, further rehabilitation work by the Federal Government on the canal was suspended.

On November 4, 1981, the Corps of Engineers deposited $3,722,572 with the Clerk of the U.S. District Court in Chicago in full satisfaction of the Court's judgment. These funds were used by the counties to complete rehabilitation work as directed in the court order. Rehabilitation work by the Federal Government in coordination with the state was resumed in 1984 with the remaining authorization expended in 1987.

The Water Resources Development Act of 1986 authorized an additional appropriation of $8,472,000 to accomplish the work described in the 1970 River and Harbor Act.

The State of Illinois filed an additional lawsuit against the United States on July 6, 1987 in the U.S. Claims Court in the amount of $8,472,572. In a preliminary decision on September 22, 1988, the court dismissed the claim for $3,722,572. A settlement agreement between the State of Illinois and the United States was signed on November 14, 1991. The agreement provided that Illinois release all claims against the United States as stipulated in the claims court and that the United States provide $4,750,000 to Illinois as reimbursement for previous repair work performed upon the canal bridges by Illinois. On Decemer 16, 1991, the U.S. Claims Court entered a judgment for $4,750,000 in favor of the State of Illinois. This judgment was paid in FY 92.

Once funds are received, principal work features to restore the canal to acceptable conditions consist of the repair or reconstruction of retaining walls, embankments, portions of the lock and dam structures, culverts, drainage ditches, and other related work features which the United States has maintained or has been obligated to maintain under previous agreements. These features are consistent with a Master Management Plan prepared by the Illinois Department of Conservation. NEPA documentation to assess remaining work items must be completed prior to initiation of construction.

Local cooperation. A revised Supplemental Agreement with all work items remaining was executed between the state of Illinois and the Federal Government in April 1996.

Operations during fiscal year. Operations and maintenance during fiscal year. There were no programmed dollars allotted for this project in FY 03.

2. ILLINOIS WATERWAY, IL AND IN

Location. Illinois River (entirely within State of Illinois), formed by confluence of Kankakee and Des Plaines River, flows southwesterly and enters Mississippi at Grafton, IL, about 38 miles above St. Louis. Illinois Waterway comprises Illinois River from its mouth to confluence of Kankakee and Des Plaines Rivers (273 miles), Des Plaines River to Lockport (18.1 miles) and Chicago Sanitary and Ship Canal and South Branch of Chicago River to Lake Street, Chicago (34.5 miles). Also from a point

12.4 miles above Lockport, Il, waterway comprises Calumet-Sag Channel and Little Calumet and Calumet Rivers to turning basin 5, near entrance to Lake Calumet (23.8 miles); and Grand Calumet River from junction to 141st Street, deep (lake) draft navigation (9 miles) and to Clark Street, Gary, IN (4.2 miles).

Previous projects. For details, see page 1945 of Annual Report for 1915 and page 1172 of Annual Report for 1932.

Existing project. See Table 23-K and page 1255 of Annual Report for 1963. Cost of new work was $124,041,436 and includes $445,000 for Recreation Facilities under Code 711. Calumet-Sag Modification, Part III, placed in the deferred-for-restudy category in March 1972, cost of $33,000,000 (July 1971) Federal and $20,700,000 (July 1971) non Federal; is excluded from present cost estimate. Land acquired for the project consisted 909.407 acres in fee and 701.48 acres in easement. See Table 23-B for authorizing legislation.

(See Table 15-J through 15-N on existing locks and dams; lock and dam construction, foundations, cost; additional features entering into cost of project; existing project and total cost of existing project.)

Local cooperation. Complied with for completed modifications and Part I of Calumet-Sag Modification.

All pools above Alton Pool:

Maintenance: Channel dredging by contract cutterhead pipeline dredge was performed at Starved Rock, Peoria, and LaGrange pools, at various locations with a total of 162,195 cubic yards of material being removed. Mechanical dredging was performed at Dresden, Marseilles, Starved Rock, Peoria, and LaGrange pools, at various locations with a total of 35,720 cubic yards being removed. The total cost of dredging was $1,784,000. Continuing construction includes reroof and reside Peoria Project buildings 304 and 306. Construction was initiated for flood repairs to Peoria Lock and Dam storage building and work site, and wicket lifter barge. Maintenance for the navigation function continued at a cost of $10,844,877 (includes dredging costs). Maintenance of Recreation Features continued at a cost of $44,502. Total maintenance costs for Operation and Maintenance were $10,889,379. Net credits to the project were $4,426, primarily as a result of collections from towboat companies for damages to lock and dam structures.

Operation and Care: Operations for navigation continued at a cost of $13,152,735. Environmental Stewardship – Management of Natural Resources continued at a cost of $56,960. Operations for the Recreation Function continued at a cost of $321,063. Total operation costs were $13,530,758.

Total Operation and Maintenance costs were $24,415,711.

Alton Pool Operation: Costs for the year were $47,998 for lock operation; $131,020 for water control management; $21,747 for dredging activities; and $65,979 for studies and surveys. Total operation costs were $266,744.

Alton Pool Maintenance: Maintenance costs for the year totaled $52,158, all for dredging.

Total operation and maintenance costs for all pools above Alton Pool were $24,415,710. Alton Pool operation and maintenance costs were $318,902. Total costs incurred were $24,734,612.

3. ILLINOIS RIVER BASIN RESTORATION

Location: The project area is the Illinois River Basin defined as the Illinois River, Illinois, its backwaters, its side channels, and all tributaries, including their watersheds, draining into the Illinois River.

Existing Project: The purpose of the Illinois River Basin Restoration project is to develop a restoration program, long-term resource monitoring program, computerized inventory and analysis system, and innovative dredging technology and beneficial use of sediments to restore, preserve and protect the Illinois River Basin. This effort complements tasks being undertaken as part of the related Illinois River Ecosystem Restoration Feasibility Study, sponsored by the Illinois Department of Natural Resources. These efforts are part of the State's Illinois Rivers 2020 initiative, a proposed 20-year, $2.5 billion, Federal-state effort to restore and enhance the Illinois River Basin. The project involves three districts (Rock Island, St. Louis, and Chicago).

A major initial focus is work on Critical Restoration Projects. Restoration of the Illinois River Basin requires the identification and implementation of projects, within the watershed and along the course of the river that repair past and ongoing ecological damage so that a more highly functioning, self-regulating ecosystem can develop within the existing basin context. Critical Restoration Projects will produce immediate habitat and sediment reduction benefits; will help evaluate the effectiveness of various restoration methods before application system wide; and make best

use of the current strong local and State interest in ecosystem restoration within the basin. The Corps of Engineers will implement these Critical Restoration Projects in collaboration with the non-Federal sponsor and other Federal and local agencies. Currently six Critical Restoration Projects are in various states of completion. These projects include: Waubonsie Creek, Blackberry Creek, Pekin Lake, Kanakee River, Iroquois River, and McKee Creek.

Critical Restoration Projects: Have been initiated at 6 locations in the river basin.

Operations During Fiscal Year: Critical Restoration Project at Pekin Lake completed public review in August 2003 and initiation of design in September 2003. Expenditures during FY 03 totaled $23,161.

4. MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MN

For report on this improvement, see chapter on "Mississippi River between Missouri River and Minneapolis, MN."

5. UPPER MISSISSIPPI - ILLINOIS NAVIGATION STUDY

Location. The study includes both the Upper Mississippi River and the Illinois Waterway. The study area covers over 850 miles of navigable waterways and 29 locks and dams of the Upper Mississippi River from the headwaters at St. Anthony Falls near Minneapolis-St. Paul, Minnesota; downstream to the mouth of the Ohio River at Cairo; and the Illinois Waterway (eight locks and dams) from Lake Michigan in Chicago, Illinois, southwest to where the waterway joins with the Mississippi River at Grafton, Illinois, 348 miles long. The Upper Mississippi River system meanders through the states of Minnesota, Wisconsin, Iowa, Illinois, and Missiouri, and over 40 counties. The Illinois Waterway is located entirely within the State of Illinois.

Existing project. The Study has been restructured to give equal consideration of fish and wildlife resources and navigation improvement planning consistent with recommendations from the National Research Council and the Federal Principals Group. The restructured study is addressing the navigation efficiency needs of the UMR-IWW system, the ongoing cumulative effects of navigation, and the ecosystem restoration needs with a goal of attaining an environmentally sustainable navigation system. Undertaken by four Corps Districts (St. Paul, Rock Island, St. Louis, and New Orleans). The review of this completed project is authorized by Section 216, Flood Control Act of 1970, PL 91-611.

Local cooperation. None required.

Operations during fiscal year. A Draft Feasibility Report will be released for a 90-day public review in April 04. The Chief's Report and final feasibility report with final environmental impact statement (FEIS) is scheduled for completion in Oct 2004. The Feasibility Phase was continued during FY 03 at a cost of $6,152,177.

6. UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM (USMRS-EMP), IL, IA, MN, MO, WI

Location. The project is authorized for those river reaches having commercial navigation channels on the Upper Mississippi River, Illinois River, Minnesota River, St. Croix River, and Kaskaskia River in the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

Existing project. The purpose of the UMRS-EMP as stated in the authorizing legislation is to ensure the coordinated development and enhancement of the Upper Mississippi River system, recognizing its several purposes. The program includes habitat rehabilitation and enhancement projects to counteract the effects of backwater sedimentation. Long Term Resource Monitoring will provide the means for more informed management of the UMRS. Also authorized was a study of the economic impacts of completed recreation, completed navigation traffic monitoring, and recreation projects (currently unfunded). The program was initiated in 1986 utilizing funds provided by PL 99-88, FY 1985 Supplemental Appropriation Act. PL 99-662, Water Resources Development Act of 1986, further defined the program and provided for a 10 year implementation period and was extended to 15 years by PL 101-640, Water Resources Development Act of 1990. The Water Resources Development Act of 1999, P.L. 106-53, amends the previous authority by deleting recreation as a project purpose; increasing annual appropriation limits available to the program; authorizing an independent technical advisory committee; requiring submission of a report to Congress on a 6 year cycle that evaluates programs, accomplishments, assesses systemic habitat needs, and identifies any needed changes to the Program authorization.

Local Cooperation: Local cooperation agreements are obtained for habitat projects for such projects not located on lands managed as a national wildlife refuge,

within the meaning of Section 906(e) of the 1986 WRDA. WRDA 1999 establishes a cost sharing percentage of 35 percent for such projects.

Operations During Fiscal Year. Expenditures during the year totaled $10,403,000. The majority of funds was expended on two primary program elements: habitat projects and long term resource monitoring. FY 03 funds were used for construction on 7 habitat projects and for design activities on 11 additional habitat Projects, as well as applied research and long tem resource monitoring. Construction has essentially been completed on a total of 41 projects (with many multiple phases) since the program was initiated. Data collection, analysis of data and production of technical and special reports was continued by contract with the Upper Midwest Environmental Sciences Center in Lake Onalaska, WI. The first report to Congress detailing the programs activities since the programs inception was completed and was submitted to Congress in January 1998. The second report to Congress is scheduled for submission in January 2004. A Habitat Needs Assessment was submitted to Congress in Sep. 2000. This assessment addressed the ecosystem needs along the Environmental Management Programs' reaches of the Upper Mississippi River.

7. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 15-C.

Flood Control

8. CORALVILLE LAKE, IA

Location. Coralville Lake is formed by the Coralville Dam on the Iowa River, several miles upstream from Iowa City, Johnson County, IA, about 83 miles above the confluence of the Iowa River with the Mississippi River.

Existing project. See page 28-4, Annual Report for 1981, for project details. Construction began in July 1949 and the project has been in operation since February 1958. About 25,035.76 acres in fee of land were acquired and 3,673.113 acres in flowage easements. The project was modified to provide for construction of a highway bridge crossing the lake at the Mehaffey site, which was begun in June 1964 and completed in October 1966. See Table 15-B for authorizing legislation.

Operations during fiscal year. No backlog maintenance was performed during FY 03. Operation and Maintenance: Routine operations and maintenance activities continued at a cost of $2,865,735.

9. DES MOINES RECREATIONAL RIVER RIVER AND GREENBELT, IA

Location. The greenbelt area is located along both banks of the Des Moines River in central IA and extends from a point at which relocated U.S. Highway 92 crosses the Des Moines River near Harvey, upstream approximately 169 river miles to U.S. Highway 20, and includes portions of Fort Dodge, IA. It also includes the Corps' operated Lake Red Rock and Saylorville Lake projects.

Existing project. The project will include, but not be limited to: (1) the construction, operation, and maintenance of recreational facilities and streambank stabilization structures; (2) maintenance of all structures constructed before the date of authorization of this project (other than any such structure operated and maintained by any person under a permit or agreement with the Secretary); (3) such tree plantings, trails, vegetation, and wildlife protection and development for recreational purposes; and (4) the prohibition or limitation by the Secretary of the killing, wounding, or capturing at any time of any wild bird or animal in such areas as may be directed by the Secretary. In carrying out the project the Secretary may acquire by purchase, donation, exchange, or otherwise, land and interests therein, as the Secretary determines are necessary to complete the project.

The authorization requires that an Advisory Committee be established for consultation with the Department of the Army consisting of 47 members; three Corps of Engineers appointees, one person from the city of Des Moines, and one from each other incorporated municipality within the greenbelt, two from each of the nine counties in the greenbelt, and five from the State of Iowa. See Table 15-B for authorizing legislation. Twelve Federally-funded projects have been completed under the Greenbelt authority prior to FY 02, five of which were cost-shared with local communities.

Local Cooperation. Local Cooperation Agreements have been executed for five cost-shared projects. Letters of assurance have been received for the two cost-shared projects recommended for inclusion in the Greenbelt by the 2003 Annual Program Management Report.

Operations during fiscal year. For the first time since FY 95, the FY 03 Appropriations Act included funds for the Greenbelt. These funds were used to continue coordination with the Advisory Committee, prepare design agreements to initiate cost-shared planning studies at Des Moines and Fort Dodge, initiate preparation of plans and specifications for Trail

Segment 4b at Lake Red Rock, and initiate planning studies for Cordova Center at Lake Red Rock. Twelve projects in total have been completed to date. Costs incurred in FY 03 were $414,857.

10. LOVES PARK, IL

Location. The Loves Park project is located in Winnebago County, IL on the northeast boundary of the city of Rockford, IL. Loves Park is 17 miles south of the Illinois-Wisconsin state line.

Existing project. The project provides 100-year flood protection along Loves Park Creek. Protection measures consist of 18,000 feet of channel improvements, two diversion structures, use of two existing lakes as storage reservoirs, and 3,100 feet of buried concrete pipe. The estimated project cost is $30,400,000 including $9,400,000 non-federal costs. See Table 15-B for authorizing legislation.

Local cooperation: The local cooperation agreement was executed on March 26, 1991.

Operations during fiscal year. FY 03 Funds were used to continue construction of Stage 1B. Total costs incurred during FY 03 were $6,801,888.

11. RED ROCK DAM AND LAKE RED ROCK, IA

Location. The site of this project is on the Des Moines River, chiefly in Marion County, but extending into Jasper, Warren, and Polk Counties. The dam is 142.9 miles above the mouth of the Des Moines River, which empties into the Mississippi River at mile 361.4 above the mouth of the Ohio River. The city of Des Moines lies northwesterly from the site, about 60 miles upstream.

Existing project. See page 28-6, Annual Report for 1981 for description of the project. Construction began in May 1960, and the dam was placed in beneficial use for storage of flood water in January 1969. Land acquired for the project consisted of 50,207.860 acres in fee and 26,353.645 acres in flowage easement. Landowner complaints, that lake operation have flooded their lands more frequently than what they were told to expect when flowage easements were initially acquired, led Congress to modify the project authorization. Language in PL 99-190 authorizes acquisition from willing sellers fee simple title in real property, which is subject to periodic flooding in connection with the operation of the project. Potentially there are approximately 1,000 tracts consisting of about 30,000 acres. Estimated Federal cost is $43,500,000. See Table 15-B for authorizing legislation.

Local Cooperation. None required.

Operations during fiscal year. Additional Land Acquisition efforts were deferred due to lack of funding. Operation and Maintenance activities were continued at a cost of $5,151,635.

12. SAYLORVILLE LAKE, IA

Location. The project site is chiefly in Polk County, IA, but portions extend into Dallas and Boone Counties. The dam is about 213.7 miles above the mouth of the Des Moines River and about 5 miles upstream from the city of Des Moines, IA.

Existing project. The dam is an earth embankment 6,750 feet long at crest with a height of 120 feet. Outlet works are a single circular concrete conduit, 22 feet in diameter, located at the toe of the west bluff. Control structure is at upstream end of conduit and uses three gates. A stilling basin is provided to dissipate energy of discharge from outlet conduit. Spillway is in the west bluff, weir 430 feet long. Water flowing over the spillway weir discharges into a paved chute and thence into an excavated earth channel to the Des Moines River. Top of spillway is about 31 feet below top of earth embankment section, and flow over weir is uncontrolled when water in reservoir reaches its crest. Watershed area above dam site is 5,823 square miles. With pool at spillway crest elevation, lake area is 16,700 acres and contains about 676,000 acre-feet of water at that height (602,000 for flood control and 74,000 for a conservation pool to maintain minimum flows at downstream points). Lake supplements capacity of downstream Lake Red Rock at river mile 142.9. The two lakes provide a high degree of flood protection to the lower Des Moines River Valley. Reach along the Mississippi River downstream from the mouth of the Des Moines River are also benefitted.

A project modification plan to minimize the adverse environmental effects at Ledges State Park, located upstream from the dam, was authorized in 1976. The project modification included relocation of affected park facilities, acquisition of additional park land, and the development of a floodway corridor, with recreational facilities, from the dam downstream to Sixth Avenue in Des Moines. Improvements to Highway 415, the main access road to existing facilities on the east side of the reservoir, were added to the project by Congress in 1984. Segments A and B of Highway 415 have been completed. Segment C of Highway 415 was completed in 1994.

Construction began in June 1965, and the dam was placed in operation for the storage of flood water in April 1977. Remedial work in Big Creek Valley, consisting of diversion dam and channel and a barrier dam, for the protection of the town of Polk City was completed in December 1974. The land acquisition program involved 25,529.397 acres in fee and 1,498.444 acres in flowage easements. The estimated project cost is $116,470,000 including $2,820,000 in non-Federal costs from the State of Iowa and the City of Des Moines, for recreational development. See Table 15-B for authorizing legislation.

Local cooperation. Fully complied with.

Operations during fiscal year. New work: Project right-of-way has been transferred to the Iowa Department of Transportation, the project sponsor. Planning, Engineering, and Design efforts for the 86th street improvements project were turned over to Polk County. Operation and maintenance activities were continued at a cost of $4,002,555.

13. WEST DES MOINES, IA

Location. The city is located in Polk County in central Iowa.

Existing project. The project provides flood protection from the Raccoon River and Walnut Creek. The project consists of four stages: Stage I, 3,100 feet of levees and floodwalls along Walnut Creek north of Ashworth Road; Stage II, 9,000 feet of levees along the Raccoon River from Jordan Creek to 63rd Street, with pump station; Stage IIIA, 4,500 feet of levees along the lower end of Walnut Creek; and Stage IIIB, 5,800 feet of levees and flood walls tieing Stages I and IIIA along Walnut Creek with pump station and tieing Stages II with IIIA along the Raccoon River. The project provides 100-year protection and will prevent 4.387 million dollars in average annual damages. See Table 15-B for authorizing legislation.

Local cooperation. Fully complied with.

Operations during fiscal year. New Work: Construction of the project is complete and the project was closed in 2003. Total costs incurred during FY 03 were $257,871.

14. MUSCATINE ISLAND, IA

Location. Muscatine Island lies on the west bank of the Mississippi River in Muscatine and Louisa Counties, Iowa, adjacent to and in the city of Muscatine, IA. The flood protection area of 30,800 acres is protected by 15.6 miles of existing sand and clay levees. The protected area consists of residential, commercial, industrial and agricultural areas and also includes U.S. Highway 61 and the Muscatine Municipal Airport.

Existing Project. The existing levee has been raised to provide protection from 200-year floods. This protection level is achieved by improving and raising approximately 6.6 miles of the existing levee system. Also included in the project is construction of an upstream railroad closure structure, improving drainage facilities, concrete I-wall sections and relocating existing utilities. See Table 15-B for authorizing legislation.

Local Cooperation. The city of Muscatine and Muscatine Island Levee District are co-sponsors for the project. The Project Cooperation Agreement (PCA) was executed on 21 September 1995.

Operations during fiscal year. The project was completed in June 2000 and was closed in 2003. Total costs incurred during FY 03 were $5,311.

15. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal flood control regulations (part 208 of title 33, Code of Federal Regulations) provide that the structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits. Costs during the period for inspections of projects turned over to local interests to ascertain compliance with Federal requirements were $227,205. (See Table 15-H for list of completed flood control projects inspected.)

16. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 15-E.

17. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION – Continuing Authorities Program

Navigation (Section 107) 1960 Act & Mods,) See Table 15-I.

Emergency Bank Protection (Section 14 of the 1946 Flood Control Act, Public Law 526.) See Table 15-1.

Flood Control Activities (Section 205, Public Law 84-685.) See Table 15-I.

Snagging and Clearing of Navigable Streams and Tributaries in Interest of Flood Control (Section 208, Public Law 83-780.) See Table 15-I.

Miscellaneous

18. ECOSYSTEM RESTORATION WORK UNDER SPECIAL AUTHORIZATION

Project Modifications for Improvement of Environment Pursuant to Sec. 1135, Public Law 99-662, as amended (preauthorization). See Table 15-I.

Aquatic Ecosystem Restoration Pursuant to Sec. 206, P.L. 104-303. See Table 15-I.

Wetland/Other Aquatic Habitat Section 204, P.L. 102-560. See Table 15-I.

19. GENERAL REGULATORY FUNCTIONS

Enforcement	$ 373,306
Permit Evaluations	1,762,312
Total	$2,135,618

20. OPERATIONS AND MAINTENANCE CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

National Preparedness	$ 22,765
National Emergency Fecility	2,998
Total	$ 25,763

21. OTHER PROGRAMS AND ACTIVITIES

Anti-Terrorism/Force Protection	$ 56,529

22. FLOOD CONTROL AND COASTAL EMERGENCY (FC&CE)

Disaster Preparedness Program	$ 388,561
Emergency Operations	91,937
Rehabilitation/Inspection	4,915,180
Total	$5,395,678

23. ACTIVE GENERAL INVESTIGATIONS

See Table 15-O.

24. COLLECTION AND STUDY OF BASIC DATA

See Table 15-O.

25. PRECONSTRUCTION ENGINEERING AND DESIGN

There were two PED projects in progress during FY 03 at a cost of $121,133 for Davenport Flood Control project and $25,886 for Peoria Riverfront Development.

TABLE 15-A COST AND FINANCIAL STATEMENT

Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 03
Illinois and Mississippi Canal, IL	New Work:					
	Approp.	0	0	0	0	7,605,143
	Cost	0	0	0	0	7,605,143
	Maint:					
	Approp.	1,154,000	120,791	0	(872)	24,154,167
	Cost	1,162,782	118,627	3,055	0	24,154,257
Illinois Waterway IL and IN	New Work:					
	Approp.	0	0	0	0	126,707,751
	Cost	0	0	0	0	126,706,419
	Maint:					
	Approp.	22,761,846	23,645,804	23,396,872	23,437,516	539,055,275
	Cost	22,874,728	23,676,798	22,691,002	24,411,285	513,611,988
	Rehab:					
	Approp.	0	(156,000)	0	0	162,473,439
	Cost	2,197	(102,127)	0	(75,140)	162,125,565
	Inland Water Trust Fund:					
	Approp.	0	(157,000)	0	0	15,218,819
	Cost	0	(104,453)	0	(42,000)	14,308,169
Illinois River Basin Restoration	New Work:					
	Approp.	0	0	0	199,000	199,000
	Cost	0	0	0	23,161	23,161
	Contributed Funds					
	Approp.	0	0	0	3,000,000	3,000,000
	Cost	0	0	0	332,555	332,555
Upper Mississippi – Illinois Navigation Study	New Work:					
	Approp.	6,376,000	1,436,579	4,790,000	5,809,847	69,337,026
	Cost	4,845,341	2,049,429	5,388,662	6,152,177	44,137,777
Upper Mississippi River System Environmental Management Program, IL, IA, MN, MO, WI	New Work:					
	Approp.	11,596,000	21,207	8,814,635	10,266,000	41,328,199
	Cost	11,799,516	20,998	8,875,010	10,403,000	41,562,185
	Contributed Funds:					
	Approp.	0	(3,584)	0	221,797	1,821,710
	Cost	0	8,921	16,530,697	300,332	18,371,875
Coralville Lake, IA	New Work:					
	Approp.	0	0	0	0	30,179,488
	Cost	0	0	0	0	30,173,702
	Maint:					
	Approp.	2,917,000	2,849,652	2,756,527	2,836,570	70,391,823
	Cost	2,924,660	2,879,118	2,752,463	2,865,734	68,376,187
Des Moines Recreational River and Greenbelt, IA	New Work:					
	Approp.	125,000	(100,000)	0	415,000	14,086,000
	Cost	209,327	23,534	(6,592)	414,856	13,776,411
	Contributed Funds:					
	Approp.	0	0	0	0	1,457,849
	Cost	0	0	0	0	1,444,555
Loves Park, IL	New Work:					
	Approp.	1,329,000	508,800	1,329,000	6,796,794	20,351,770
	Cost	1,309,510	555,843	1,327,628	6,801,888	20,341,105
	Contributed Funds:					
	Approp.	0	0	200,000	326,000	2,885,000
	Cost	43,495	5,619	5,555	480,987	2,838,037

TABLE 15-A COST AND FINANCIAL STATEMENT (Continued)

Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 03
Red Rock Dam and Lake Red Rock, IA	New Work:					
	Approp.	0	(3,500)	0	0	13,712,500
	Cost	44,846	194	0	2,376	11,098,746
	Maint:					
	Approp.	5,499,673	4,412,095	5,291,135	3.963,263	88,451,839
	Cost	5,566,218	4,258,772	5,156,220	3,889,592	85,779,814
	Contributed Funds:					
	Approp.	--	9,591	7,120	0	36,561
	Cost	--	0	14,591	2,120	35,133
Saylorville Lake, IA	New Work:					
	Approp.	0	0	0	0	128,067,887
	Cost	4,328	0	0	0	127,872,466
	Maint:					
	Approp.	3,961,509	3,812,239	3,787,893	3,968,122	85,812,004
	Cost	4,089,568	3,782,781	3,758,959	4,002,555	83,225,324
	Contributed Funds:					
	Approp.	0	0	29,787	29,786	3,624,001
	Cost	0	0	90,866	5,614	3,344,315
West Des Moines, IA	New Work:					
	Approp.	(100,000)	(5,000)	0	(261,772)	11,912,228
	Cost	(83,568)	34,095	6,869	(257,870)	11,983,649
	Contributed Funds:					
	Approp.	--	0	(309,556)	211,705	1,923,149
	Cost	6,050	0	0	257,870	1,990,543
Muscatine Island, IA	New Work:					
	Approp.	819,000	(31,700)	15,000	3,000	5,199,300
	Cost	939,428	(4,044)	25,018	5,311	5,199,298
	Contributed Funds:					
	Approp.	0	0	0	0	748,162
	Cost	197,462	0	0	0	748,098

TABLE 15-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		ILLINOIS WATERWAY, IL AND IN	
2.	January 21, 1927	Channel 9 feet deep and 200 feet wide from mouth of Illinois River to Utica, 231 miles, modification of 2 U.S. locks and dams, removal of 2 State dams. (Act authorized appropriation of not to exceed $3,500,000 for carrying on work.)	Rivers and Harbors Committee Doc. 69th Cong., 1st sess., and S. Doc. 130, 69th Cong., 1st sess.
	July 3, 1930	Channel 9 feet deep from Utica, IL, to heads of present Federal projects on Chicago and Calumet Rivers 94.6 miles to Lake Street, and 96.3 miles to turning basin 5, respectively, to be secured by means of completed dams, locks, lateral canals, and dredging begun by State of Illinois in general accordance with present plans of State for that work. Act adopting project authorized appropriation of not to exceed $7,500,000 for carrying on work.	S. Doc. 126, 71st Cong., 2nd sess.
	June 26, 1934[1]	Operation and care of locks and dams provided for with funds from War Department appropriation for rivers and harbors.	
	August 30, 1935	Construct modern locks and dams at LaGrange and Peoria and a channel 9 feet deep and 300 feet wide below Lockport, exact location and details of design of all structures to be left to discretion of Chief of Engineers, and for time being, that no change be made in water authorized for navigation of Illinois River by act of July 3, 1930.	H. Doc. 184, 73rd Cong., 2nd sess.[2]
	August 30, 1935[3]	Also provides for 3 passing places along Sag Channel and authorized channel in Calumet-Sag route to turning basin 5, and dredging at entrance of Lake Calumet.	H. Doc. 180, 73rd Cong., 2nd sess.
	June 14, 1937	Realign portion of Calumet River and abandonment of bypassed section of Calumet River.	Rivers and Harbors Committee Doc. 19, 75th Cong., 1st sess.
	June 20, 1938	Modifies local cooperation requirements in 1935 act.	
	October 23, 1943	Pay damages to levee and drainage districts due to seepage and other factors, not to exceed $503,500.	H. Doc. 711, 77th Cong., 2nd sess.
	March 2, 1945	Enlarge Calumet-Sag Channel to 160 feet wide and a usable depth of 9 feet. Dredge a barge channel 160 feet wide with a usable depth of 9 feet in Grand Calumet and Little Calumet River Branch of Indiana Habor Canal to deep (lake) draft through 141st St., East Chicago, IN. Construct in Little Calumet River a lock of suitable dimensions for large navigation. Rebuild or otherwise alter at Federal expense all obstructive railroad bridges across Calumet-Sag Channel, Little Calumet River, Calumet River, Grand Calumet River, and Indiana Harbor Canal, so as to provide suitable clearance, except that no Federal funds shall be expended for removal or alteration of Illinois Central RR bridge at mile 11.20 of Little Calumet River.	H. Doc. 145, 76th Cong., 1st sess.

TABLE 15-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	July 24, 1946	Substitute following work for that authorized by act of March 2, 1945; replace emergency dam in Chicago Sanitary and Ship Canal; enlargement of that canal thence to Sag Junction and of Calumet-Sag Channel to afford channels 225 feet wide and usable depth of 9 feet; construct along general route depth of 9 feet to 225 feet wide between Little Calumet River and junction with Indiana Harbor Canal and 160 feet wide thence to Clark St., Gary, IN, with a turning basin at Clark St., enlarge Indiana Harbor Canal to 225 feet wide and usable depth of 9 feet between Grand Calumet River and vicinity of 141st St., inclusive; remove Blue Island lock and construct a lock and control works in Calumet River near its head, and similar structures in proposed Grand Calumet Channel west of Indiana Harbor Canal; alter or eliminate railroad bridges across three channels lakeward of Chicago Sanitary and Ship Canal, or construct new railroad bridges to provide suitable clearance.	H. Doc. 677, 79th Cong., 2nd sess.
	July 24, 1946	A small-boat harbor in vicinity of Peoria, IL, by construction of a basin 510 by 250 feet, dredged to 7 feet deep.	H. Doc. 698, 79th Cong., 2nd sess.
	July 17, 1953	$48,933 to reimburse Nutwood Drainage and Levee District for additional pumping operation; supplementing $58,750 authorized in October 1943 act.	H. Doc. 144, 81st Cong., 1st sess.
	July 3, 1958	Federal participation in alteration of highway bridges, Calumet-Sag Modification, Part I, which constitute unreasonable obstructions to navigation, in accordance with Public Law 647, 76th Cong., as amended.	H. Doc. 45, 85th Cong., 1st sess.[4]
	August 18, 1968	Federal participation in alteration of highway bridges, Calumet-Sag Modification, Part II, which constitute unreasonable obstructions to navigation, in accordance with the Public Law 647, 76th Cong., as amended.	Specified in Act. Also H. Doc. 45, 85th Cong., 1st sess.
	November 17, 1986	Illinois River at Peoria, IL modification of navigation project to include an adjacent downstream water area.	Sec. 857, H.R.6, Water Resources Development Act of 1986.
	October 5, 1992	The project for inland navigation, Illinois River, Illinois, authorized by the Rivers and Harbors Act of 1935 (49 Stat. 1035), is modified to direct the Secretary to acquire dredge material disposal areas for such project, at a total Federal cost of not to exceed $70,000,000.	Sec. 102, Water Resources Development Act of 1992.

TABLE 15-B (Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
3.		**IL RIVER BASIN RESTORATION (519)**	
	October 2000 (P.L. 106-541)	Provide for a 4-year, $100 million dollar IL River Basin Restoration Program to include habitat rehabilitation and enhancement; development of long-term resource monitoring with computerized inventory and analysis; to complete a comprehensive plan, evaluate new technologies and innovative approaches, and to evaluate and complete critical restoration projects.	Sec. 519, Water Resources Development Act of 2000.
6.		**UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM, IL, IA, MN, MO, WI**	
	August 15, 1985 (P.L. 99-88)	Provide for a 10-year environmental program to include habitat rehabilitation and enhancement; long-term resource monitoring with computerized inventory and analysis; recreational development; assessment of economic benefits from recreational activities; and navigation system traffic monitoring.	H. Doc. 2577, 99th Cong., 1st sess.
	November 17, 1986	Approves 1982 Upper Mississippi River Master Plan, authorizes interstate agreements between Upper Mississippi River states, directs Secretary to implement GREAT II recommendations for disposal of dredged material and facilitate the productive use of dredge material, directs an interagency agreement with the Department of Interior for its participation in the plan, authorizes second lock at Lock and Dam No. 6.	Sec. 1103, H.R. 6, Water Resources Development Act of 1986.
	November 28, 1990 (P.L. 101-640)	Extending authorization for EMP program an additional 5 years.	Sec. 405, Water Resources Development Act of 1990.
	October 31, 1992 (P.L. 102-580)	Increase the HREP appropriation authority to a total of $189,600,000. Sets limits on amounts which could be transferred between authorities. Operations and Maintenance costs were specified to be the responsibility of the State/Federal/ or local agency responsible for fish and wildlife management.	Sec. 102, Water Resources Development Act of 1992.
	August 17, 1999 (P.L. 106-53)	Extended the program until perpetuity. Increase authorization limits and established a 20% transfer limit. Established an Advisory Committee for independent technical review that requires a Report to Congress NLT 31 Dec 04, and every subsequent 6 years.	Sec. 509, Water Resources Development Act of 1999.
8.		**CORALVILLE LAKE, IA**	
	June 28, 1938	Reservoir for flood control and recreation.	Flood Control Committee Doc. 1, 75th Cong., 1st sess.
	July 14, 1960	Highway bridge across Coralville Lake at or near the Mehaffey site.	None
9.		**DES MOINES RECREATIONAL RIVER AND GREENBELT, IA**	
	August 15, 1985 (P.L. 99-88)	Recreational development; environmental enhancement; and related streambank stabilization.	H. Doc. 2577, 99th Cong., 1st sess.
	November 17, 1986	Defines area of work.	Sec. 604, H.R. 6, Water Resources Development Act of 1986.
	February 13, 2003	The non-Federal sponsor shall receive credit in an amount not to exceed $10,000,000 toward their share of the cost of Des Moines Recreational River and Greenbelt, Iowa, projects for work performed by the sponsor, or others on behalf of the sponsor, including planning, design, and construction performed after October 1, 2002, provided the Secretary of the Army, acting through the Chief of Engineers, determines that such work is completed in accordance with U.S. Army Corps of Engineers standards and procedures and is integral to the Des Moines Recreational River and Greenbelt project.	108th Congress, H.R. 108-10, Sec. 122

TABLE 15-B
(Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
10		**LOVES PARK, IL**	
	November 17, 1986	Improved channel, diversion structures, pipes, and pond storage.	108th Congress, H.R. 108-10, Sec. 122
11.		**RED ROCK DAM AND LAKE RED ROCK, IA**	
	June 28, 1938	Reservoir for flood control and recreation.	Flood Control Committee Doc. 1, 75th Cong., 1st sess.
	December 19, 1985	Land Acquisition	PL 99-190
12.		**SAYLORVILLE LAKE, IA**	
	July 3, 1958	Reservoir for flood control and recreation.	S. Doc. 9, 85th Cong., 1st sess.
	October 22, 1976	Modification to minimize adverse project impact on Ledges State Park.	H. Doc. 487, 94th Cong., 2nd sess.
13.		**WEST DES MOINES, IA**	
	November 17, 1986	Construct levees and floodwall.	Sec. 401, H.R. 6, Water Resources Development Act of 1986
14.		**MUSCATINE ISLAND LEVEE DISTRICT AND MUSCATINE-LOUISA COUNTY DRAINAGE DISTRICT, NO. 13, IA**	
	November 17, 1986	Raise existing levees.	Sec. 401, H.R. 6, Water Resources Development Act of 1986.

1. Permanent Appropriations Repeal Act.
2. Contains latest published map of Illinois and Des Plaines Rivers.
3. Included, in part, in Public Works Administrative Program October 31, 1934, and February 28, 1935.
4. Contains latest published maps of Calumet – Sy portion.

TABLE 15-C OTHER AUTHORIZED NAVIGATION PROJECTS
(See Section 6 of Text)

Project	Status	For Last Full Report See Annual Report For	Cost To September 30, 2003	
			Construction	Operation and Maintenance
Hannibal SBH, MO	Completed	1958	$ 108,700	$201,685
Squaw Chute at Quincy, IL	Completed	1967	70,979[1]	9,345
Muscooten Bay, Illinois River, IL	Completed	1985	265,499	171,000
Quincy, IL, Harbor Acces Channel	Completed	1970	35,477[2]	37,700
Muscatine Harbor, IA	Completed	1964	353,000	356,061

1. Excludes $25,851 contributed funds.
2. Excludes $35,350 contributed funds.

TABLE 15-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(See Section 15 of Text)

Project	For Last Full Report See Annual Report For	Construction	Cost To September 30, 2003 Operation and Maintenance	Cost To September 30, 2003 Contributed Funds Expended
Completed Projects				
Banner Special Drainage and Levee Districts, IL	1943	$ 247,822	--	--
Bear Creek Dam (City of Hannibal, MO)	1962	1,679,056	--	--
Bettendorf, IA	1987	14,930,085	--	$ 228,073
Big Lake Drainage and Levee District, IL	1943	144,910	--	--
Canton, MO[1]	1964	1,496,555	--	--
Clinton, IA	1991	26,237,690	--	839,615
Coal Creek Drainage and Levee District, IL	1954	1,923,145	--	--
Crane Creek Drainage and Levee District, IL	1941	68,898	--	--
Des Moines and Mississippi Levee District No. 1, MO	1969	1,492,016	--	--
Des Moines, IA	1972	4,993,224	--	23,323
Drury Drainage District, IL	1964	1,144,875	--	--
Dubuque, IA	1974	10,861,170	--	145,415
East Liverpool Drainage and Levee District, IL	1941	207,826	--	--
East Moline, IL	1984	9,692,097	--	--
East Peoria Drainage and Levee District, IL	1946	279,963	--	--
Elkport, IA	1951	34,200	--	--
Evansdale, IA	1983	4,409,088	--	--
Fabius River Drainage District, MO	1941	60,500	--	--
Fabius River Drainage District, MO	1963	1,621,841	--	--
Farm Creek, IL	1997	9,859,020	5,839,362	--
Farmers Levee and Drainage District, IL	1942	155,562	--	--
Fulton, IL	1984	18,017,200	--	--
Galena, IL	1952	844,100	--	118,000
Green Bay Levee and Drainage District No. 2, IA	1949	299,000	--	--
Green Bay Levee and Drainage District No. 2, IA	1967	1,727,711	--	--
Gregory Drainage District, MO	1940	77,100	--	--
Gregory Drainage District, MO	1972	1,538,963	--	20,626
Hannibal, MO	1993	6,082,733	--	600,000
Henderson County Drainage District No. 1, IL	1968	1,453,217	--	--
Henderson County Drainage District No. 2, IL	1968	1,043,902	--	--
Henderson County Drainage District No. 3, IL	1949	42,700	--	--
Hennepin Drainage and Levee District, IL	1940	109,593	--	--
Hunt Drainage District and Lima Lake Drainage District, IL	1972	4,772,498	--	--
Indian Grave Drainage District, IL	1972	3,551,961	--	--
Iowa River-Flint Creek Levee District No. 16, IA	1972	6,044,693	--	--
Kishwaukee River at DeKalb, IL[1]	1957	123,300	--	--
Lacey Langellier, West Mantanzas and Kerton Valley Drainage and Levee District, IL	1954	1,290,000	--	--
Liverpool Drainage and Levee District, IL	1943	117,731	--	--
Lost Creek Drainage and Levee District, IL	1938	152,000	--	--
Marengo, IA[1]	1981	2,447,001	--	--
Marion County Drainage District, MO	1967	873,748	--	--
Marshalltown, IA	1978	8,437,511	--	252,136
Mason and Menard Drainage District, IL	1940	93,808	--	--
Meredosia Levee and Drainage District, IL[1]	1977	1,995,322	--	269,739
Milan, IL	1988	13,437,663	--	213,554

TABLE 15-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS (Continued) (See Section 15 of Text)

Project	For Last Full Report See Annual Report For	Construction	Cost To September 30, 2003 Operation and Maintenance	Cost To September 30, 2003 Contributed Funds Expended
Muscatine, Mad Creek, IA[1]	1983	1,129,800	--	305,747
Muscatine Island Levee District and Muscatine-Louisa County Drainage District No. 13, IA	1970	3,293,276	--	220,000
Near Springfield on Sangamon River, IL	1941	--	--	--
Oakford Special Drainage District, IL	1940	38,417	--	--
Okabena Creek at Worthington, MN[1]	1957	72,432	--	--
Ottumwa, IA	1977	233,145	--	--
Pekin and La Marsh Drainage and Levee District, IL	1955	158,383	--	--
Penny Slough, Rock River, IL	1940	85,800	--	--
Rock Island, IL	1979	7,582,373	--	--
Rockford, IL	1989	10,032,496	--	514,188
Rocky Ford Drainage and Levee District, IL	1941	108,797	--	--
Sabula, IA	1958	411,915	--	--
Sangamon River (Mouth), IL	1980	1,048,990	272,848	15,122
Seahorn Drainage and Levee District, IL	1945	32,281	--	--
Sid Simpson Project, IL	1968	5,789,800	--	--
Sny Basin, IL	1972	14,003,560	--	--
Sny Island Levee Drainage District, IL	1942	61,400	--	--
Sny Island Levee Drainage District, IL	1968	4,956,749	--	--
South Beardstown and Valley Drainage and Levee District, IL	1942	220,729	--	--
South Beardstown Drainage and Levee District, IL	1942	171,839	--	--
South Quincy Drainage and Levee District, IL	1940	61,200	--	--
South Quincy Drainage and Levee District, IL	1968	1,231,243	--	--
South Quincy Drainage and Levee District, IL	1991	7,066,437	--	2,355,479
South River Drainage District, MO	1941	55,300	--	--
South River Drainage District, MO	1966	1,106,056	--	--
Spring Lake Drainage and Levee District, IL	1941	185,980	--	--
Subdistrict No. 1 of Drainage Union No. 1 and Bay Island Drainage and Levee District No. 1, IL	1967	3,306,695	--	--
Union Township Drainage District, MO	1947	116,576	--	--
Van Meter, IA[1]	1965	113,842	--	--
Waterloo, IA	1987	48,620,099	--	83,300
Waterloo Bridges, IA	1991	1,125,000	--	1,108,787
Authorized Projects Not Constructed				
Ames Dam and Reservoir, Skunk River, IA	1987	1,400,800	--	--
Davenport, IA	1987	--	--	--
Moline, IL[2]	1987	--	--	--
Peoria, IL	1973	534,580	--	--

1. Authorized by Chief of Engineers (Sec. 205, 1948 Flood Control Act).
2. FY 89 funds of $5,639 were expended to close out project.

TABLE 15-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Cal.-Sag Channel, Part II Illinois Waterway, IL and IN	1986	1986	--	--
Campbells Island Mississippi River, IL	1969	1979	$76,664	--
Carroll County Levee and Drainage District, IL	1938	1977	--	--
Central City Lake, Wapsipinicon River, IA	1970	1977	55,664	--
Farmers Drainage and Levee District (Sangamon River), IL	1942	1986	--	--
Green Island Levee and Drainage District, IA	1938	1977	--	--
Henderson River, IL	1964	1977	102,310	--
Illinois Waterway, IL and IN Duplicate Locks	1982	1981	--	--
Illinois Waterway Navigation Project (Pekin, IL)	1986	1986	--	--
Janesville and Indian Ford Dams, WI	1938	1977	--	--
Keithsburg Drainage District, IL	1938	1977	--	--
Pecatonica River at Darlington, WI	--	1977	--	--
Rochester Lake, Cedar River, IA	--	1977	--	--
Rock River Agricultural Levees, IL	1984	1999	858,000	--
South Beloit, IL	1979	1986	270,000	--
William L. Springer Lake Decatur, IL	1979	1986	--	--
Illinois Waterway, Marseilles Canal, IL	1989	1990	--	--
Peoria Levees, IL	--	1990	--	--
Savanna Small Boat Harbor	--	1999	--	--

TABLE 15-H
INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 14 of Text)

Project	Date Inspected
Alpine Dam and Page Park Dam, Rockford, IL	December 2002
Amana Remedial Works	November 2002
Andalusia	December 2002
Avon Lake	July 2002
Banner Special Drainage and Levee District, IL	December 2002
Bay Island Drainage and Levee District, IL	November 2002
Bettendorf, IA	November 2002
Big Lake Drainage and Levee District, IL	December 2002
Burlington, IA	December 2002
Canton, MO	November 2002
Carlisle	July 2002
Cedar Falls, LF PP	November 2002
Chandlerville, Village of	October 2003
City of Streator Municipal Levee	December 2002
Clear Lake D & LD	January 2003
Clinton, IA	November 2002
Coal Creek Drainage and Levee District, IL	December 2003
Crane Creek Drainage and Levee District, IL	December 2002
DeKalb, IL	November 2002
Des Moines, IA	November 2002
Des Moines and Mississippi Levee District No. 1, MO	November 2002
Des Moines County DD7, IA	November 2002
Des Moines County DD8, IA	November 2002
Drury Drainage District, IL	November 2002
Dubuque, IA	November 2002
East Dubuque	March 2002
East Liverpool Drainage and Levee District, IL	December 2002
East Moline, IL	November 2002
East Peoria Drainage and Levee District, IL	December 2002
East Peoria Sanitary District, IL	February 2003
Elkader	April 2003
Elkport, IA	November 2002
Evansdale, IA	November 2002
Fabius River Drainage District, MO	November 2002
Farmers Drainage and Levee District, IL	December 2002
Fulton, IL	November 2002
Galena, IL	November 2002
Greater Peoria Sanitary District	October 2003
Green Bay Levee and Drainage District No. 2, IA	December 2002
Gregory Drainage District, MO	November 2002
Hannibal, MO	November 2002
Henderson County Drainage District No. 1, IL	December 2002
Henderson County Drainage District No. 2, IL	December 2002
Herget Drainage and Levee District, IL	December 2002
Hunt Drainage District & Lima Lake Drainage District, IL	November 2002
Indian Grave Drainage District, IL	November 2002
Iowa River-Flint Creek Levee District No. 16, IA	November 2002
Jackson, MN West Fork DM River	October 2002
Kent Creek LFP	December 2002
Keokuk Levee	November 2002

TABLE 15-H
(Continued)
INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 14 of Text)

Project	Date Inspected
Kerton Valley Drainage and Levee District, IL	December 2002
Lacey Drainage and Levee District, IL	December 2002
Langellier Drainage and Levee District, IL	December 2002
Levings Lake Dam, IL	December 2002
Lima DD, IL	November 2002
Liverpool Drainage and Levee District, IL	December 2002
Lost Creek Drainage and Levee District, IL	December 2002
Louisa County LD No. 11	December 2002
Lower Pleasant Valley D & LD	January 2003
Mackinaw River & DD No. 1	December 2002
Mad Creek, Muscatine, IA	November 2002
Marengo, IA	November 2002
Marion County Drainage District, MO	December 2002
Marshalltown, IA	November 2002
Mason and Manard D & LD	December 2002
Meredosia Levee and Drainage District, IL	November 2002
Milan, IL	November 2002
Mississippi – Fox DD	November 2002
Morrissey Levee	October 2003
Muscatine Island LD & D	November 2002
Oakford Special Drainage and Levee District, IL	December 2002
Oelwein	November 2002
Ottawa Township H.S. Levee	November 2002
Ottumwa/Des Moines River	October 2002
Page Park Dam, IL	December 2002
Pekin-LaMarsh Drainage and Levee District, IL	December 2002
Penny Slough Drainage and Levee District, IL	November 2002
Rock Island, IL	November 2002
Sabula, IA	November 2002
Sanitary District of Beardstown, IL	December 2002
Seahorn Drainage and Levee District, IL	October 2002
SE Des Moines/SE Pleasant Hill	July 2002
Sny Island Levee Drainage District, IL	November 2002
South Beardstown Drainage and Levee District, IL	December 2002
South Branch Diversion Channel	December 2002
South Quincy Drainage and Levee District, IL	November 2002
South River Drainage District, MO	November 2002
Spoon River No. 1	January 2003
Spoon River Ranch & Roddis	December 2002
Spring Lake Drainage and Levee District, IL	December 2002
Subdistrict No. 1 of Drainage District Union No. 1 and Bay Island Levee and Drainage District No. 1, IL	November 2002
Tama, IA	November 2002
Thompson D & LD	December 2002
Union Township D & LD	November 2002
Union TWP (Skunk)	December 2003
Valley Drainage and Levee District, IL	December 2002
Van Meter, IA	October 2003
Volga, IA	November 2002

TABLE 15-H
(Continued)
INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 14 of Text)

Project	Date Inspected
Waterloo, IA	November 2002
West Des Moines RR/WC	October 2003
West Matanzas Drainage and Levee District, IL	December 2002
Zempel Mutual DD	December 2002
Zuma-Canoe Special	November 2002

TABLE 15-I
FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Project	Fiscal Year Costs Federal Cost	Non-Federal	Total
Navigation (Section 107, 1960 Act & Mods) (216)			
Coordination Account Section 107 - 062216	$ 5,307		$ 5,307
Total	**$5,307**		**$5,307**
Flood Control (Section 205, 1948 Flood Control Act, P. L. 858) (516)			
Austin, MN – 170435	$11,082		$11,082
Cascade, IA – 179047	17,320		17,320
Cedar river, Cedar Falls, IA – 091526	13,035	(4,015)	9,020
Coordination Account Section 205 – 062516	25,087		25,087
Dyersville, IA – 179046	31,799		31,799
East Peoria, IL – 091606	125,389	0	125,389
Indian Creek, Cedar Rapids, IA – 181244	5,744		5,744
Mad Creek, Muscatine, IA – 150096	233,884	4,537	238,421
Manchester, IA – 176996	34,099		34,099
Monticello, IA – 180456	20,978		20,978
Raccoon River, Des Moines, IA – 091242	(9,953)	9,953	0
Savanna, IL – 172793	7,721		7,721
Waverly, IA – 176863	30,645		30,645
Wind Lake Watershed Racine County, WI – 167362	13,704		13,704
Total	**$560,534**	**$10,475**	**$571,009**
Emergency Bank Protection (Section 14 of 1946 Flood Control Act, P.L. 526) (517)			
Coats Sewage Lagoon, Des Moines, IA – 160224	$136,755	$50,761	$187,517
Coordination Account Section 14 – 062517	15,252		15,252
Farm Creek, Cty of Wash., Tazewell – 170066	5,000		5,000
Highway 52, Bellevue, IA – 161360	(7,829)	12,438	4,609
Rock River Highway 64, IL – 167360	36,541		36,541
Sac & Fox Settlement, Tama, IA – 167361	22,105		22,105
State Route A, Scotland Co, MO - 163318	(100)	4,096	3,996
Total	**$207,724**	**$67,295**	**$275,019**
Snagging and Clearing (Section 208, 1954 Flood Control Act, P.L. 780) (518)			
Coordination Account Section 208 – 163815	$ 14,953		$ 14,953
Little Maquoketa River, Dubuque County – 181966	9,452		9,452
Total	**$ 24,405**		**$ 24,405**
SUBTOTAL	**$797,970**	**$77,770**	**$875,740**

TABLE 15-I
(Continued)
FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Project	Fiscal Year Costs Federal Cost	Non-Federal	Total
Project Modification to Improve Environment (Section 1135 P.L. 99-662) (722)			
Big Creek Lake Sp9illway Mod – 175183	$15,913		$15,913
Coordination Account Section 1135 – 062092	9,983		9,983
Emiquon Floodplain Rest., IL – 171808	2,751		2,751
Lock & Dam 18 Fish Passage – 170151	11		11
Mill Creek/Milan Bottoms Habitat – 162936	349	17,180	17,529
Nahant Marsh Mississippi River – 167510	29		29
Oquawka Refuge Habitat – 096182	0	6,027	6,027
Total	**$29,036**	**$23,207**	**$52,243**
Aquatic Ecosystem Restoration (Section 206, P.L. 104-303) (732)			
Clear Lake, IA – 180778	$4,334		$4,334
Coordination Account Section 206 – 062091	9,386		9,386
Duck Creek/Fairmount Pk Wetland Rest – 167364	71,907		71,907
Freeborn County Ecosystem Restoration – 173832	5,907		5,907
Iowa River and Clear Creek, IA – 167430	103,034		103,034
Jackson Fish Passage – 170150	27,594		27,594
Kankakee River, IL – 167429	156,906		156,906
Kettle Moraine Wet Prairie Restoration – 179358	6,522		6,522
Koshkonong Creek, WI – 164649	67,461		67,461
Lake Belle View – 164774	223,754		223,754
Lake Koshkonong – 167368	93,338		93,338
Preliminary Restoration Section 206 – 062732	560		560
Spring Lake, Palmyra, WI – 167827	5		5
Token Creek Habitat, WI – 164249	82,134		82,134
Whitebreast Watershed – 162937	15,176		15,176
Windom Fish Passage, MN – 179052	7,091		7,091
Total	**$875,109**		**$875,109**
Wetland/Other Aquatic Habitat (Section 204, 1992 Flood Control Act, P.L. 102-560) (792)			
Blackhawk Bottoms Mississippi River – 169021	$ 311		$ 311
Coordination Account Section 204 – 163816	10,016		10,016
Henderson #3 Habitat Restoration – 170149	32		32
Total	**$10,359**		**$10,359**
SUBTOTAL	**$ 914,504**	**$ 23,207**	**$ 937,711**
TOTAL	**$1,712,474**	**$100,977**	**$1,813,451**

TABLE 15-J ILLINOIS WATERWAY: EXISTING LOCKS AND DAMS (See Section 2 of Text)

Lock	Miles Above Mouth	Miles to Nearest Town	Dimensions: Width of Chamber (feet)	Dimensions: Available Length for Full Width (feet)	Miter Sills Lift at Low Water[1] (feet)	Depth on at Low Water: Lower (feet)	Depth on at Low Water: Upper (feet)
LaGrange Lock	80.2	7.8 below Beardstown, IL	110	600	10.0	13.0	15.5
Peoria Lock	157.7	4.1 below Peoria, IL	110	600	11.0	12.0	15.5
Starved Rock Lock	231.0	Utica, IL	110	600	18.5	14.0	16.8
Marseilles Lock	244.6	Marseilles, IL	110	600	24.45	14.0	18.6
Dresden Island Lock	271.5	8 above Morris, IL	110	600	21.75	12.25	16.85
Brandon Road Lock	286.0	Joliet, IL	110	600	34.0	13.8	17.85
Lockport Lock	291.1	Lockport, IL	110	600	30.5-39.5[2]	15.0	11.0-20.2[2]
T.J. O'Brien Lock	326.5	Chicago, IL	110	1,000	--	14.0	14.0

1. Lifts and depth on miter sills are those obtained with flat pools.
2. Variation in lift and depth on upper miter sill at Lockport is due to fluctuation of water surface in the sanitary district canal.

TABLE 15-K ILLINOIS WATERWAY, IL AND IN LOCK AND DAM CONSTRUCTION, FOUNDATIONS, COST (See Section 2 of Text)

	Lock		Dam			Federal Cost	Estimated
Name	Type of Construction	Character of Foundation	Kind	Type of Construction	Character of Foundation	Year Complete	Under Existing Project
Illinois River, mouth to Utica; channel improvement by dredging in Illinois River below Starved Rock modification of two U.S. locks and dams, and removal of two State dams.	--	--	--	--	--	--	$2,733,499[1]
LaGrange	Concrete	Piles in sand	Movable (wicket with A-frame-crest)	Concrete and timber	Piles in sand	1939	$ 2,744,592[1]
Peoria	Concrete	Piles in sand	Movable (wicket type)	Concrete and timber	Piles in sand	1939	3,381,030[1]
Starved Rock	Concrete	Rock	Movable (tainter gates)	Concrete and structural steel	Rock	1933	885,315[1]
Marseilles	Concrete	Rock	Movable (tainter gates)	Concrete and structural steel	Rock	1933	1,853,725[1]
Dresden Island	Concrete	Rock	Movable (tainter gates)	Concrete and structural steel	Rock	1933	2,503,376[1]
Brandon Road	Concrete	Rock	Movable (tainter gates)	Concrete and structural steel	Rock	1933	2,031,683[1]
Lockport	Concrete	Rock	Movable (Bear trap) (Bear trap)	Concrete and structural steel	Rock	1933	133,608[1]
T.J. O'Brien	Concrete and sheet piling	Piles in clay	Fixed	Concrete and sheet piling	Piles in clay	1960	6,954,700[1]

TABLE 15-K (Continued) ILLINOIS WATERWAY, IL AND IN LOCK AND DAM CONSTRUCTION, FOUNDATIONS, COST (See Section 2 of Text)

	Lock		Dam			Federal Cost	Estimated
Name	Type of Construction	Character of Foundation	Kind	Type of Construction	Character of Foundation	Year Complete	Under Existing Project
Lock and dam equipment	--	--	--	--	--	--	1,250,304[1]
Total locks and dams	--	--	--	--	--	--	$ 24,471,832

1. Actual cost.

TABLE 15-L ILLINOIS WATERWAY, IL AND IN ADDITIONAL FEATURES ENTERING INTO COST (See Section 2 of Text)

Dredging:	
Little Calumet and Calumet Rivers	$ 2,135,358[1]
Calumet-Sag, 3 passing places	813,318[1]
Starved Rock to Lockport	6,007,335
Starved Rock to Grafton	2,917,607
Calumet-Sag Channel	19,238,200
Peoria small boat harbor	24,937[1]
Protection piers at all locks	77,613[1]
Calumet-Sag modification engineering and design	5,141,474
Calumet-Sag modification, supervision and administration	5,466,804
Rebuild highway bridges	19,327,850
Rebuild railway bridges:	
Calumet-Sag Channel	20,828,435[1]
Little Calumet and Calumet Rivers	18,362,041[1]
Recreation Facilities, Code 711	445,000
Removal of Blue Island lock	288,600[1]
Grand Calumet River controlling works[2]	
St. Louis District	1,081,600[1]
Total additional features	$100,442,142
Total existing project	$124,913,974

1. Actual cost.
2. Placed in inactive status November 19, 1974.

TABLE 15-M EXISTING PROJECT

See Section in Text	Project	Item	Length (feet)	Width (feet)	Depth (feet)
2.	Illinois Waterway, IL and IN	Nine locks and six dams	--	--	--
		Grafton to Lockport, IL	291.1 miles	300	9
		Lockport to controlling works	2.0 miles	200-300	9
		Controlling works to junction with Calumet-Sag Channel	10.0 miles	225	9
		Calumet-Sag Channel to lock in Blue Island	16.0 miles	225	9
		Calumet and Little Calumet Channel, from Blue Island to turning basin 5	7.7 miles	300	9
		Grand Calumet River Channel from junction with Little Calumet River to and in Indiana Harbor Canal to 141st, East Chicago, IN	9.0 miles	9	--
		Also, Grand Calumet River Channel from junction of Indiana Harbor Canal and Grand Calumet River to Clark St. in Gary, IN, with a turning basin at Clark St.	4.2 miles	160	9
		A channel in Chicago Sanitary and Ship Canal and South Branch Chicago River from Sag-Junction to Lake St. in Chicago, IL	22.1 miles	175-300	9

TABLE 15-N ILLINOIS WATERWAY, IL AND IN TOTAL COST OF EXISTING PROJECT TO SEPTEMBER 30, 2003 (See Section 2 of Text)

	New Work	Maintenance	Rehabilitation	Total
Regular Funds	$120,886,748	$534,969,331	$155,466,400	$690,435,731
Public Works Funds	3,960,735	--	--	3,960,735
Emergency Relief Funds	1,858,936	--	--	1,858,936
Total	$126,706,419	$534,969,331	$155,466,400	$696,255,402

1. Includes $1,735,890 expended between 1927 and 1936 on the operation and care of the works of improvement under the provisions of the permanent indefinite appropriation for such purposes.

TABLE 15-O ACTIVE GENERAL INVESTIGATIONS (96X3121)

Item and CWIS Number	FISCAL YEAR COSTS Federal Cost	Non-Federal	Total
SURVEYS (Category 100)			
Navigation Studies (110)			
Hannibal, MO – 013781	$ 437		$ 437
Total	$ 437		$ 437
Flood Damage Prevention (120)			
DesMoines & Racoon River, IA – 013490	$ 219,889	305,253	$525,142
Illinois River at Beardstown, IL – 014400	51,920		51,920
Keith Creek, Rockford, IL – 013840	42,308		42,308
Lower Des Moines, IA & MO – 081383	47,550		47,550
Total	$ 361,667	$305,253	$666,920
Special Studies (140)			
Fort Dodge, IA – 013763	$ 25,249		$ 25,249
Illinois River Basin Restoration – 013818	954,855	332,555	1,287,410
Illinois River Ecosystem Restoration – 014293	358,911	287,825	646,736
Peoria Riverfront Development, IL – 013410	14,846	12,869	27,715
Rock River, IL & WI – 012949	147,316	152,321	299,637
Upper Miss. River Flow Freq Study – 013414	1,000,360		1,000,360
Total	$2,501,537	$785,570	$3,287,107
Watershed/Comprehensive Studies (150)			
Upper Miss River Comprehensive Study – 010565	$ 1,644,751		$ 1,644,751
Total	$ 1,644,751		$ 1,644,751
Review of Authorized Projects (160)			
Fabius River Drainage District – 013334	$ 98		$ 98
Mississippi River Navigation Study – 010315	6152,177		6,152,177
Total	$6,152,275		$6,152,275
Miscellaneous Activities (170)			
Interagency Water Resources Dev. – 014713	$ 24,967		$ 24,967
N. American Waterfowl – 053904	1,907		1,907
Review of FERC Licenses – 053857	1,905		1,905
Special Investigations – 017250	30,174		30,174
Total	$58,953		$58,953
Coordination Studies with other Agencies (180)			
Cooperation w/other Water Agencies – 053907	$14,015		$14,015
Total	$14,015		$14,015
Planning Assistance to States (180)			
PAS Negotiation Funds – 014800	$ 22,749		$ 22,749
PAS-IA-Black Hawk Co. Hydraulic Analysis – 019008	921	75	996
PAS-IA-Buffalo H&H Study – 019016	3,187	1,725	4,912
PAS-IA-Des Moines H&H Study – 019015	2,779	2,659	5,438
PAS-IA-Waterloo Hydraulics – 019012	11,281	4,745	16,026
PAS-IL-Lake Sinnissippi – 017025	8,770	7,074	15,844
PAS-IL-Pekin, IL – 017028	18,882	18,924	37,806
PAS-IL-Sunset Marina Study – 014001	883	883	1,766
PAS-IT-SAC Fox Tribe Surveying – 072002	43,375	44,770	88,145
Total	$112,827	$80,855	$193,682
TOTAL (Category 100)	**$10,846,462**	**$1,171,678**	**$12,018,140**

TABLE 15-O (Continued) ACTIVE GENERAL INVESTIGATIONS (96X3121)

Item and CWIS Number	FISCAL YEAR COSTS Federal Cost	Non-Federal	Total
COLLECTION AND STUDY OF BASIC DATA (Category 200)			
Floodplain Management Services (250)			
Flood Plain Mgmt Services – 082030	$ 29,149		$ 29,149
Technical Services – 082040	54,979		54,979
Quick Responses – 082045	11,051		11,051
SS Hannibal, MO – 083187	36,712		36,712
SS-Little Maquoketa River, IA – 083433	7,268		7,268
Total	$139,159		$139,159
Hydrologic Studies (260)			
General Hydrologic Studies – 053820	$31,995		$31,995
Total	$31,995		$31,995
TOTAL (Category 200)	**$171,154**		**$171,154**
GRAND TOTAL GENERAL INVESTIGATIONS (NON REIMBURSABLE)	**$11,017,616**	**$1,171,678**	**$12,189,294**

ST. PAUL, MN, DISTRICT

District comprises western Wisconsin, major portion of Minnesota, northern and eastern North Dakota, and small portions of northeastern South Dakota and northern and northeastern Iowa embracing drainage basins of Mississippi River and tributaries from its source to mile 614 above mouth of Ohio River; Red River of the North and tributaries; those streams north of Missouri River Basin in North Dakota; and U.S. waters of Lake of the Woods and its tributaries. That section of Mississippi River above mile 614 is included in report on Mississippi River between Missouri River and Minneapolis, Minnesota.

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Navigation

1. MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MN

For report on this improvement see chapter on Mississippi River between Missouri River and Minneapolis, Minnesota.

2. RESERVOIRS AT HEADWATERS OF MISSISSIPPI RIVER, MN

Location. Reservoirs are on the Mississippi River and several of its tributaries in Itasca, Beltrami, Hubbard, Aitkin, Cass and Crow Wing Counties, MN. (See Table 16-H on reservoirs.)

Previous projects. For details see page 1888 of Annual Report for 1915, and page 1098 of Annual Report for 1938.

Existing project. Provides for reconstruction from timber to concrete at Winnibigoshish, Leech Lake, Pokegama, Sandy Lake and Pine River Dams, and construction of a concrete dam at Gull Lake. Pokegama was built on bedrock and the others on pile foundations. A portion of Leech Lake Dam from piers 26 to 39 was replaced with an earth fill. Constructed three dikes at Winnibigoshish, four at Pokegama, two at Sandy Lake, and 16 at Pine River. Sandy Lake Dam includes a lock 160 feet long, 30 feet wide, with a maximum lift of 9.5 feet and a depth of 2.5 feet on lower sill at low water which was converted to use as a spillway. (See Table 16-B for authorizing legislation.) The Pine River Dam main embankment consists of a timber diaphragm core and earth fill. The Pine River Dam control structure is made of reinforced concrete with a steel sheet pile cutoff and is supported on a timber substructure. Pine River Dam was modified during the period 1999-2002 to pass 70% of the Probable Maximum Flood. During this period, the 13 gate openings were enlarged and outfitted with new gates; the wing walls were modified; the existing dam and embankment was raised via addition of a parapet wall and a concrete-capped sheet pile wall, to provide 5 ft. of freeboard over the design flood; the foundation was grouted to stop seepage and fill voids; and the perimeter dikes were improved. Total Federal cost to the United States for new Dam Safety Assurance work at the Pine River Dam is $11,053,800.

Local cooperation. Fully complied with.

Terminal facilities. None.

Operation and results during fiscal year. Reservoirs were operated as required, recreation facilities and equipment maintained, and surveys, repairs, reports and data collection cost $4,587,113 Federal and $48,646 non-Federal. Dam Safety: Engineering and design for dam safety modifications at Pine River Dam cost $137,137 Federal.

Condition at end of fiscal year. Existing project was completed in 1937. Flowage rights were acquired on all lands affected by construction, maintenance, and operation of reservoirs. A total of 1,672.26 acres in fee are owned by the United States. The United States has easements, flowage rights, and other rights of use on another 296,334.44 acres. Structures are in fair condition. Recreation facilities for public use are being constructed intermittently at all reservoir areas. (See Table 16-H for capacities and costs by reservoir.) Pine River Dam has been classified as a high hazard dam under the National Dam Safety Program due to inadequate spillway capacity which could lead to dam failure during a flood event. Construction of dam safety modifications is currently underway.

3. UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM (UMRS-EMP)

Location. The program is authorized for the commercially navigable portions of the Upper Mississippi River System. In the St. Paul District, this includes the Mississippi, Minnesota, Black, and St. Croix Rivers in the states of Minnesota, Wisconsin and Iowa.

Existing project. The purpose of the UMRS-EMP as stated in the authorizing legislation is to ensure the coordinated development and enhancement of the Upper Mississippi River System, recognizing its several purposes. It is intended to protect and/or enhance the river resources and guide future river management. The primary emphasis of the program is on habitat rehabilitation and enhancement projects. Long term

resource monitoring will provide the means for more informed management of the UMRS. Also authorized, was a study of the economic impacts of recreation (completed), navigation traffic monitoring (continuing under other authority), and recreation projects (unfunded). The program was initiated by WRDA in 1986 and the 1999 WRDA extended the EMP on a continuing basis. The execution of the program is closely coordinated with the Upper Mississippi River Basin Association, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, and the three affected states in the St. Paul District. See Rock Island District Tables 15-A and 15-B for total program costs and authorizing legislation.

In the St. Paul District, twenty-one habitat projects have been completed. These are the Guttenberg Waterfowl Ponds (IA), Island 42 (MN), Lake Onalaska (WI), Blackhawk Park (WI), Pool 8 Islands Phases I and II (WI), Indian Slough (WI), Finger Lakes (MN), Lansing Big Lake (IA), Cold Springs (WI), Pool 9 Island (WI), Spring Lake Peninsula (WI), Bussey Lake (IA), Peterson Lake (MN), Polander Lake (MN), East Channel (WI/MN), Rice Lake (MN), Small Scale Drawdown (WI), Trempealeau (WI), Bank Stabilization (IA, WI, MN), and Long Lake (WI). Most of the projects are operated and maintained by the U.S. Fish and Wildlife Service. However, projects not located on lands managed as a national wildlife refuge are maintained by the applicable state department of natural resources. Through FY 2003, funds expended by the St. Paul District have amounted to $37,897,000 for planning, design, construction and monitoring of habitat rehabilitation and enhancement projects; $955,000 for long term resource monitoring; $768,000 for economic impacts of recreation study; and $2,774,000 for program management. The annual authorized funding level for the overall program is about $34 million.

Local cooperation. Local cooperation agreements are obtained for habitat project features not located on lands managed as a national wildlife refuge, as specified in Section 906(e) of the 1986 WRDA.

Operations and results during fiscal year. In the St. Paul District, costs during the year totaled $1,529,791 Federal and $154,800 non-Federal. The majority of funds were expended on the planning, design, construction and monitoring of habitat projects. Design was continued on six projects. Construction was completed on two stages of one project (Ambrough Slough) and on the rehabilitation of one other project (Long Lake).

4. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 87-645, as amended.

In FY 02, $10,069 was expended on Section 107 Coordination Account; $6,749 on East Two River, Tower, MN.

Flood Control

6. BRECKENRIDGE, MN

Location. Breckenridge, Minnesota, is located in Wilkin County in western Minnesota, approximately 200 miles north and west of the Minneapolis-St. Paul metropolitan area. The city is bounded on the west by the Red River of the North and the Bois de Sioux River. The Ottertail River flows from the east, bisecting the city. The city of Wahpeton, ND, lies across the Red River from Breckenridge.

Existing project. A feasibility study recommended implementation of a flood damage reduction project consisting of a high-flow diversion channel located to the north of the Ottertail River and entering into the Red River and two separable permanent levee reaches that would protect all of Breckenridge. The project is authorized by Section 205 of the 1948 Flood Control Act, as amended. Section 205 authorizes construction of small projects for flood control and related purposes not specifically authorized by Congress. Projects recommended for construction under Section 205 must be economically justified and limited to a federal cost of $7 million. However, WRDA 2000 specifically authorized this project and it was transitioned form a small project to a specific project in FY 02.

Local cooperation. A Feasibility Cost Sharing Agreement was executed between the Federal Government and the city of Breckenridge on June 29, 1999. This agreement required the city to provide 50 percent of the costs of performing the feasibility study. A Project Cooperation Agreement, negotiated between the Federal Government and the city was signed on 15 August 2002.

Operations and results during fiscal year. The plans and specifications for the first stage of construction were finalized. Construction was initiated for the Stage 1, Diversion Channel. Total FY 03 Federal costs were $1,631,054 and Non-Federal $227,040.

Condition at end of fiscal year. During the first stage of construction, two highway bridges were significantly complete. Approximately 20% completion of construction was accomplished for Stage 1.

6. BROOKLYN CENTER SEWER LINE, MISSISSIPPI RIVER, MN

Location. Along the right bank of the Mississippi River, Hennepin County, about 5 miles north of Minneapolis, Minnesota.

Existing Project. The emergency streambank protection project on the Mississippi River involves approximately 750 feet of riverbank. The project consists of rockfill toe protection and associated earthwork to protect an 18-inch sanitary sewer line. The project was approved by the Mississippi River Division for construction on 6 March 2002, under the authority contained in Section 14 of the 1946 Flood Control Act, as amended.

Local Cooperation. See Annual Report for 2002. A project Cooperation Agreement was executed between the Federal Government and the City of Brooklyn Center on 28 May 2002 complied with.

Operation and results during fiscal year. New Work: The Preparation plans and specifications is essentially complete. The City completed the acquisition of the lands easements and right-of-way in August 2003. Total FY 03 Federal Costs were $42,319 and non-Federal, $3,022.

Condition at the end of the fiscal year. The construction contract of the emergency streambank protection project will be awarded in early FY 04.

7. CHASKA, MN

Location. In Carver County in south-central Minnesota on the Minnesota River. (For general location, see Geological Survey map of Minnesota.)

Existing project. The plan of improvement consists of a levee and interior drainage works along the Minnesota River, flood diversion channels on Chaska Creek and East Creek, and appropriate flood-plain regulation measures. Principal project features include: approximately 1.1 miles of upgraded levee, 1.5 miles of new levee, and one pumping station on the Minnesota River; 1.1 miles of diversion channel on Chaska Creek; and 1.0 mile of diversion channel on East Creek. Approximately 2.9 miles of paved recreation trails on top of the levee and around Courthouse Lake are also included in the proposed plan. Estimated Federal cost for new work is $30,397,000 and $12,558,000 is to be contributed by local interests. Project was authorized by the 1976 Water Resources Development Act. (H. Doc. 644, 94th Congress, 2d sess., contains latest published map.)

Local cooperation. See Annual Report for 1977 for requirements. A local cooperation agreement was executed on Sep. 12, 1988. The agreement included cost sharing provisions in accordance with the 1986 Water Resources Development Act.

Operations and results during fiscal year. Stage 3A construction (final stage) resulted in damage to an existing house. Repairs were completed this fiscal year. Total Federal costs were $30,532 and non-Federal, $-11,957.

Condition at end of fiscal year. Construction is complete. A project dedication was held on July 28, 1998.

8. CROOKSTON, MN

Location. In Polk County in northwest Minnesota, approximately 25 miles east of Grand Forks, North Dakota. It is located on the Red Lake River 52 miles upstream from its confluence with the Red River of the North at East Grand Forks.

Existing project. This flood reduction project was specially authorized by Congress via the Water Resources Development Act of 1999 and appropriations for the new start construction was provided in 2001 budget appropriations. The cost-shared feasibility report and environmental assessment that justified the Federal project was completed in 1997 and recommended a local flood protection project consisting of 2 downstream high-flow cutoff channels, and levees built to the 100-year level of protection for Thorndale, Woods and Downtown/Riverside neighborhoods. The recommended plan has a fully funded baseline cost estimate of $9.5 million, and a benefit to cost ratio of 1.6. However, based on plans and specification efforts now done, the actual costs are now projected to increase to approximately $10.5 million. Preconstruction engineering and design efforts began in 1998 and the plans and specifications for Stage I of the project construction were completed in October 2000. Construction began on Stage I in July 2001 and was completed in September 2002. The Stage II plans and specifications were completed in August 2001. Stage II construction began in August 2002 and is expected to be complete in May 2004.

Local cooperation. Negotiation of a Project Cooperation Agreement was completed and signed on Mar. 19, 2001. The non-Federal Sponsor will comply with the local cost sharing requirements of Water Resources Development Act of 1986, as amended.

Operations and results during fiscal year. New Work: Continued construction on Stage 2 features; cutoff channel #3, Summit Ave. road raise, and levee construction in the Wood's addition.

Condition at end of fiscal year. Construction on Stage I is 100 percent complete and 70% complete on Stage II.

9. GRAFTON, PARK RIVER, ND

Location. In Walsh County in northeastern North Dakota along the Park River where State Highway 81 and the Park River intersect about 340 miles northwest of Minneapolis-St. Paul, Minnesota.

Existing project. The recommended plan will provide flood protection for the city of Grafton; it consists of a 3-mile-long bypass channel just north of Grafton. The tieback levee will direct the flood flows to the inlet of the control structure. River flows that exceed 2,000 cubic feet per second (cfs) will be diverted through the proposed bypass channel. The project is estimated to cost $31,600,000 with an estimated Federal cost of $20,540,000 and an estimated non-Federal cost of $11,060,000. Grafton was authorized for construction by WRDA 1986, deauthorized in 1991, and subsequently reauthorized by Section 364 of WRDA 1999.

Local cooperation. The city of Grafton is the local sponsor. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material or disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project; pay five percent of the costs allocated to flood control; contribute an additional amount in cash as necessary to bring the non-Federal shares of costs allocated to flood control to a minimum 35 percent; and bear all costs of operation, maintenance, and replacement of the flood control facilities.

Operations and results during fiscal year. New Work: Engineering associated with pre-engineering and design was accomplished at a Federal cost of $174,678 and non-Federal costs of $48,622.

Condition at end of fiscal year. Funds are being used to complete a General Reevaluation Report. The completion schedule for preconstruction engineering and design is April 2004 (PCA execution).

10. GRAND FORKS, NORTH DAKOTA AND EAST GRAND FORKS, MINNESOTA

Location. Grand Forks, North Dakota is located in Grand Forks County in eastern North Dakota about 70 miles south of the Canadian border. East Grand Forks, Minnesota is located at the outlet of the Red Lake River to the Red River of the North, immediately across the river from Grand Forks. (For General Location see Geological Survey map of either North Dakota or Minnesota.)

Existing project. Project was authorized by P.L. 105-277, Omnibus Appropriation Bill FY 99. Estimated cost (2003) of the entire flood damage reduction project is $403,900,000, total cost to the United States is estimated at $208,800,000 and total cost to the non-Federal sponsors (cities of Grand Forks and East Grand Forks) is estimated at $195,100,000. The flood damage reduction project consists of a flood barrier around both communities providing protection against a flood equivalent to the peak discharge that occurred during the devastating flood of 1997 (136,900 cubic feet per second). A secondary purpose of recreation is also included in the authorized project.

Local cooperation. Project Cooperation Agreement was signed with both communities in January 2000. The non-Federal sponsors will comply with the local cost share requirements of Water Resources Development Act of 1986, as amended.

Operations and results during fiscal year. New Work: Total Federal construction costs for FY 03 were $47,290,726 and non-Federal costs of $10,033,354.

Condition at end of fiscal year. Construction is essentially complete on the Riverside Dam Bank Stabilization, removal of the Pedestrian Bridge, pump and generator supply contracts, Grand Forks Phase I Levees, and East Grand Forks Phase I Levees. The Grand Forks English Coulee Diversion and Pump Stations are nearing completion. The East Grand Forks Phase II Levees and Grand Forks Phase II Levees are midway through construction. The Phase III Levees for both cities are in the process of being advertised for construction as is the East Grand Forks Heartsville Coulee Diversion. The overall project is currently scheduled for completion in late 2005 or early 2006, subject to funding.

11. HOMME LAKE AND DAM, ND

Location. Dam is on South Branch of Park River about 4 miles upstream from Park River, ND, and 62.1 miles above mouth of Park River. South, Middle, and North Branches, headwater streams of Park River, rise in Cavalier County in northeastern North Dakota and flow easterly to an almost common confluence near Grafton, ND, forming main stream which flows easterly 35 miles to join Red River of the North about 35 miles south of the international boundary. (For general location, see Geological Survey map of North Dakota.)

Existing project. See Annual Report for 1962. Project was authorized as Park River Reservoir by 1944 Flood Control Act (S. Doc. 194, 78th Cong., 2d sess.), and redesignated Homme Reservoir and Dam by Public Law 435, 80th Congress, 2d session. Project restoration of wetland habitat conditions is taking place under the authority contained in Section 1135 of the 1986 Water Resources Development Act, as amended. Latest published maps are in project document. A reconnaissance report was completed in 1994 under the Dam Safety Assurance Program. The report recommended adding a new spillway to increase the dam's discharge capacity to the Probable Maximum flood level. Estimated cost (2003) to the United States for new Dam Safety Assurance work is $11,600,000 and $77,000 is to be contributed by local interests.

Local cooperation. Fully complied with. Total costs for all requirements of local cooperation under terms of project authorization, including required non-Federal contributions, were $62,800. In addition, local interests contributed $16,220 for construction of a water supply outlet through dam and incurred other costs of $19,600. The North Dakota Game and Fish Department has agreed to serve as the non-Federal sponsor for the environmental improvement to the project.

According to current Dam Safety cost sharing guidance, the local sponsors are required to fund 15 percent of the dam safety improvement costs in the same proportion as the original construction was cost shared. The local sponsors would therefore pay for 4.5 percent of 15 percent or 0.68 percent of the dam safety costs. The North Dakota Office of the State Engineer has supported the proposed modifications identified in the Reconnaissance Report.

Operations and results during fiscal year. Maintenance: Structure was operated, maintained, inspected and evaluations were performed at a cost of $160,794. Dam Safety: Total Federal costs of $1,465,820 and non-Federal costs of $10,469.

Condition at end of fiscal year. Project completed in June 1956 except for additional recreational facilities which have been done intermittently since that time. Construction began in April 1948 and major structures completed in May 1951. Structures are in good condition. Government has acquired 395 acres of land in fee and easements over 7.8 acres of land for project. An additional 6.3 acres of land have been donated for recreational development and 3.75 acres have been acquired due to bank erosion bordering the project. Construction of a habitat improvement project (under Section 1135 authority) was completed and the project was turned over to the local sponsor, the North Dakota Fish and Game Department. Homme Dam has been classified as a high hazard dam under the National Dam Safety Program due to inadequate spillway capacity which could lead to dam failure during a flood event. Engineering and design of dam safety modifications has been completed and construction of a new concrete spillway was completed in October 2003.

12. LA FARGE LAKE AND CHANNEL IMPROVEMENT, WI

Location. On the Kickapoo River which rises in Monroe County in southwestern Wisconsin and flows south and southwest through Vernon, Richland, and Crawford Counties emptying into Wisconsin River about 16 miles above junction of latter stream with Mississippi River. (For general location see Geological Survey map of Wisconsin.)

Existing project. See Annual Report for 1996 for flood control dam and impoundment project authorized by 1962 Flood Control Act. The Water Resources Development Act of 1996 (WRDA 96) authorized a modification to the original project to include transfer of approximately 8,569 acres of project lands to the State of Wisconsin and the Secretary of the Interior to be held in trust for the Ho-Chunk Nation. The Ho-Chunk Nation is to receive up to 1,200 acres of lands that are of cultural and religious significance. The modification also includes deauthorizing the construction of the reservoir and dam, while completing other features of the original project. Estimated Federal cost for work authorized by WRDA 96 is $17,000,000.

Local cooperation. None required for construction of La Farge Lake. See Annual Report for 1967 for requirements for local protection works. A Project Cooperation Agreement is not required for the land transfer.

Operations and results during fiscal year. New Work: Work associated with WRDA 96 project was accomplished at a cost of $4,830,093.

Condition at end of fiscal year. See Annual Report for 1996 for status of work authorized by 1962 Flood Control Act. The project was specifically deauthorized by Section 361(b)(7) of Public Law 104-303, Oct. 12, 1996, with the exception of named relocation and restoration features that remain authorized.

13. MARSHALL, MN

Location. In Lyon County in southwestern Minnesota along the Redwood River about 68 miles above its confluence with the Minnesota River at the city of Marshall, Minnesota. (For general location see Geological Survey map for Minnesota.)

Existing project. See page 1059 of Annual Report for 1964 for completed channel improvement project authorized by 1960 Flood Control Act. Federal costs amounted to $1,802,866. The existing flood control project was completed in 1963. In response to a need for additional flood control, a feasibility study was completed in 1979. The project recommended in the feasibility report was authorized by the Water Resources Development Act of 1986, Public Law 99-662, Section 401(a) and reauthorized by the Water Resources Development Act of 1988, Public Law 100-676. Improvements include 4.7 miles of additional levees, 3.8 miles of bank protection, 0.3 mile of new high-flow diversion channel, an interbasin overflow structure, modifications to the existing diversion and drop structures, and a recreation plan. The project would provide protection against a flood having an occurrence interval of about once in 115 years. Estimated Federal cost (2000) for new work is $7,850,000 and $2,580,000 is to be contributed by local interests.

Local cooperation. Fully complied with for completed work. Project was transferred to local interests on Dec. 23, 1963.

For new work, see Annual Report for 1985 for requirements. A local cooperation agreement was executed on Sep. 9, 1996. The agreement included cost sharing provisions in accordance with the 1986 Water Resources Development Act.

Operations and results during fiscal year. New Work: Project financial close-out analysis was essentially completed. Federal costs were $7,222, non-Federal $1,000.

Condition at end of fiscal year. Construction of completed work was initiated August 1962 and completed December 1963. Construction of improvements to that work was completed in September 2000.

14. PORTAGE, WI

Location. In Columbia County in central Wisconsin along the Wisconsin River about 35 miles north of Madison, Wisconsin. (For general location see Geological Survey map for Wisconsin.)

Existing project. The project includes 1.2 miles of existing levee improvement; 1.6 miles of new levee; one highway and one railroad closure; cultural mitigation; and recreation features along the left bank of the Wisconsin river at Portage. The project would protect against a flood having an occurrence interval of about once in 100 years. Estimated Federal cost (2001) for new work is $8,450,000 and $2,950,000 is to be contributed by local interests. Project was authorized by the Water Resources Development Act of 1986 (Public Law 99-662).

Local cooperation. See Annual Report for 1989 for requirements. A Project Cooperation Agreement between the city of Portage and the Federal Government was executed in October 1996. The agreement included cost sharing provisions in accordance with the 1986 Water Resources Development Act.

Operations and results during fiscal year. New Work: A construction contract awarded in July 1997 is complete. Work awarded September 2 and completed in FY03 consisted of raising a railroad spur track and constructing a short reach levee to allow interbasin flow to Fox River, which will offset a project induced stage increase of .08 feet on the Wisconsin River. FY03 Federal costs were $200,536, non-Federal $711,320.

Condition at end of fiscal year. Construction of flood protection is complete.

15. SHEYENNE RIVER, ND

Location. The Sheyenne River Basin is included in 16 counties in the southeastern portion of North Dakota and drains an area of 7,140 square miles into the Red River of the North near Fargo, North Dakota. The principal area of flood damages in the basin is located at the lower end within Cass County and the city of West Fargo. (For general location, see Geological Survey map of North Dakota.)

Existing project. The project as authorized by the 1986 Water Resources Development Act consists of three major components for Federal implementation: 1) 11.9 miles of levee and a 6.7 mile flood diversion

channel at West Fargo; 2) 7.5 miles of flood diversion channel from Horace to West Fargo; and 3) a five-foot raise of the Baldhill Dam flood control pool. The Water Resources Development Act of 1986 stipulated that the project shall also include a dam and reservoir of approximately 35,000 acre-feet of storage for the purpose of flood protection on the Maple River. This component was deauthorized April 16, 2002. There are several items of local cooperation required to implement the plan, and several components identified for non-Federal implementation which would supplement the recommended plan. Estimated cost (2000) to the United States for new work is $31,130,000 and $12,470,000 is to be contributed by local interests.

Local cooperation. See Annual Report for 1988 for requirements. Project consists of three separable components each requiring a local cooperation agreement. The Southeast Cass Water Resource District is the local sponsor for the West Fargo Unit and the Horace to West Fargo Unit. The local cooperation agreement for the West Fargo Unit was executed on July 25, 1988 (amended on June 4, 2001), and for the Horace to West Fargo unit on Mar. 6, 1990. The Sheyenne River Joint Water Resource District is the local Sponsor for the Baldhill Pool Raise Unit. The local cooperation agreement for the Baldhill Pool Raise Unit was executed on May 31, 2000. The Maple River Reservoir Unit was deleted from the project.

Operations and results during fiscal year. New Work: Design was completed and construction was initiated and completed on the Stage 3 Wesley Acres contract. Construction for an additional pump station for the West Fargo component was completed. Total Federal costs were $3,724,985 and non-Federal costs $449,000.

Condition at end of fiscal year. Construction of the West Fargo Unit is essentially complete and construction of the Horace to West Fargo Unit is fully complete. Both of these units were operated during the spring and summer floods of 1993 and the spring floods in 1994, 1995, 1996, and 1997 and performed very well although some erosion damage was sustained on both projects. For the Baldhill Pool Raise Unit, contract for Stage 1, Gate Modifications, was completed; contract for Stage 2, Cabin Modifications, was completed; contract for the Mitigation Area was completed; construction for Stage 3, Wesley Acres Church Camp, was initiated; and preparation of a revised operating plan continued.

16. SOURIS RIVER BASIN, ND

Location. On the Souris River in Ward, Renville, McHenry, and Bottineau Counties in northwestern North Dakota. The existing Lake Darling Dam is located about 20 miles northwest of Minot, North Dakota. The project also includes features at the communities of Sawyer and Velva and at various locations along the 358-mile U.S. portion of the Souris River. (For general location see Geological Survey map of North Dakota.)

Existing project. The plan of improvement authorized by the Water Resources Development Act of 1986 is the one-time purchase of 377,800 acre-feet of flood storage in Rafferty and Alameda Dams in Saskatchewan, Canada and the operation of these dams with the existing Boundary Dam and Lake Darling Dam to provide 100-year flood protection at Minot, North Dakota. The Act also authorizes those flood control measures upstream and downstream of the dam which are necessary for effective operation of the project. The 4-foot raise of the Lake Darling design pool (authorized by Section III of the Energy and Water Development Appropriations Act, 1982, PL 97-88) and the construction of Burlington Dam (authorized by PL 91-611) was deauthorized March 10, 1995, with the completion of the structures in Canada. An International Agreement between Canada and the United States was signed in October 1989.

The work under the current plan authorized by PL 99-662, consists of two reservoirs in Saskatchewan, Canada (known as the Rafferty and Alameda projects); a modified outflow structure at Lake Darling Dam; a flood warning system for Minot; levee and channel improvements at Sawyer and six subdivisions from Burlington to Minot; levee and diversion channel at Renville County Park; flood proofing of about 90 rural homes in the basin and the purchase of flowage easements; modifications to dams 87 and 96 in the Upper Souris National Wildlife Refuge; and modifications to dams 320, 326, 332, 341, and 357 in the J. Clark Salyer National Wildlife Refuge. Estimated Federal cost for new work is $109,260,000 and $8,180,000 is to be contributed by local interests.

Local cooperation. See Annual Report for 1983 for requirements. Representatives of the water resource districts from Ward, Renville, McHenry, and Bottineau Counties area agreed to become members of a Souris River Joint Board for flood control, which would serve as local sponsor for the project. A local cooperation agreement for construction at Velva was signed in November 1984. A local cooperation agreement for the remainder of the project as authorized by the Water

Resources Development Act of 1986 was signed in October 1989.

Operations and results during fiscal year. New Work: Construction was completed on the final stage of work at Renville County Park. Total Federal costs were $-94,500 and non-Federal $-1,915. Maintenance: Total cost was $274,147.

Condition at end of fiscal year. Construction of the channel and levee improvement work at Velva, Sawyer, Renville County Park and Burlington to Minot Stages 1, 2, and 3 is complete. Construction at Rafferty Dam and Alameda Dam is complete. Construction on rural improvements Stage 1 and Stage 2, road raises and acquisitions, is complete. Construction on improvements to Fish and Wildlife Service refuge dams is complete. Lake Darling Dam construction is complete. The project dedication ceremony was held on May 27, 1998.

17. WAHPETON, ND

Location. Wahpeton, ND, is located in Richland County in eastern North Dakota, approximately 55 miles south of Fargo, ND. The Red River of the North and the Bois de Sioux River bound the city on the east. The confluence of the Ottertail River with the Red River of the North is located at Wahpeton. The city of Breckenridge, MN, lies across the Red River of the North from Wahpeton.

Existing project. A feasibility study recommended implementation of a flood reduction project that consists of a permanent levee system protecting most of the city and a flood easement to keep the breakout flood flows from being blocked in the future. The project is authorized by Section 205 of the 1948 Flood Control Act, as amended. Section 205 authorizes construction of small projects for flood control and related purposes not specifically authorized by Congress. Projects recommended for construction under Section 205 must be economically justified and limited to a Federal cost of $7 million.

Local cooperation. See Annual Report for 2001. The Project Cooperation Agreement was executed between the Federal Government and the city of Wahpeton on June 12, 2002.

Operations and results during fiscal year. Construction is continuing. Total FY 03 Federal costs were $2,177,123 and non-Federal $567,522.

Condition at end of fiscal year. Construction of the flood damage reduction project at Wahpeton, North Dakota is underway.

Environmental

18. MILLE LACS REGIONAL WASTEWATER, MN

Location: Project is located in the City of Garrison and the townships of Kathio and West Mille Lacs (GKWML). Existing development along the western shoreline of Mille Lacs Lake, one of the largest and most popular trophy fishing lakes in Minnesota, consists of a mixture of residential, commercial, and Mille Lacs Band of Ojibwe housing and casino structures. Most of the structures' wastewater is treated by individual unreliable septic systems.

Existing Project: The GKWML Sanitary District and the Mille Lacs Band entered into an agreement to design, construct, and operate a regional wastewater treatment project. The Band constructed a lift station at the northern edge of its reservation boundary. The Band has also completed construction of the Regional Sewage Treatment Plant. The GKVVNIL Sanitary District will construct a sanitary sewer line to collect and transfer wastewater within its jurisdiction to the Band's lift station for further transport to the Regional Treatment Plant. Currently, however, a concern has been raised by a MN state legislator over permitting of the Regional Treatment Plant. While the plant is complete it has not started treating wastewater due to the permit issues.

Local Cooperation: The estimated total cost of the GKWML portion of the project is $16,500,000.00. Section 219 funds will be used to assist the Sanitary District in the construction of a $1,600,000.00 "functional" portion of the GKWML project. Functional is defined as a portion of the Project that can be operated and maintained in advance of completion of the entire Project and can function independently and for a useful purpose, although the balance of the Project is not complete. A Section 219 Project Cooperation Agreement has been drafted and is awaiting definition of the functional project portion to be completed. Under Section 219 the PCA must be signed at USACE, and the Corps has design and construction responsibilities for the functional project portion.

Operations and results during the fiscal year. As appropriations for the Section 219 project were received after the Local Sponsor had entered into a contract with an AE firm, the Corps is coordinating with the AE to insure plans are completed for

advertisement and award by the Corps. Federal costs for FY 03 were $21,697.

Condition at end of the fiscal year. Plans and specifications for the GKWML wastewater project are underway.

19. NORTHEASTERN, MN

Location. Northeastern Minnesota is defined as the Counties of Aitkin, Benton, Carlton, Cass, Chisago, Cook, Crow Wing, Isanti, Itasca, Kanabec, Koochiching, Lake, Mille Lacs, Morrison, Pine, St. Louis, and Sherbourne, Minnesota. Areas within the 17 counties essentially comprise Minnesota Congressional District 8.

Existing project. Federal Fiscal Year 2003 was the third year that funds were made available to implement the Section 569 program. Section 569 of the Water Resource Development Act of 1999 provided the Corps authority to assist Northeastern Minnesota communities with their environmental infrastructure projects. Ten projects were selected in FY 03 for implementation including Garrison/Kathio/West Mille Lacs (wastewater), Koochiching County (wastewater), Two Harbors (wastewater), City of Cromwell (wastewater), Knife River/Larsmont (wastewater), City of Eveleth (wastewater), City of Thomson (water supply), City of Duluth (wastewater), City of Proctor (wastewater & water supply), and City of Hermantown (wastewater).

Local cooperation. Project Cooperation Agreements for the above listed projects require the local sponsor to provide lands, easements, and rights of way as well as the required 25 percent local Sponsor cost share funding. The program is operated on a reimbursable basis. The government and local sponsor agree on Project cost and work. The Sponsor retains a contractor to perform the work. Upon receipt of proper invoice and Government construction inspector verification that the work was performed, the Government reimburses the Sponsor for 75 percent of the invoice billing.

Operations and results during FY 02. PCAs were signed with Crane Lake (FY 01), Aitkin (FY 02), Garrison/Kathio/West Mille Lacs (FY 02), and Cromwell (FY 03). PCAs with the remaining local sponsors are in progress. Federal costs for FY 03 were $801.754.

Condition at end of fiscal year. Construction is near completion at the cities of Orr, Bigfork, Aitkin, and Crane Lake. Design work is complete at Koochiching County.

Miscellaneous

20. NORTHERN, WI

Location: Northern Wisconsin Section 154 is defined as the Counties of Douglas, Bayfield, Ashland and Iron, Wisconsin. These 4 counties are located within Wisconsin Congressional District 7.

Existing project: Federal Fiscal Year 2003 was the first year that funds were made available to implement the Section 154 program. Section 154 of the Consolidated Appropriations Act of 2001 (P.L. 106-554) provided authorization for the Corps of Engineers to assist northern Wisconsin communities with their environmental infrastructure and water resource projects. Eleven projects were selected in FY 03 for implementation including Lake of the Falls (water resources), Glidden (water supply and wastewater), Port Wing (wastewater), Village of Superior (water supply & wastewater), Bad River Indian Reservation (water supply & wastewater), Hurley (wastewater), Bayfield (wastewater), Parkland (wastewater & water supply), Mercer (water supply), Lake Nebagomon (wastewater), and Iron River (wastewater).

Local cooperation. Project Cooperation Agreements for the above listed projects require the local sponsor to provide lands, easements, and rights of way as well as the required 25 percent local Sponsor cost share funding. The program is operated on a reimbursable basis. The government and local sponsor agree on Project cost and work. The Sponsor retains a contractor to perform the work. Upon receipt of proper invoice and Government construction inspector verification that the work was performed, the Government reimburses the Sponsor 75 percent of the invoice billing.

Operation and results during FY 03. A PCA were for Glidden Sanitary District was forwarded to the Assistant Secretary of the Army's office in September 2003. PCAs with the remaining local sponsors are in progress. Federal costs for FY 03 were $50,707.

Condition at end of fiscal year. With the first PCA forwarded shortly before the end of the fiscal year there was no opportunity to get a PCA signed during FY 03. Coordination with the ASA office is underway on the Glidden Sanitary District PCA.

21. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood control projects turned over to local interests were inspected to determine that project channels are

kept clean and unobstructed, dikes and revetments are in good condition, and structures are in good repair and operable. Deficiencies, if any, were minor unless noted. (See Table 16-J on inspection of completed flood control projects.)

Cost for the period was $180,089. Total cost to Sep. 30, 2003 is $2,666,638.

22. PROTECTION OF NAVIGATION

During FY 03, operation and maintenance costs were $263,163 at Little Falls, MN (Section 3), $16,048 on Project Condition Surveys and $75,607 for Waterborne Commerce Statistics.

23. OTHER WORK UNDER SPECIAL AUTHORITY

In the Sign Standards Programs (as described in Chap. 6, ER 1130-2-500) there were costs of $154,273. In the Anti-Terrorism/Force Protection Program (Emergency Supplement) there were costs of $0.

24. FLOOD CONTROL AND COASTAL EMERGENCIES (FC & CE)

Disaster Preparedness	$ 284,203
Emergency Operations	50,887
Rehabilitation and Inspection Program	301,680
Advanced Measures	436,482
Total FC & CE	$1,073,252

25. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

National Mobilization	$ 16,061
Emergency Operations Center Support	1,036
Readiness Training	154
Total NEPP	$17,251

26. REGULATORY FUNCTIONS PROGRAM

Permit Evaluation	$4,470,119
Enforcement	478,695
Environmental Impact Statements	606,755
Total Regulatory	$5,555,569

General Investigations

27. SURVEYS

Fiscal year cost was $680,041 which included seven special studies, miscellaneous activities, and coordination with both Federal and non-Federal agencies. Table 16-N provides a specific list and respective fiscal year expenditures.

28. COLLECTION AND STUDY OF BASIC DATA

Fiscal year cost was $153,141 which included the items concerning international water studies, floodplain Management services and hydrologic studies. Table 16-N provides a specific list and respective fiscal year expenditures.

29. ADVANCE ENGINEERING AND DESIGN

Fiscal year cost was $2,280,500 which included two local protection projects. Table 16-N provides a specific list and respective fiscal year expenditures.

TABLE 16-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003
2.	Reservoirs at Headwaters of Mississippi River, MN	New Work:					
		Approp.	0	0	0	0	4,398,628
		Cost	0	0	0	0	4,398,628[1]
		Maint:					
		Approp.	3,186,335	3,905,242	4,046,500	4,531,029	71,388,520
		Cost	3,227,423	3,843,046	4,071,888	4,587,113	71,384,582[2]
		Maj. Rehab:					
		Approp.	0	0	0	0	425,000
		Cost	0	0	0	0	425,000
		Dam Safety:					
		Approp.	2,709,000	2,885,000	1,711,000	140,000	11,061,000
		Cost	2,780,954	2,806,553	1,846,601	137,137	11,053,833
5.	Breckenridge, MN	New Work:					
		Approp.	245,000	675,000	622,000	1,736,000	3,563,000
		Cost	274,400	414,022	880,685	1,631,054	3,455,580
	(Contributed Funds)	New Work:					
		Contrib.	316,500	225,000	275,000	0	906,500
		Cost	327,811	118,503	175,861	227,040	849,315
6.	Brooklyn Center Sewer Line, Mississippi River, MN	New Work:					
		Approp.	0	20,000	31,200	42,000	93,200
		Cost	0	12,911	37.953	42,319	93,183
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	112,700
		Cost	0	0	0	3,022	3,953
7.	Chaska, MN	New Work:					
		Approp.	90,000	-50,000	-7,000	30,000	31,237,000
		Cost	75,885	-60,684	28,176	30,532	31,234,649[3]
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	4,305,000
		Cost	570	3,503	0	-11,957	4,293,002[8]
8.	Crookston, MN	New Work:					
		Approp.	25,000	1,338,000	592,000	2,316,000	5,116,000
		Cost	50,578	904,104	1,026,901	2,302,533	5,102,046
	(Contributed Funds)	New Work:					
		Contrib.	298.000	0	326,000	644,000	1,268,000
		Cost	228,184	36,141	321,133	671,807	1,257,265
9.	Grafton, Park River, ND	New Work:					
		Approp.	100,000	778,000	-67,000	193,000	1,004,000
		Cost	72,759	598,694	110,667	174,678	956,798
	(Contributed Funds)	New Work:					
		Contrib.	0	313,000	0	0	313,000
		Cost	0	0	218,219	48,622	266,841
10.	Grand Forks, ND – East Grand Forks, MN	New Work:					
		Approp.	7,028,000	13,271,000	34,210,000	47,238,000	108,189,000
		Cost	6,544,182	12,901,587	35,209,964	47,290,726	108,125,870
	(Contributed Funds)	New Work:					
		Contrib.	600,000	2,307,913	9,919,000	9,490,087	22,317,000
		Cost	0	1,197,206	5,042,915	10,033,354	16,273,476

TABLE 16-A (Continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003
11.	Homme Lake and Dam, ND	New Work:					
		Approp.	0	0	0	0	1,419,097
		Cost	0	0	0	0	1,419,097[4]
		Maint:					
		Approp.	190,000	187,671	172,600	163,024	4,921,351
		Cost	188,546	188,968	172,774	160,794	4,917,880
		Dam Safety:					
		Approp.	1,696,000	3,734,000	2,683,000	1,495,000	11,390,000
		Cost	1,600,633	3,167,886	3,313,976	1,465,820	11,324,627
	(Contributed Funds)	Dam Safety:					
		Contrib.	30,000	30,000	18,000	0	78,000
		Cost	0	60,000	7,000	10,469	77,469
12.	La Farge Lake and Channel Imp., WI	New Work:					
		Approp.	2,516,000	1,676,000	4,698,000	4,830,000	35,642,000
		Cost	262,937	3,013,552	7,604,807	4,830,093	35,642,000
		Maint:					
		Approp.	61,000	39,886	0	0	1,011,343
		Cost	60,474	40,623	0	0	1,011,343
13.	Marshall, MN	New Work:					
		Approp.	3,176,000	754,000	-41,000	8,000	9,016,000
		Cost	3,135,144	720,900	46,655	7,222	9,013,544[5]
	(Contributed Funds)	New Work:					
		Contrib.	840,000	100,000	25,000	10,000	1,730,000
		Cost	865,000	75,000	40,000	1,000	1,710,216
14.	Portage, WI	New Work:					
		Approp.	0	-190,000	0	200,000	8,996,000
		Cost	-23,995	-148,720	0	200,536	8,995,634
	(Contributed Funds)	New Work:					
		Contrib.	0	0	700,000	153,000	2,373,000
		Cost	379,049	289,463	219,085	711,320	2,347,386
15.	Sheyenne River, ND	New Work:					
		Approp.	839,000	2,359,000	1,575,000	3,733,000	34,011,000
		Cost	1,573,889	2,143,293	1,970,654	3,724,985	33,987,054[6]
	(Contributed Funds) Horace to W. Fargo	New Work:					
		Contrib.	0	0	0	0	424,318
		Cost	0	0	0	0	424,318
	(Contributed Funds) W. Fargo	New Work:					
		Contrib.	347,000	263,000	152,000	449,000	2,407,000
		Cost	362,670	252,000	165,000	449,000	2,406,860
16.	Souris River Basin, ND	New Work:					
		Approp.	116,000	0	-136,000	-95,000	102,080,000
		Cost	107,945	15,718	-123,196	-94,500	102,080,000[7]
		Maint.					
		Approp.	309,000	325,373	357,000	258,884	2,623,256
		Cost	301,188	333,397	340,423	274,147	2,619,869
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	5,698,858
		Cost	19,700	0	0	-1,915	5,696,898

TABLE 16-A COST AND FINANCIAL STATEMENT (Continued)

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003
17.	Wahpeton, ND	New Work:					
		Approp.	200,000	482,000	830,000	2,174,000	3,886,000
		Cost	214,160	447,305	860,307	2,177,123	3,882,502
	(Contributed Funds)	New Work:					
		Contrib.	227,000	12,000	404,000	200,000	893,000
		Cost	246,940	41,785	24,255	567,522	880,502
18.	Mille Lacs Regional Wastewater, MN	New Work:					
		Approp.	0	0	16,000	30,000	46,000
		Cost	0	0	15,831	21,697	37,528
19.	Northeastern, MN	New Work:					
		Approp.	0	195,000	738,000	1,515,000	2,448,000
		Cost	0	73,166	630,617	801,754	1,505,537
20.	Northern, WI	New Work:					
		Approp.	0	0	0	55,000	55,000
		Cost	0	0	0	50,707	50,707

1. Includes $681,805 for new work for previous project.
2. Includes $100,857 for maintenance for previous projects and MO of Dams funds of $126,391.
3. Excludes $744,114 in other contributed funds that have been expended for betterments.
4. Excludes $56,220 contributed funds. Includes $23,000 expended during FY 91 – FY 95 under Section 1135, Public Law 99-662 authority.
5. Excludes $1,802,866 for previous project. Includes $372,000 CP&E funds obligated prior to 1 Oct 85 which remains excluded from the project cost estimate.
6. Excludes $1,150,000 sunk costs for deauthorized Kindred Lake unit (see Table 16-G). Excludes $475,000 for costs associated with inactive Maple River unit.
7. Excludes $4,919,000 sunk costs for deferred Lake Darling Dam unit (see Table 16-E).
8. Excludes $5,886 in other contributed funds that have been expended for betterments.

TABLE 16-B

See Sec. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
2.		**RESERVOIRS AT HEADWATERS OF MISSISSIPPI RIVER, MN**	
	March 3, 1899	Reconstruct 4 of the 5 original dams and surveys to determine extent of lands overflowed by reservoirs.	
	March 2, 1907	Reconstruct Sandy Lake Dam and construct Gull Lake Reservoir.	
	June 25, 1910	Construct an equalizing canal between Winnibigoshish and Leech Lake Reservoirs (no work was done and this part of the project abandoned in Act of Mar. 4, 1915).	H. Doc. 363, 61st Cong., 2nd sess.
	July 27, 1916	Abandonment of ditches connecting Long Lake, Round Lake, and Gull Lake.	H. Doc. 413, 64th Cong., 1 sess.[1]
	June 26, 1934[2]	Operation and maintenance provided for with funds from War Department appropriations for rivers and harbors.	
5.	June 30, 1948	**BRECKENRIDGE, MN**	Sec 205 1948 Flood Control Act, as amended
	Dec. 11, 2000		2000 WRDA – Public Law 106-541
6.	July 24, 1946 March 6, 2002	**BROOKLYN CENTER SEWER LINE, MISSISSIPPI RIVER, MN**	Sec 14 1946 Flood Control Act, as amended
7.	October 22, 1976	**CHASKA, MN**	1976 WRDA – Public Law 94-587
	Nov. 17, 1986	Cost Sharing provisions	1986 WRDA – Public Law 99-662
8.	August 17, 1999	**CROOKSTON, MN**	1999 WRDA – Public Law 106-53
9.	Nov. 17, 1986	**GRAFTON, PARK RIVER, ND**	1986 WRDA – Public Law 99-662
	Nov. 18, 1991		Deauthorization
	August 17, 1999		1999 WRDA – Public Law 106-53 (Reauthorization)
10.	October 21, 1998	**GRAND FORKS, ND AND EAST GRAND FORKS, MN**	Public Law 105-277, OMNIBUS Appropriation Bill, FY 99
11.		**HOMME LAKE AND DAM, ND**	
	December 22, 1944	Authorized as Park River Reservoir	1944 Flood Control Act (S. Doc. 194, 78th Cong., 2d sess.)
		Redesignated Homme Reservoir and Dam	Public Law 435 (80th Cong. 2d sess.)
	November 17, 1986	Project restoration of wetland habitat conditions	Sec 1135 1986 WRDA – Public Law 99-662
12.		**LA FARGE LAKE AND CHANNEL IMPROVEMENT, WI**	
	October 23, 1962	Flood control dam and impoundment project.	1962 Flood Control Act
	October 12, 1996	Modification to original project to include transfer of approximately 8.569 acres of project lands to the State of Wisconsin and the Secretary of the Interior to be held in trust for the Ho-Chunk Nation. Modification also includes deauthorizing the construction of the reservoir and dam, while completing other features of the original project.	WRDA 1996
13.	November 17, 1986	**MARSHALL, MN**	WRDA 1986 – Public Law 99-662, Sec 401(a)
	November 17, 1988		WRDA 1988 – Public Law 100-676

TABLE 16-B

See Sec. in Text	Date of Authorizing Act	Project and Work Authorized	Documents
14.	November 17, 1986	**PORTAGE, WI**	WRDA 1986 – Public Law 99-662
15.		**SHEYENNE RIVER, ND**	
	November 17, 1986	Project shall include a dam and reservoir of approximately 35,000 acre-feet of storage for the purpose of flood protection Maple River.	WRDA 1986 – Public Law 99-662
16.		**SOURIS RIVER BASIN, ND**	
	November 17, 1986	Consists of two reservoirs in Saskatchewan, Canada (known as Rafferty and Alameda projects); a flood warning system for Minit; Levee and channel improvements at Sawyer and six subdivisions from Burlington to Minot; levee and diversion channel at Renville County Park; flood proofing in the basin and Purchase of flowage easements; modifications to dams 87 and 96 in the Upper Souris National Wildlife Refuge; and modifications to Dams 320, 326, 332, 341 and 357 in the J. Clark Salyer National Wildlife Refuge.	WRDA 1986 – Public Law 99-662
17.	June 30, 1948	**WAHPETON, ND**	Sec 205 1948 Flood Control Act, as amended
18.	October 31, 1992	**MILLE LACS REGIONAL WASTEWATER, MN**	WRDA 1992, as amended by Sec 108(d) of the Consolidated Approp. Act of 2001 (Public Law 106-554)
19.	August 17, 1999	**NORTHEASTERN, MN**	1999 WRDA – Public Law 106-53, Sec 569
20.	December 15, 2000	**NORTHERN, WI**	Sec 154 2001 Consolidated Appropriations Act (Public Law 106-554)

1. Contains latest published map.
2. Permanent Appropriations Repeal Act.

TABLE 16-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost To September 30, 2003	
			Construction	Operation and Maintenance
Baudette Harbor, MN	Completed	1961	$36,415	57,768
Black River, WI	[1]	1950	67,585	--
Lake Traverse, MN and SD	[3,4]	1921	92	--
Minnesota River, MN	Completed	1996	2,057,722[8]	583,162
Mississippi and Leech Rivers, MN	Completed[3]	1929	277,615	40,251
Mississippi River between Brainerd and Grand Rapids, MN	[5]	1925	47,794	3,891
Pine Creek, Angle Inlet, MN	Completed	1978	38,700	102,196
Red Lake and Red Lake River, MN	Completed[3]	1923	9,070	--
Red River of the North, MN and ND	[3,6]	1921	293,344	76,209
St. Croix River, MN and WI	Completed	1991	150,410	1,185,011
Warroad Harbor and River, MN	Completed	1996	86,105	2,159,833
Wisconsin River, WI	[2,3]	1888	--	--
Zippel Bay Harbor, MN	Inactive	1928	27,941	11,139
Zippel Bay, Lake of the Woods County, MN	Completed	1996	515,000	63,941

1. Existing channel adequate for commerce (see Table 16-G for deauthorized portion of project.)
2. Originally included in project `Fox and Wisconsin River, WI'. Abandonment of improvement of Wisconsin River by channel contraction works recommended in 1886 and 1887 (H. Doc. 65, 49th Cong., 2nd sess.) Expenditures included under `Fox and Wisconsin Rivers, WI'. No breakdown available.
3. No commerce reported.
4. Abandonment recommended in 1915 (H. Doc. 439, 64th Cong., 1st sess.) and June 24, 1926 (H. Doc. 467, 69th Cong., 1st sess.)
5. Abandonment recommended June 24, 1926 (H. Doc. 467, 69th Cong., 1st sess.)
6. Abandonment recommended in 1915 (H. Doc. 1666, 63d Cong., 3d sess.)
7. Abandonment recommended June 24, 1926 (H. Doc., 69th Cong., 1st sess.)
8. Includes $117,542 for new work for previous project.

TABLE 16-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost To September 30, 2003 Construction	Cost To September 30, 2003 Operation and Maintenance
Aitkin County, CSAH 10, MN	Completed	1998	$ 360,700[55]	--
Big Fork River, MN[2]	Completed	1998	294,600[6]	--
Big Stone Lake and Whetstone River, MN and SD	Completed	1996	12,174,600[1]	$5,752,058
Black Bear & Miller Lakes, Crow Wing City, MN[3]	Completed	1988	471,000	--
Black River at North Bend, WI[2]	Completed	--	74,500	--
Bonnes Coulee, Velva, ND[2]	Completed	1985	58,500	--
Cannon River at Faribault, MN[2]	Completed	1991	62,585[7]	--
Cochrane Drainage Ditch, WI	Completed	--	37,182	--
Devils Lake, ND[3]	Completed	1992	2,732,000	--
Dry Run, IA	Completed	1966	1,790,759[8]	--
Eau Galle River, WI	Completed	1996	9,039,250	14,461,268
Elk River, MN	Completed	1970	259,700[9]	--
Emerson Manitoba-Noyes, MN[3]	Completed	1992	343,000[10]	--
Enderlin, Maple River, ND[3]	Completed	1990	4,000,000[11]	--
Gilmore Creek, Winona, MN[3]	Completed	1997	2,351,553[12]	--
Grafton Pumping Station, ND[2]	Completed	1990	92,865[13]	--
Grand Mound, State Historic Site, MN[2]	Completed	1992	242,000[14]	--
Guttenberg, IA	Completed	1974	2,361,915	--
Hanover, Hennepin County, MN[2]	Completed	1988	259,500	--
Houston, MN	Completed	1999	5,018,945[53]	--
Irving Township, Jackson County, WI[2]	Completed	1984	189,600	--
Irving Township at Nicols Road, Jackson County, WI[2]	Completed	1986	158,500	--
Kickapoo River, Gays Mills, WI[2]	Completed	1987	33,000	--
Lac qui Parle Lakes, MN	Completed	1996	964,873[52]	13,820,084
Lake Andrusia, Mississippi River, MN[2]	Completed	1989	61,326[15]	--
Lake Pulaski, Wright County, MN[3]	Completed	1991	1,353,478[17]	--
Lake Traverse and Bois de Sioux River, SD and MN	Completed	1996	1,339,727	13,009,934
LeSueur River, CSAH 28, MN	Completed	2001	261,400[56]	--
Lost River, MN	Completed	1967	517,519[18]	--
Lower Branch Rush River, ND[3]	Completed	1974	1,000,000[19]	--
Mahnomen, Wild Rice River, MN[2]	Completed	--	85,400	--
Mankato and North Mankato, MN	Completed	1997	97,013,675[20]	--
Mankato Township, MN[9]	Completed	1998	215,200[21]	--
Melrose, WI[2]	Completed	1998	219,600[22]	--
Middle River at Argyle, MN[3]	Completed	1993	2,360,000	--
Minnesota River, Belgrade Township, MN[2]	Completed	1995	261,000[23]	--
Minnesota River at Henderson, MN[3]	Completed	1997	1,969,800[24]	
Minnesota River at LeSueur,MN[2]	Completed	1986	250,000[25]	--
Minnesota, MN[3]	Completed	1963	161,545	--
Minot, ND	Completed	1983	21,479,500[26]	--
Mississippi River near Aitkin, MN	Completed	1957	1,675,835	--
Pembina River, ND	Active[5]	1983	--	--
Pettibone Park, La Crosse, WI[2]	Completed	1989	62,762[27]	--
Plum Creek, New Haven Township, MN[4]	Completed	--	31,100	--
Prairie du Chien, WI	Completed	1991	3,529,000	--

TABLE 16-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost To September 30, 2003 Construction	Cost To September 30, 2003 Operation and Maintenance
Red Lake River at Gentilly, MN	Completed	1991	311,000[28]	--
Red Lake River at Huot, MN[2]	Completed	1984	64,500	--
Red Lake River at Red Lake Falls, MN[2]	Completed	1984	131,000	--
Red Lake River, MN including Clearwater River, MN	Completed	1996	3,120,079[29]	3,502,999
Red Lake River, Polk County, Crookston, MN[2]	Completed	1997	166,400[30]	--
Red Lake River, State Hwy 32, MN[2]	Completed	1993	151,665[31]	--
Red River of the North at Argusville, ND[3]	Completed	1990	1,534,000	--
Red River of the North at Breckenridge, MN[2]	Completed	1990	85,665[32]	--
Red River of the North at Breckenridge, MN[2]	Completed	--	27,500	--
Red River of the North Drainage Basin, MN SD, & ND	Completed	1997	8,322,112[33]	15,166,637
Red River of the North at Fargo, ND-Moorhead, MN[4]	Completed	1992	226,500[34]	--
Red River of the North, Fargo Public Facilities, ND	Completed	2002	1,342,821[59]	--
Red River of the North at Halstad, MN[3]	Completed	1986	2,012,000	--
Red River of the North at Oslo, MN[3]	Completed	1984	1,960,200	--
Red River of the North at Pembina, ND[3]	Completed	1979	2,000,000	--
Redwood River below Marshall, MN[3]	Completed	1960	202,400	--
Rochester, MN	Completed	1997	67,523,438[54]	--
Root River at Hokah, MN[2]	Completed	1992	239,627[35]	--
Roseau River, MN	Completed	1996	2,341,000[36]	--
Rushford, MN	Completed	1980	3,192,333	--
Sanders Creek, Boscobel, WI[3]	Completed	1998	1,441,500[37]	--
Shepard Road, Mississippi River, St. Paul, MN[2]	Completed	1985	250,000[38]	--
Sheyenne River, Valley City, ND[2]	Completed	1988	111,000	--
Snake River, Alvarado, MN[3]	Completed	1997	1,761,000[39]	--
Sogn, MN	Completed	1996	47,400[40]	--
Souris River, Velva, ND[2]	Completed	1988	137,500	--
State Hwy 7 Bridge, Pomme de Terre River, Appleton, MN	Completed	2002	239,903[63]	--
State Road and Ebner Coulees, WI	Completed	1996	21,435,000[41]	
Sterling Center, MN[2]	Completed	1997	160,900[42]	--
St. Cloud, MN	Completed	2002	998,814[60]	--
St. Croix River, Stillwater, MN	Completed	2002	5,083,550[61]	--
St. Hilaire, MN	Completed	1996	141,100[43]	--
St. Paul, MN	Completed	2002	13,897,500[62]	--
St. Paul and South St. Paul, MN	Completed	1974	8,476,012[44]	--
Upper Iowa River, IA	Completed	1964	888,445	--
Velva, ND[3]	Completed	1970	334,628	--
Vermillion River, Hastings, MN[3]	Completed	1980	999,900	--
Veteran's Memorial Levee, Mississippi River, Hastings, MN[2]	Completed	1985	182,000	--
Wabasha County, County Hwy 11, MN[2]	Completed	1995	273,000[45]	--
Wabasha, Mississippi River, MN[2]	Completed	1993	113,700[46]	--

TABLE 16-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost To September 30, 2003 Construction	Cost To September 30, 2003 Operation and Maintenance
Warner Road, Mississippi River, St. Paul, MN[2]	Completed	1987	250,000	--
Warner Road, Sibley Street, Mississippi River, St. Paul MN	Completed	1992	500,000[47]	--
Wild Rice River, Hendrum/Lee, MN[3]	Completed	1997	383,300[48]	
Wild Rice River, Mahnomen County, MN[2]	Completed	1986	58,500	--
Wild Rice River, Mahnomen, MN[4]	Completed	--	86,568	--
Wild Rice River, South Branch and Felton Ditch, MN	Completed	1989	5,620,700	--
Winona, MN	Completed	1989	32,741,131[49]	--
Zumbro River at Genoa, MN[2]	Completed	1992	34,500[50]	--
Zumbro River, MN	Completed	1975	1,284,100	--
Zumbro River at Jarrett and Millville, MN[2]	Completed	1990	141,440[51]	--

1. Excludes $152,492 contributed funds. In addition, $487,491 in other contributed funds have been expended for work under Government contract paid for by the Ottertail Power Company.
2. Project authorized by Chief of Engineers under small project authority, Section 14, Flood Control Act of 1946, as amended.
3. Project authorized by Chief of Engineers under small project authority, Section 205, Flood Control Act of 1948, as amended.
4. Project authorized by Chief of Engineers under small project authority, Section 208, Flood Control Act of 1954, as amended.
5. Preconstruction planning has not started. Phase I completed under General Investigations.
6. Excludes $56,453 contributed funds.
7. Excludes $18,362 contributed funds.
8. Excludes $42,766 contributed funds.
9. In addition $87,878 was expended from Public Law 99 funds in the spring of 1969 for emergency protection and incorporation into the permanent project.
10. Excludes $201,544 contributed funds.
11. Excludes $150,191 contributed funds.
12. Excludes $12,749 contributed funds.
13. Excludes $27,583 contributed funds.
14. Excludes $77,290 contributed funds.
15. Excludes $20,441 contributed funds.
16. Advance engineering and design costs only. Project deferred with authorization of Souris River Basin Project (see Section 25 and Table 16-A for costs for active project.
17. Excludes $74,225 contributed funds.
18. Excludes $46,034 for the Ruffy Brook unit for which authorization expired in April 1966 (see Table 16-G). Excludes $246,911 contributed funds.
19. Excludes $35,000 contributed funds.
20. Excludes $79,749 contributed funds.
21. Excludes $91,218 contributed funds.
22. Excludes $59,855 contributed funds.
23. Excludes $68,421 contributed funds.
24. Excludes $307,239 contributed funds.
25. Excludes $130,300 contributed funds.
26. Excludes $4,167 contributed funds.
27. Excludes $20,920 contributed funds.
28. Excludes $92,402 contributed funds.
29. Excludes $30,020 contributed funds.
30. Excludes $33,000 contributed funds.
31. Excludes $35,430 contributed funds.

TABLE 16-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

32. Excludes $26,055 contributed funds.
33. Includes cost of the Wahpeton-Breckenridge unit $11,239, which is classed as "deferred" and the units on which authorization has expired: Maple River, $1,241; Moorehead, $27,700; which Sheyenne, $37,956. In addition, $203,874 special deposit funds and $146,160 in other contributed funds have been expended for work under government contract paid for by local interests. Includes $184,352 expended on Orewll Lake between FY91 - FY96 under Section 1135, Public Law 99-662 authority. Excludes $64,775 contributed funds under Section 1135, PL 99-662 authority.
34. Excludes $61,895 contributed funds.
35. Excludes $67,014 contributed funds.
36. Excludes $65,902 contributed funds.
37. Excludes $175,357 contributed funds.
38. Excludes $62,620 contributed funds.
39. Excludes $100,000 contributed funds.
40. Excludes $5,253 contributed funds.
41. Excludes $225,000 sunk costs for inactive Ebner Coulee unit (see Table 16-E) and $4,206,836 contributed funds.
42. Excludes $39,815 contributed funds.
43. Excludes $31,064 contributed funds.
44. Excludes $545,637 contributed funds for new work and $38,000 expended by South St. Paul for work in lieu of required cash contribution. Excludes an additional $206,629 expended for work done at request of local interests.
45. Excludes $73,619 contributed funds.
46. Excludes $37,631 contributed funds.
47. Excludes $184,709 contributed funds.
48. Excludes $97,800 contributed funds.
49. Excludes $589,316 contributed funds. In addition, $717,809 in other contributed funds have been expended for work under Government contract paid for by local interests.
50. Excludes $11,066 contributed funds.
51. Excludes $38,173 contributed funds.
52. Excludes $20,000 contributed funds.
53. Excludes $777,070 contributed funds.
54. Excludes $7,628,650 contributed funds.
55. Excludes $177,500 contributed funds.
56. Excludes $114,000 contributed funds.
57. Excludes $2,083,373 contributed funds.
58. Excludes $455,000 contributed funds.
59. Excludes $674,000 contributed funds.
60. Excludes $670,000 contributed funds.
61. Excludes $1,300,000 contributed funds.
62. Excludes $3,418,460 contributed funds.
63. Excludes $106,800 contributed funds.

TABLE 16-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Black River, WI[1]	1950	Aug. 5, 1977	--	--
Black River Lake, WI	1950	Aug. 5, 1977	--	--
Bois de Sioux and Red River, Wahpeton, MN—Breckenridge, MN[8]	1981	Apr. 16, 2002	$ 11,239	--
Burlington Dam, Souris River, ND	1983	Mar. 10, 1995	5,568,600[2]	--
Grafton, ND[3]	1983	Nov. 18, 1991	--	--
Hudson Harbor, WI[4]	1986	Nov. 17, 1986	--	--
Kindred Lake, ND[5]	1987	Nov. 17, 1986	1,150,000	--
La Crosse, WI[6]	1983	Nov. 17, 1986	--	--
Lake Darling Dam, ND	1987	Sep. 13, 1994	4,919,000[7]	--
Maple River, ND[8]	1981	Oct. 6, 1961	1,241	--
Moorhead, MN[8]	1981	Oct. 30, 1961	27,700	--
Pembina River Lake, ND	1950	Jan. 1, 1990	50,000	--
Ruffy Brook, MN	1967	Apr. 1966	46,034	--
Sheyenne River, ND[8]	1981	Dec. 31, 1970	37,956	--
Sheyenne River, Maple River Reservoir, ND	1988	Apr. 16, 2002	475,000	--
State Road and Ebner Coulees (Ebner Coulee Unit)	1981	Jul. 9, 1995	225,000	--
Tongue River Lake, ND	1950	Jan. 1, 1990	23,695	--
Twin Valley Lake, Wild Rice River, MN	1988	Apr. 16, 2002	2,115,700	--
Warroad River and Bulldog Creek, MN	1974	Nov. 17, 1986	182,000	--
Warroad Harbor and River, MN[9]	1981	Aug. 5, 1977	--	--

1. Portion of project for removal of obstructions at various points outside the dredged area to clear channel to full project width (see Table 16-C for costs for completed portion of the project).
2. Advance engineering and design costs only. The Senate Report 97-256 states that the Corps is to take no further action to construct Burlington Dam until directed to do so by Congress.
3. Grafton, ND, was reauthorized by Section 364 of WRDA in 1999.
4. Part of the St. Croix River, Minnesota and Wisconsin project.
5. Previously part of Sheyenne River, ND project (see Section 23 and Table 16-A for costs for active project).
6. Authorized for further study by a House Committee on Public Works Resolution dated March 15, 1988.
7. Advance engineering and design costs only. (See Section 25 and Table 16-A for costs for active project).
8. Part of Red River of the North Drainage Basin (see Section 20 in text and Table 16-I for costs for active units of project).
9. Portion of dredging of entrance channel and turning basin to complete project width and depth (see Table 16-C for costs for completed portion of project).

TABLE 16-H RESERVOIRS AT HEADWATERS OF MISSISSIPPI RIVER
See Section 2 of Text)

Reservoir	Minimum Stages (feet)[1]	Outlet River	Watershed Area (Square miles) Above St. Paul (miles)	Watershed Area (Square miles) Watershed (Square miles)	Capacity Previous Projects Original Lake	Capacity Previous Projects Reservoir	Capacity Existing Projects Reservoir at Maximum Stage (acre-feet)	Previous Projects Completed	Previous Projects Cost	Existing Projects Completed	Existing Projects Cost	Total Cost
Winnibigoshish	6	Mississippi	408	1442	117	179.4	967,930	1884	$214,000	1900	$173,470	$387,470
Leech Lake	0	Leech	410	1163	173	205.9	743,320	1884	171,805	1902	84,380	256,185
Pokegama	6	Mississippi	344	660[2]	24	35.0	120,750	1884	85,000	1904	126,030	211,030
Sandy Lake	7	Sandy	267	421	8	16.6	72,500	1895	114,000	1909	117,020	231,020
Pine River	9	Pine	199	562	18	23.7	177,520	1886	97,000	1907	133,320	230,320
Gull Lake	5	Gull	168	287	20	20.5	70,820	--	--	1913	86,826	86,826
				Surveys and flowage rights			--	--	--	--	160,939	160,939
				Recreational facilities			--	--	--	--	2,834,838	2,834,838
				Total new work			--	--	681,805	--	3,716,823	4,398,628
				Total operating and care		--	--	100,857	--	68,868,415[3]	68,969,272	
				Permanent indefinite appropriation for operation and care, Feb. 1, 1895 to end of fiscal year 1936			--	--	--	--	967,197	967,197
				Rehabilitation			--	--	--	--	425,000	425,000
				Total			2,152,840	--	$782,662	--	$73,977,435	$74,760,097

1. Lower operating limits by regulations approved February 4, 1936, as modified December 29, 1944.
2. Exclusive of area controlled by Winnibigoshish and Leech Lake Dams.
3. Includes $126,391 from Approp. 96X5125, M&O Dams.

TABLE 16-I RED RIVER OF THE NORTH DRAINAGE BASIN: ACTIVE UNITS IN COMPREHENSIVE BASIN PLAN

	State	Type	Cost to Sep. 30, 2003	Total Estimated Federal Cost
Orwell River (Otter Tail River)	Minnesota	Reservoir	$1,916,753	$1,916,700[1]
Wild Rice and Marsh Rivers	Minnesota	Channel improvement	405,056	405,100
Rush River	North Dakota	Channel improvement	287,686	287,700
Sand Hill River	Minnesota	Channel improvement	548,778	548,800
Mustinka River	Minnesota	Channel improvement	440,788	440,800
Otter Tail River	Minnesota	Channel improvement	174,768	174,800
Red River at Grand Forks	North Dakota	Levees and flooodwall	948,895	948,900
Red River at East Grand Forks	Minnesota	Levees, floodwall, pumping plants	1,698,200[2]	1,698,200[3]
Red River at Fargo	North Dakota	Channel improvement	1,639,924	1,639,900[4]
Total Cost to Date			$8,060,848[5]	
Total Estimate Cost				$8,060,900[6]

1. Includes $181,713 for lands and $25,045 for recreation facilities.
2. Excludes cost for current planning, engineering and design work.
3. The East Grand Forks unit was reclassified from active to inactive on August 19, 1988; the project was reactivated in June 1997. The cost of this unit was last revised in 1987. A new flood control plan for a combined Grand Forks-East Grand Forks project was authorized in 1999.
4. Includes $67,900 for lands.
5. Costs of $11,239 for the Wahpeton-Breckenridge deauthorized unit not included. Authorization of the Sheyenne River, Moorhead, and Maple River units has expired. Cost of these units also not included total $66,897.
6. The Wahpeton-Breckenridge unit of the project is classed as deauthorized and is excluded from the estimate. The cost of this unit, last revised in 1955, was estimated to be $666,000. The Flood Control Act approved December 31, 1970 (H. Doc. 330-91-2) provided for deletion of the Sheyenne River unit, and authorization of the Maple River and Moorhead units expired at the end of the 5-year period within which local interests were required to furnish assurances of local cooperation. Authorization of these units, not included, expired on the dates indicated in Table 16-G. In FY 89, the Wahpeton-Breckenridge unit was included as part of the General Investigation program under Restudy of Deferred projects.

TABLE 16-J INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS (See Section 25 of Text)

Project	Date Inspected
Bigstone Lake & Whetstone River, MN and SD	September 2003
Black Bear & Miller Lake, Crow Wing Co.- MN	July 2003
Chaska, MN	August 2003
Devils Lake, ND	July 2003
Dry Run, Decorah, IA	August 2003
Emerson, Manitoba - Noyes, MN	August 2003
Enderlin, Maple River, ND	September 2003
Gilmore Creek, Winona, MN	August 2003
Grand Mound State Historic Site, MN	September 2001
Guttenberg, IA	September 2003
Middle River at Argyle, MN	September 2003
Mines Creek, Spring Valley, WI	August 2003
Minneota, MN	September 2003
Minnesota & Blue Earth Rivers, Leltillier, MN	September 2003
Minnesota River at Henderson, MN	September 2003
Minnesota River, Mankato, MN	September 2003
Minnesota River, North Mankato, MN	September 2003
Minot, ND	September 2003
Mississippi River near Aitkin, MN	July 2003
Red River of the North at Argusville, ND	September 2003
Red River of the North at Fargo, ND - Moorhead, MN	September 2003
Red River of the North at Halstad, MN	September 2003
Red River of the North at Oslo, MN	September 2003
Red River of the North at Pembina, ND	August 2003
Redwood River at Marshall, MN	September 2003
Roseau River, MN	September 2003
Rushford, MN	September 2003
Sanders Creek, Boscobel, WI	September 2003
Snake River at Alvarado, MN	September 2003
Souris River Basin, ND	September 2003
Souris River - Burlington to Minot, ND	September 2003
Souris River - Renville, County Park, ND	September 2003
Souris River - Rural Improvements, ND	September 2003
Souris River – Sawyer, ND	September 2003
Souris River, Velva, ND	September 2003
Trempealeau River – Arcadia, WI	September 2003
Vermillion River, Hastings, MN	September 2003

TABLE 16-K FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization)

Study/Project and Location	Fiscal Year Costs
Armenia, ND	$640
Chippewa River at Montevideo, MN	22,680
Drayton, ND	44,120
Fargo, Ridgewood Addition, ND	74,779
Granite Falls, MN	266
Lac Qui Parle River, Dawson, MN	271,947
LaCrosse, WI	31,167
Minnesota River, Jordan, MN	5,076
Minnewaukan, ND	14,670
Mississippi River, Newport, MN	5,198
Ottertail River, Breckenridge, MN	435
Pembina River, Neche, ND	12,892
Red River of the North, Oakport, MN	220
Roseau, MN	100,000
Section 205 Coordination	19,968
Wahpeton, ND	2,177,123
Wild Rice, and Marsh Rivers, Ada, MN	6,148
Wisconsin River, Stevens Point, WI	1

Emergency bank protection (Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress)

Study/Project and Location	Fiscal Year Costs
Brooklyn Center Sewer Line, MN	42,319
Chippewa River, Big Bend Lutheran Church, MN	43,625
Fargo Public Facilities, ND	61,529
Minnesota River, Shakopee, MN	3,100
Pug Hole Lake, MN	4,930
St. Cloud, MN	768,668
Section 14 Coordination	13,386
State Hwy 7 Bridge, Pomme de Terre River, MN	144,328
Wabasha County, MN	3,215

TABLE 16-L PROJECT MODIFICATIONS FOR IMPROVEMENT OF ENVIRONMENT

Modifications of projects for the purpose of improving the quality of the environment in the public interest (Section 1135, Public Law 99-662, 99th Congress, as amended)

Study/Project and Location	Fiscal Year Costs
Coordination account funds	$14,964
Eau Galle River, WI	160,263
Preliminary Restoration Plan	669
Ruffy Brook, Clearwater River, MN	17,807
Sand Hill River, MN	8,747
Wild Rice Restoration, MN	8,163

TABLE 16-M AQUATIC ECOSYSTEM RESTORATION

Restorations of Aquatic Ecosystems pursuant to Section 206, Public Law 104-303

Study/Project and Location	Fiscal Year Costs
Christine and Hickson Dams, MN	8,404
Coordination account funds	$20,250
Drayton Dam, ND	8,494
Grand Marais River, MN	13,720
Hay Creek, Roseau County, MN	88,489
North Ottawa, MN	225,121
Nugget Lake, WI	2
Paint Creek, Allamakee County, IA	46,854
Red River of the North, Fargo South Dam, ND	87,653
Swan River, Trout Lake, MN	126,737

TABLE 16-N GENERAL INVESTIGATIONS
(See Sections 30, 31, and 32 of Text)

Study/Project and Location	Fiscal Year Costs
Special Studies	
Baraboo River, WI	$54,539
Devils Lake, ND[1]	-96
Minnesota Dam Safety, MN	19,207
Minnesota River Basin, MN & SD	57,514
Red River of the North, ND	63,056
Upper Mississippi River from Lake Itasca, MN	7,726
Watershed/Comprehensive Feasibility Studies	229,531
Miscellaneous Activities	
Special Investigations	44,219
FERC Licensing Activities	10,089
Inter Agency Water Resources Development	57,167
North American Waterfowl Management Plan	2,185
Coordination with Other Agencies	
Cooperation with Other Water Resource Agencies	8,686
Planning Assistance to States[2]:	
Minnesota	43,299
North Dakota	1
Wisconsin	82,918
TOTAL SURVEYS	$680,041
COLLECTION AND STUDY OF BASIC DATA	
International Water Studies	$ 23,609
International Joint Commission, Red River of the North	55,565
Flood Plain Management Services Unit	24,789
Technical Services, General	32,222
Quick Responses	1,819
Special Studies	303
Hydrologic Studies	14,834
TOTAL COLLECTION AND STUDY OF BASIC DATA	$153,141
PRECONSTRUCTION ENGINEERING AND DESIGN	
Devils Lake Outlet, ND	$2,252,290
Grafton, Park River, ND	28,210
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN	$2,280,500

1. Excludes $81,510 contributed funds.
2. Excludes $515,803 contributed funds.

MISSISSIPPI RIVER BETWEEN THE MISSOURI RIVER AND MINNEAPOLIS, MN

Section of river covered in this report is divided into three reaches, under supervision and direction of District Engineers at St. Louis, Rock Island, and St. Paul. Section in St. Louis District extends 105 miles from Mouth of Missouri River to Upper Mississippi River mile 300 above Ohio River; Rock Island District extends about 314 miles from mile 300 to 614; and St. Paul District extends about 244 miles from mile 614 to Soo Line Railroad bridge, Minneapolis (mile 857.6).

Location. Mississippi River rises in northern Minnesota, flows about 2,360 miles southerly and empties into Gulf of Mexico. Portion included in this report extends about 663 miles from mouth of Missouri River to Soo Line Railroad bridge, Minneapolis. The latest map and profile showing this section of river are in House Document 669, 76th Congress, 3d session. A map showing Lake Pepin is in House Document 511, 79th Congress, 2d session. A map of section Minneapolis to Dubuque is in House Document 515, 79th Congress, 2d session. A map showing location of drainage districts (Bellevue, Iowa, to Missouri River) is in River and Harbors Committee Document 34, 75th Congress, 1st session.

Previous projects. See page 1199 of Annual Report for 1963.

Existing project. Provides a channel of 9-foot depth and adequate width between mouth of Missouri River (1,179 miles from the gulf) and Soo Line Railroad at Minneapolis, by construction of a system of locks and dams, supplemented by dredging. Project also provides for further improvements at St. Paul to provide a 2.7 mile basin extending downstream from Robert Street Bridge, and at Minneapolis to provide adequate terminal facilities, and for other harbor improvements and miscellaneous work. Pertinent data on locks and dams, harbor improvements, additional features entering into cost of project, and authorizing legislation are given in Tables 17-C, 17-D, 17-E, and 17-G. All dams are concrete. Three dams (Upper St. Anthony Falls, 1 and 19) are fixed, remainder are movable. See House Document 669, 76th Congress, 3d session, for a report of Chief of Engineers dated February 27, 1940, containing a general plan for improvement of Mississippi River between Coon Rapids Dam and mouth of Ohio River for purposes of navigation, power development, flood control, and irrigation needs.

Local cooperation. Small-boat harbors authorized in the River and Harbor Act of 1962 are subject to conditions that local interests make a cash contribution toward cost of construction (except in case of Quincy Harbor which involves maintenance only of an existing harbor); furnish lands and rights-of-way for construction and future maintenance; hold the United States free from damages; provide and maintain mooring facilities and utilities; reserve accommodations for transient small boats; accomplish all necessary relocations and alterations; and establish public bodies empowered to regulate use, growth and development of the harbors.

Rectification of seepage damages to privately owned lands in the Sny Island Levee Drainage District, IL, was contingent upon the conditions that local interests acquire all lands, easements, and rights-of-way necessary for construction and maintenance of the project; comply with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970; accept, operate, and maintain the project upon its completion; and hold and save the United States free from damages arising from the construction and operation of the completed project; provided further that the local public entity shall be reimbursed by the Government in the amounts actually expended by it in the acquisition of real estate and for payments required under Public Law 91-646 if said amounts have been previously submitted to and approved by the Government.

Local cooperation requirements have been complied with for improvement of commercial harbor at Dubuque, IA; for improvement of Beaver Slough at Clinton, IA, for navigation; and for general navigation facilities at small-boat harbors at Rock Island, IL; Hannibal, MO; Fort Madison, IA; Davenport (Lindsay Park), IA; Muscatine, IA (including freight terminal approach channel); Andalusia, IL; Warsaw, IL; Moline, IL; Clinton, IA; and Savanna, IL.

Licenses. Federal Energy Regulatory Commission collects from non-Federal licensees annually to recompensate the United States for use of government dams for generation of hydroelectric power. Amounts collected are returned to U.S. Treasury. (See Table 17-F for license fees collected for the fiscal year.)

St. Paul District. New Work: None.

Maintenance: During fiscal year 2003, the Government pipeline dredge WILLIAM A. THOMPSON removed 426,200 cubic yards of material at 13 sites. Government derrick barge HAUSER/WADE removed 6,147 cubic yards of material at two sites. Government pipeline dredge DUBUQUE removed 24,875 cubic yards of material at four sites in the main channel. A contract pipeline dredge also removed 110,598 cubic yards from a historically used dredge material placement site. Mechanical dredging contractors removed 316,363 cubic yards from the main channel at 17 sites. Major maintenance projects included lock dewatering at Lower St. Anthony Falls, central control building and electrical controls at Locks 8 and 9, and painting of the bridge at Dam 10, and the dam gate painting at Lock and Dam 4.

Operating and Care: Locks and Dams were operated as required and necessary repairs were made to those and appurtenant structures. Other studies, reports, and miscellaneous engineering work were also accomplished.

Rehabilitation: The rehabilitation of the district's central control buildings continued. During FY 2003 the building and site work was completed at Lock 8 and continued at Lock 9. Installation of replacement crane carriers and bulkhead hoists was completed.

The related navigation safety and embankments problems at Lock and Dam 3 were examined in separate reports in 1995 with recommended structural fixes for these problems. The proposed projects were approved by Corps Headquarters, but have not been implemented for a number reasons including the presence of a diverse mussel bed with state-listed endangered species in the tailwater area. Construction of the first stage of the embankment project was completed in the summer of 1999. The St. Paul District has decided to re-evaluate these related problems in an effort to find more optimal solutions. A Notice of Intent to Prepare an Environmental Impact Statement for the Lock and Dam 3 navigation safety and embankments re-evaluation was published in the Federal Register.

Alternative plans for navigation safety and embankments are being evaluated in a risk and benefit cost assessment. The reevaluation study will be completed in FY 2004.

Costs to St. Paul were $42,526,124 for operation and maintenance and $2,911,903 for rehabilitation; for a total cost of $45,438,027.

Rock Island District. New Work: None.

Maintenance: Channel dredging by Government Cuttherhead Pipeline Dredge WILLIAM A. THOMPSON was performed at various locations in pools 16, 17, 18, and 22, with a total of 155,626 cubic yards of material being removed. Mechanical dredging was performed in pools 16, 17, 18, 20, 21, 22, and 24 with a total of 108,822 cubic yards of material being removed. The total cost of dredging was $2,873,558. Continuing construction includes Lock and Dam 12 Major Maintenance, Repairs to Lock and Dam 15 Roller Gate Chains and Service Bridge Decking, Repairs to Lock and Dam 20, 21, 22 Horizontal Concrete. Construction was initiated for Lock and Dam 17 and 21 Submersible Dike Repairs, Lock and Dam 15 Checkpost and Ladder Repairs, and Multi-Site Facility Protection Upgrades. Maintenance for the Navigation Function continued at a cost of $21,892,115 (includes dredging costs). Maintenance for Environmental Stewardship continued at a cost of $181,957. Maintenance of Recreation Features continued at a cost of $626,709. Total maintenance costs for Operation and Maintenance were $22,700,781. Net credits to the project were $31,348, primarily as a result of collection from towboat companies for damages for lock and dam structures.

Operations for Navigation continued at a cost of $17,905,833. Environmental Stewardship continued at a cost of $648,068. Operations for the Recreation Function continued at a cost of $2,118,907. Total operations costs were $20,672,810. Total operations and maintenance costs were $43,342,244.

Rehabilitation: Rehabilitation was continued at Locks and Dams 11, 12, 14, and 19 for costs of $2,285,785, $1,033,190, $244, and $292, respectively. Total rehabilitation and maintenance costs were $3,611,633.

Costs to the Rock Island District were $43,342,243 for operations and maintenance and

$3,611,633 for major rehabilitation for a total cost of $46,953,876.

St. Louis District. New Work: Costs incurred for Melvin Price Locks and Dam, formerly Lock and Dam 26 Replacement, were $38,406 for the locks; $1,588,092 for buildings, grounds, and utilities; $124,306 for engineering; $41,540 for supervision and administration. Cost for Melvin Price totaled $1,792,344. Costs incurred for the second lock totaled $9,164, all for engineering. Total cost for new work was $1,801,508.

Rehabilitation: Major rehabilitation is complete at Lock and Dam 25, except for project closeout. FY 2003 costs totaled $223 (all for engineering). Major rehabilitation continued at Lock and Dam 24 at a cost of $12,686,498 for the lock; $483,894 for engineering; and $688,872 for supervision and administration. Costs for Lock and Dam 24 totaled $13,859,264. Total rehabilitation cost $13,859,487.

Operating and care: The locks and dams were operated as required and necessary repairs were made thereto. Other work accomplished was management of natural resources, operations of recreation areas, condition and operating studies, water control management, and other studies and reports for a total cost of $7,086,856.

Maintenance: Total maintenance cost $4,732,180.

Costs to the St. Louis District were $1,801,508 for new work on the Melvin Price Locks and Dam and Second Lock; $13,859,487 for major rehabilitation; $11,819,036 for operation and maintenance for a total cost of $27,480,031.

Total Federal costs of existing project to the end of the fiscal year for the three Districts were $1,801,508 for new work; $97,687,404 regular funds for operation and maintenance; and $11,557,751 regular funds for rehabilitation. Total costs for FY 03 were $111,046,663.

Condition of the channel at end of fiscal year: The controlling depths of nine feet at low water and minimum widths suitable for long-haul common carrier service were maintained in all pools.

St. Paul District. Work completed: Locks and Dams at St. Anthony Falls and 1 to 10, inclusive, except for relatively minor appurtenant work; major improvements of channels and harbors at St. Paul and Minneapolis; small boat harbors and commercial harbors at Lake City, Red Wing, and Winona, MN; and Prairie du Chien, WI; small-boat harbors at St. Paul, Hastings, Red Wing, Wabasha, Lake City and Winona, MN; Lansing, IA; and Bay City, Alma, Pepin, and Prairie du Chien, WI; a remedial drainage ditch at Cochrane, WI; miscellaneous channel dredging and realignment; channel markers; pool clearing; and construction of various facilities for recreation use.

Status of land and flowage acquisition: Approximately 50,702.07 acres of land in fee, including 47,305 acres used by the Department of the Interior in accordance with a cooperative agreement and general plans, and easements of 15,458.35 acres of land are owned or controlled in Pools 1 to 10, inclusive, at end of fiscal year. In addition, fee title to 12.46 acres and perpetual easements on 2.98 acres of land for St. Anthony Falls and perpetual easements over 244.39 acres of land for harbors have been obtained and Department of the Army holds special rights over 62,954.74 acres owned by the Department of the Interior in pools 3 to 10, inclusive. Acquired 6.02 acres at Baldhill Dam Reservoir for bank erosion.

Work remaining to complete portion of project in St. Paul District: FY 2004 projected acquisitions include five dredge sites containing approximately 50 acres in fee.

Condition of channel at end of fiscal year: The controlling depths of 9 feet at low water and minimum depths for long-haul common carrier service were maintained in all pools.

Rock Island District. Work completed: Major construction items including all locks and dams, are completed and in operation. The following related work has also been completed: construction of small-boat harbors at Rock Island, IL; Moline, IL; Andalusia, IL; Warsaw, IL; Fort Madison, IA; Davenport (Lindsay Park), IA; Muscatine, IA; Clinton, IA; and Hannibal, MO; improvement of Beaver Slough at Clinton, IA, for navigation; improvement of commercial harbor at Dubuque, IA; rehabilitation of old auxiliary lock at Lock and Dam 14; permanent closure of old Lock 19 and dry dock; rock and conglomerate excavation in Pools 15 and 16; rectification of seepage damage in the Sny Island Levee Drainage District, IL; recreational facilities; and construction of visitor center at Lock and Dam 15.

Status of land and flowage acquisition: Acquisition of land in Pools 11 to 22, inclusive consisting of 93,658.174 acres in fee and 11,682.071 acres in flowage easement, has been completed.

Condition of the channel at end of fiscal year: The controlling depths of nine feet at low water and minimum widths suitable for long-haul common carrier service were maintained in all pools.

Work remaining to complete portion of project in Rock Island District: None.

St. Louis District. Work completed: Major construction items, including all locks and dams, are completed and in operation, with the exception of the remaining work at Melvin Price.

Status of land and flowage acquisition: Acquisitions of land in Pools 24, 25, and 26, involving 4,448 acres of land in fee and flowage easements over 6,600 acres, is complete. A total of 4,201 acres has been acquired for the Melvin Price Locks and Dam project.

Condition of channel at end of fiscal year: The controlling depth of nine feet at low water and generally suitable widths for long-haul common carrier services were maintained in all pools and between Melvin Price Locks and Dam and Missouri River.

Work remaining to complete portion of project in St. Louis District: Work remaining at the Melvin Price Locks and Dam project includes the visitor center exhibits for the main lock and implementation of remaining required fish and wildlife mitigation measures for the second lock.

TABLE 17-A COST AND FINANCIAL STATEMENT

Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep 2003
Mississippi River between Missouri River and Minneapolis, Minnesota (Federal Funds)	New Work:[1]					
	Approp.[2]	$1,776,000	$1,303,000	$478,000	$1,795,000	$1,301,260,429
	Cost[3]	1,643,356	1,191,563	831,719	1,801,508	1,260,340,111
	Maint:[4]					
	Approp.	106,677,912	107,764,009	106,618,874	100,599,267	2,198,055,247
	Cost	106,626,195	104,077,592	101,058,526	97,687,404	2,134,125,936
	Rehab:					
	Approp.	10,639,096	8,545,519	10,436,994	11,587,103	272,161,181
	Cost	10,630,585	8,075,066	11,034,714	11,557,751	272,711,720
(Contributed Funds)	New Work:[5]					
	Approp.	0	0	500,000	500,000	3,041,140
	Cost	0	0	415,000	531,687	2,987,827
(Inland Waterway Trust Fund)	Rehab.[6]					
	Approp.	5,206,507	4,265,476	8,215,090	8,844,925	76,972,954
	Cost:	4,960,223	3,928,451	8,806,402	8,825,272	71,858,797

1. Includes $15,476,259 for new work on previous projects.
2. Includes Melvin Price Locks and Dam funds $945,157,700.
3. Includes Melvin Price Locks and Dam funds $945,157,008.
4. Includes $1,949,301 for maintenance on previous project.
5. Funds from Inland Waterway Trust Fund was included in with Contributed Funds up to 1998.
6. All Inland Waterway Trust Fund.

TABLE 17-B TOTAL COSTS OF EXISTING PROJECT TO SEPTEMBER 30, 2003

District	Cost	Regular Funds	Public Work Funds	Emergency Relief Funds	Total
St. Paul	New Work[1]	$ 60,184,246[2]	24,210,071	$9,071,214	$ 93,465,531
	Maintenance[3]	934,462,426	--	--	934,462,426
	Rehabilitation	104,288,075	--	--	104,288,075
	Total	1,098,934,747	24,210,071	9,071,214	1,132,216,032
Rock Island	New Work[4]	71,307,945[5]	17,403,322	11,338,865	100,050,132
	Maintenance[6]	323,146,554	--	--	323,146,554
	Rehabilitation	117,855,999	--	--	117,855,999
	Total	512,310,498	17,403,322	11,338,865	541,052,685
St. Louis	New Work[8]	974,261,824[7]	10,282,566	2,440,266	986,984,656
	Maintenance	383,263,730	--	--	383,263,730
	Rehabilitation	72,307,328	--	--	72,307,328
	Total	$1,429,832,882	10,282,566	2,440,266	$1,442,555,714

1. Excludes $2,041,140 contributed funds. Includes $7,673 expended in pool No. 11.
2. Includes $159,359 transferred from Rock Island District covering pro rata share of cost of derrick boat Hercules.
3. Includes $762,196 expended between 1930 and 1936 on operating and care of works of improvement under provisions of permanent indefinite appropriation for such purposes. Excludes $797,670 contributed funds.
4. Excludes $58,999 contributed funds.
5. $687,709 was transferred to St. Louis District in fiscal year 1958. Excludes $201,167 transferred to St. Paul and St. Louis Districts covering their pro rata share of cost of derrick boat Hercules.
6. Cost subsequent to FY 1953 included with operating and care. Includes the sum of $395,442, expended between 1930 and 1934 on the operating and care of the works of improvement under the provisions of the permanent indefinite appropriation for such purposes.
7. Includes $47,800 transferred from Rock Island District covering pro rata cost of derrick boat Hercules and $687,709 transferred from Rock Island District.
8. Includes $945,157,008 for Melvin Price Locks and Dam.

TABLE 17-C LOCKS AND DAMS

Lock and Dam	Miles Above Ohio River	Miles from Nearest Town	Lock Dimensions: Width of Chamber (feet)	Lock Dimensions: Greatest Length Available for Full Width (feet)	Lock Dimensions: Lift (feet)	Lock Dimensions: Upper Normal Pool Elevation[1]	Depth on Miter Sill: Upper (feet)	Depth on Miter Sill: Lower (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Percent Complete: Locks, Dams, and Work in Pool	Year Opened to Navigation	Estimated Cost of Each Lock and Dam Including Work in Pool
St. Anthony Falls, upper Lock	853.9	In city of Minneapolis, MN	56	400	49.2	799.2	15.7	13.7	Some limestone, mainly sandstone. No piles.	Limestone.	100[2]	--	$ 18,203,000[3]
St. Anthony Falls, lower Lock and dam	853.3	In city of Minneapolis, MN	56	400	26.9[4]	750.0	13.7	10.3	Sandstone. No piles	Sandstone.	100	1959	12,382,000[5]
Lock and dam 1	847.6	Minneapolis-St. Paul, MN	56 56	400 400	35.9[4] 35.9	725.1 --	13.5[4] 12.5[7]	10.1 7.6	Rock and piles in gravel.	Piles in gravel.	100	1917	2,358,000[6]
Lock and dam 2	815.2	1.3 above Hastings, MN	110 110[8]	500 600[8]	12.2 12.2	-- 687.2	16.0 22.2	15.1 13.0	Piles in sand, silt and clay.	Piles in sand, silt and clay.	100 100	1930 1948	6,492,000[9]
Lock and dam 3	796.9	6.1 above Red Wing, MN	110	600	8.0	675.0	17.0	14.0	Piles in sand, silt and clay.	Piles in sand.	100	1938	5,596,000
Lock and dam 4	752.8	Alma, WI	110	600	7.0	667.0	17.0	13.0	Piles in sand and gravel.	Piles in sand and gravel.	100	1935	4,865,000
Lock and dam 5	738.1	Minneiska, MN	110	600	9.0	660.0	18.0	12.0	Piles in sand and gravel.	Piles in sand.	100	1935	5,081,000
Lock and dam 5A	728.5	3 above Winona, MN	110	600	5.5	651.0	18.0	12.5	Piles in sand.	Piles in sand.	100	1936	4,549,000
Lock and dam 6	714.3	Trempealeau, WI	110	600	6.5	645.5	17.0	12.5	Piles in sand, gravel and silt.	Piles in sand and clay.	100	1936	4,874,000
Lock and dam 7	702.5	Dresbach, MN	110	600	8.0	639.0	18.0	12.0	Piles in sand and gravel.	Piles in sand.	100	1937	5,574,000
Lock and dam 8	679.2	Genoa, WI	110	600	11.0	631.0	22.0	14.0	Piles in sand, gravel and broken rock.	Piles in sand and gravel.	100	1937	6,061,000
Lock and dam 9	647.9	3.3 below Lynxville, WI	110	600	9.0	620.0	16.0	13.0	Piles in sand.	Piles in sand.	100	1938	6,539,000
Lock and dam 10	615.1	Guttenberg, IA	110	600	8.0	611.0	15.0	12.0	Piles in sand.	Piles in sand.	100	1936	4,750,000
Lock and dam 11	583.0	3.7 above Dubuque, IA	110	600	11.0	603.0	18.5	12.5	Piles in sand, gravel and silt.	Piles in sand.	99	1937	7,428,000
Lock and dam 12	556.7	Bellevue, IA	110	600	9.0	592.0	17.0	13.0	Piles in sand and gravel.	Piles in sand and gravel.	99	1938	5,580,000

TABLE 17-C (Continued)

LOCKS AND DAMS

Lock and Dam	Miles Above Ohio River	Miles from Nearest Town	Lock Dimensions: Width of Chamber (feet)	Lock Dimensions: Greatest Length Available for Full Width (feet)	Lock Dimensions: Lift (feet)	Lock Dimensions: Upper Normal Pool Elevation[1]	Depth on Miter Sill: Upper (feet)	Depth on Miter Sill: Lower (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Percent Complete: Locks, Dams, and Work in Pool	Year Opened to Navigation	Estimated Cost of Each Lock and Dam Including Work in Pool
Lock and dam 13	522.5	4.3 above Clinton, IA	110	600	11.0	583.0	19.0	13.0	Piles in sand, clay and gravel.	Piles in sand and gravel.	100	1938	7,502,000
Lock and dam 14	493.3	3.7 below Le Claire, IA	110	600	11.0	527.0	20.5	13.5	Rock.	Rock.	92	1939	6,284,000
Le Claire Lock (Canal)	493.1	3.9 below Le Claire, IA	80	320	11.0	--	17.6	10.9	Rock.	Rock.	100	1922	--[10]
Lock and dam 15	482.9	Foot of Arsenal Island, Rock Island, IL	110 110	600 360	16.0 16.0	561.0 --	24.0[11] 17.0[11]	11.0 11.0	Rock.	Rock.	100	1934	14,201,000
Lock and dam 16	457.2	1.8 above Muscatine, IA	110	600	9.0	545.0	17.0	12.0	Piles in sand and gravel.	Piles in sand and gravel.	98	1937	9,788,000
Lock and dam 17	437.1	4.2 above New Boston, IL	110	600	8.0	536.0	16.0	13.0	Piles in sand and gravel.	Piles in sand.	99	1939	5,843,000
Lock and dam 18	410.5	6.5 above Burlington, IA	110	600	9.8	528.0	16.5	13.7	Piles in sand.	Piles in sand.	90	1937	10,308,000
Lock and dam 19	364.2	Keokuk, IA	110 110	358 1,200	38.2	518.2	4.5 5.0	9.2 13.0	Rock.	Rock.	100 99	1913 1957	[14],813,000[12]
Lock and dam 20	343.2	0.9 above Canton, MO	110	600	10.0	480.0	15.0	12.0	Rock.	Rock and piles in sand and gravel.	97	1936	6,281,000
Lock and dam 21	324.9	2.1 below Quincy, IL	110	600	10.5	470.0	16.5	12.0	Piles in sand and gravel.	Piles in sand and gravel.	95	1938	8,065,000
Lock and dam 22	301.2	1.5 below Saverton, MO	110	600	10.2	459.5	18.0	13.8	Rock.	Rock.	99	1938	5,275,000
Lock and dam 24	273.4	Clarksville, MO	110	600	15.0	449.0	19.0	12.0	Rock and piles.	Piles in sand.	99[14]	1940	10,337,000
Lock and dam 25	241.4	Cap Au Gris, MO	110	600	15.0	434.0	19.0	12.0	Piles in sand and gravel.	Piles in sand and gravel.	99[14]	1939	13,694,000
Lock and dam 26 (Henry T. Rainey Dam)[15]	202.9	Alton, IL	110 110	600 360	24.0 24.0	419.0 --	19.0 16.0	10.0 10.0	Piles in sand.	Piles and sand.	100	1938	12,824,000

TABLE 17-C (Continued)

LOCKS AND DAMS

Lock and Dam	Miles Above Ohio River	Miles from Nearest Town	Lock Dimensions: Width of Chamber (feet)	Lock Dimensions: Greatest Length Available for Full Width (feet)	Lock Dimensions: Lift (feet)	Lock Dimensions: Upper Normal Pool Elevation[1]	Depth on Miter Sill: Upper (feet)	Depth on Miter Sill: Lower (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Percent Complete: Locks, Dams, and Work in Pool	Year Opened to Navigation	Estimated Cost of Each Lock and Dam Including Work in Pool
Melvin Price Locks and Dam	200.8	Alton, IL	110	1,200	24.0	419.0	23.0	18.0	Piles to bedrock.	Piles to bedrock.	98	1990	752,686,000
Melvin Price Locks and Dam (2nd Lock)	200.8	Alton, IL	110	600	24.0	419.0	42.0	18.0	Piles to bedrock.	Piles to bedrock.	93	1994	226,000,000
Total, Locks and dams													$1,196,556,000

1. Elevation of Pools 1 to 22 and at St. Anthony Falls are mean sea level 1912 adjustment: Pools 24, 26 are mean sea level 1929 adjustment.
2. Includes existing dam, owned by Northern States Power Co.
3. Includes dredging above upper lock. (Federal cost only.)
4. Based on pool elevation 723.1 in Pool 1 which is crest of dam. Pool is normally maintained at elevation 725.1 by flashboards.
5. Includes lower approach dredging and dredging between upper and lower rock. (Federal cost only.)
6. In addition $1,948,000 expended from previous projects and $1,349,600 from O & M appropriation for first of twin locks. Excludes lock and dam rehabilitation program.
7. Old upper guard sill.
8. Landward lock.
9. In addition, $1,965,300 expended from previous projects.
10. Existing Le Claire Canal lock is used as auxiliary to lock 14; previous project cost $540,000.
11. Depth over upper poiree sill. Depth over upper miter sill is 27 feet, at lock 15.
12. $640,868 for first lock was reported by Mississippi River Power Company, transferred to Government free in lieu of improvements destroyed. (Annual Report, 1928, pp. 1118-1119.) Present estimate includes $13,132,600 for main lock and appurtenant work.
13. Includes cash contribution of $4,900,000.
14. Complete except for guidewall extensions.
15. Lock and Dam 26 has been replaced by the Melvin Price Locks and Dam at which full pool was raised 1 February 1990. Lock and Dam 26 has been removed.

TABLE 17-D HARBOR IMPROVEMENTS

Name	Miles above Ohio River	Location	Type	Project depth (feet)	Approximate size (feet) Width	Approximate size (feet) Length	Percent Complete	Estimated Cost
St. Paul Harbor, MN	836.5-839.2	In city of St. Paul, MN	Commercial	9	400-1,000	2.7(mile)	100	$ 217,100
	839.7	Channel improvement, Small-boat harbor and channel enlargement.	Small-boat	5	300	400	100	230,200
Hastings Harbor, MN	813.2	Lower end of city of Hastings, MN	Small-boat	5	200	500	100	74,300
Red Wing Harbor, MN	791.4	In city of Red Wing, MN	Commercial	9	300	1,200	100	146,800[1]
Red Wing Harbor, MN	791.1	In city of Red Wing, MN	Small-boat	5	450	800	100	8,700
Bay City Harbor, WI	785.9	Upper end of Bay City, WI	Small-boat	5	50-100	5,990	100	39,400[2]
Lake City Harbor, MN	773.0	In city of Lake City, MN	Small-boat	5	400	600	100	93,500
			Commercial[3]	9	500	1,000	100	
			Small-boat[3]	9	500	850	100	1,077,000[4]
Pepin Harbor, WI	767.1	In city of Pepin, WI	Small-boat	5	50	600	100	205,500[5]
Wabasha Harbor, MN	760.0	Upper end of city of Wabasha, MN	Small-boat	5	175-400	800	100	41,700
Alma Harbor, WI	751.3	Upper end of Alma, WI	Small-boat	5	300	500	100	56,300
Winona Harbors, MN	726.0	In city of Winona, MN Latsch Island	Small-boat	5	200	1,000	100	89,800
	726.2	Crooked Slough	Commercial	9	200	6,000	100	84,700
Lansing Harbor, IA	663.3	Upper end of city of Lansing, IA	Small-boat	5	170	500	100	95,300
Prairie du Chien Harbor, WI	635.5	Upper end of city of Prairie du Chien, WI	Small-boat	5	400	800	100	85,500
	635.0	In Marais de St. Friol East Channel below Hwy bridges.	Commercial	9	--	1,000 frontage	100	93,100
Dubuque Harbor, IA	579.4	At Dubuque, IA	Commercial	12	340	1,500	100	55,200
Savanna Harbor, IL	537.3	At Savanna, IL	Small-boat	5	280	910	0	310,000
Clinton Harbor, IA	519.0	At Clinton, IA	Small-boat	5	400	1,400	78	101,912
Moline Harbor, IL	488.0	At Moline, IL	Small-boat	5	230	660	100	110,328
Davenport Harbor, IA (Lindsay Park)	484.2	At Lindsay Park	Small-boat	5	200	1,150	--	262,100
Rock Island Harbor, IL	479.8	At Rock Island, IL	Entrance channel small-boat harbor	6	100	1,100	100	31,000
Andalusia Harbor, IL	473.0	Andalusia Slough	Small-boat	5	40	435	100	21,000
Muscatine Harbor, IA	455.5	At Muscatine, IA	Small-boat	5	150	950	100	353,000
	455.6		Freight terminal approach channel	9	200	1,890	100	
Fort Madison Harbor, IA	383.7	At Fort Madison, IA	Small-boat	5	250	900	100	184,200

TABLE 17-D (Continued)

HARBOR IMPROVEMENTS

Name	Miles above Ohio River	Location	Type	Project depth (feet)	Approximate size (feet) Width	Length	Percent Complete	Estimated Cost
Warsaw Harbor, IL	359.1	At Warsaw, IL	Small-boat	5	100	600	100	73,000
Quincy Harbor, IL	327.3	In Quincy Bay, IL	Small-boat	5	200-300	9,000	0	--[6]
Hannibal Harbor, MO	308.8	At Hannibal, MO	Small-boat	5	180-260	600	100	129,000
Total								$4,269,640

1. In addition, local interests contributed $3,455.
2. In addition, local interests contributed $9,533.
3. Commercial harbor converted to small-boat harbor under authority of Section 107 of 1960 River and Harbor Act, as amended. Primary use is small-boat, although some commercial activity exists.
4. In addition, local interests contributed $812,599.
5. In addition, local interests contributed $32,344.
6. Maintenance only, estimated at $5,000 annually.

TABLE 17-E ADDITIONAL FEATURES ENTERING INTO COST OF PROJECT

Facilities for public use, convenience and safety	$ 3,348,200
Rectification of damages caused by seepage and backwater	7,049,700[1]
Regulating works between Melvin Price Locks and Dam and Missouri River	545,000
Improvement of Beaver Slough at Clinton, Iowa, for navigation	193,600
Miscellaneous	1,312,900[2]
Total additional features	12,449,400[3]
Total existing project (new work)	$1,180,500,320

1. Includes a lump-sum payment of $2,146,800 (O&M appropriation) paid to the Sny Island Levee Drainage District, IL, for rectification of seepage damages. Also includes $140,000 Construction General funds for project studies, evaluation, and report preparation.
2. Includes $686,500 for repairs to Stone Arch Bridge, Minneapolis, MN. (FY 1969)
3. Excludes $227,000 (1965) for inactive remedial measures at Sandy Slough, MO.

TABLE 17-F LICENSE FEES COLLECTED FOR FISCAL YEAR 2003

Dam	Licensee	Annual Charge
St. Anthony Falls Lower Lock and Dam	Northern States Power Co. (No. 2056)	$ 3,300
Lock and Dam No. 1	Ford Motor Co.	95,440
Lock and Dam No. 2	City of Hastings, MN.	0[1]

1. During the FY 2003 statement reporting period (10/01 to 9/02), the hydroelectric plant was still undergoing repairs from the 2001 flood damage and did not generate electricity, resulting in non government dam charge on 2003 statement.

TABLE 17-G AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MN	
Sep. 22, 1922	Dredging channels to landing places.	None
July 3, 1930 as amended by P.R. No. 10, Feb. 24, 1932	Project adopted from Illinois River to Minneapolis; Chief of Engineers granted discretionary authority to make such modification in plan as may be deemed advisable.[4]	H. Doc. 290, 71st Cong., 2d sess.
June 26, 1934	Operation of snag boats and operation and care of locks and dams to be provided for with funds from Department of the Army appropriations for rivers and harbors.	None
Aug. 30, 1935	Missouri River established as lower limit of project.	H. Doc. 137, 72nd Cong., 1st sess.
Aug. 26, 1937	Extension of 9-foot channel above St. Anthony Falls, MN, including adequate terminal facilities for Minneapolis, MN	H. Doc. 137, 72nd Cong. 1st sess.
Aug. 30, 1935	St. Paul, MN harbor.	Rivers and Harbors Committee Doc. 44, 74th Cong., 1st sess.
Aug. 26, 1937	Determine damages to drainage and levee districts caused by seepage and backwater, and cost of making rectification thereof.	Rivers and Harbors Committee Doc. 34, 75th Cong., 1st sess.
Dec. 22, 1944	Public park and recreational facilities.	None
Mar. 2, 1945	Red Wing, MN harbor.	H. Doc. 103, 76th Cong., 1st sess.
Mar. 2, 1945	Remedial works to correct damages caused by seepage and backwater at Cochrane, WI	H. Doc. 137, 76th Cong., 1st sess.
Mar. 2, 1945	Such changes or additions to payments, remedial works, or land acquisitions authorized by River and Harbor Act of Aug. 26, 1937 (River and Harbor Committee Doc. 34, 75th Cong., 1st sess.), as Chief of Engineers deems advisable.	None
Mar. 2, 1945	St. Paul, MN channel enlargements, small boat harbor, and roadway.	H. Doc. 547, 76th Cong., 3rd sess.
None	Vertical bridge clearance at Minneapolis to 26 feet above estimated stage for discharge of 40,000 cfs	S. Doc. 54, 77th Cong., 1st sess.
Mar. 2, 1945	Winona, MN basin.	H. Doc. 263, 77th Cong., 1st sess.
Mar. 2, 1945	Future modification of lock and dam No. 2 for power development.	H. Doc. 432, 77th Cong., 1st sess.
Mar. 2, 1945	Provides for cash contribution by local interests in lieu of alteration of privately owned bridges and utilities for St. Anthony Falls project.	H. Doc. 449, 78th Cong., 2d sess.
July 24, 1946	Lake City, MN harbor.	H. Doc. 511, 79th Cong., 2d sess.
July 24, 1946	Wabasha, MN harbor.	H. Doc. 514, 79th Cong., 2d sess.
July 24, 1946	Payment of damages caused by backwater and seepage, Pools 3 to 11.	H. Doc. 515, 79th Cong., 2d sess.
July 24, 1946	Hastings, MN harbor.	H. Doc. 559, 79th Cong., 2d sess.
July 24, 1946	Lansing, IA harbor.	S. Doc. 192, 79th Cong., 2d sess.
June 30, 1948	Fort Madison, IA harbor.	H. Doc. 661, 80th Cong., 2d sess.
May 17, 1950	Payment of damages caused by pool No. 14 at Clinton, IA.	S. Doc. 197, 80th Cong., 2d sess.
May 17, 1950	Davenport, IA harbor.	H. Doc. 642, 80th Cong., 2d sess.
May 17, 1950	Muscatine, IA harbor.	H. Doc. 733, 80th Cong., 2d sess.
May 17, 1950	Alma, WI harbor.	H. Doc. 66, 81st Cong., 1st sess.

TABLE 17-G (Continued) AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
May 17, 1950	Hannibal, MO harbor.	H. Doc. 67, 81st Cong., 1st sess.
May 17, 1950	Prairie du Chien, WI harbors.	H. Doc. 71, 81st Cong., 1st sess.
May 17, 1950	Opposite Hamburg, IL harbor.[1]	H. Doc. 254, 81st Cong., 1st sess.
May 17, 1950	Permits such change in location of Winona, MN small boat basin authorized by River and Harbor Act of Mar. 2, 1945 (H. Doc. 263, 77th Cong., 1st sess.), as Chief of Engineers deems advisable.	None
Sep. 3, 1954	Construction of Crooked Slough Harbor at Winona, MN, in lieu of previously authorized commercial harbor.	H. Doc. 347, 83rd Cong., 2d sess.
Sep. 3, 1954	Payment of damages caused by pool No. 24 at Louisiana, MO.	H. Doc. 251, 82nd Cong., 1st sess.
July 3, 1958	Permits modification of vertical bridge clearances and authorizes completion of St. Anthony Falls project.	H. Doc. 33, 85th Cong., 1st sess.
July 3, 1958	Small boat and commercial harbors at Alton, IL.[2]	H. Doc. 136, 84th Cong., 1st sess.
July 3, 1958	Payment of lump sum amounts for damages to drainage and levee districts caused by operation of navigation pools.	H. Doc. 135, 84th Cong., 1st sess.
July 3, 1958	Improvement and maintenance of Beaver Slough at Clinton, IA.	H. Doc. 345, 84th Cong., 2d sess.
Mar. 3, 1959	Reconstruction of structures as may be necessary to provide adequate facilities for existing navigation.	None
July 14, 1960	Construction of Industrial Harbor at Red Wing, MN.	H. Doc. 32, 86th Cong., 1st sess.
Oct. 23, 1962	Construction of small-boat harbors at Savanna[2], Moline, Andalusia, New Boston[5], Warsaw, Quincy, and Grafton, IL; Bellevue[1], Clinton, Davenport, and Keokuk[3], IA; St. Paul (Harriet Island), MN[5]; and Bay City, Pepin, and Cassville[5], WI.	H. Doc. 513, 87th Cong., 2d sess.
Oct. 23, 1962	Payment of damages caused by Pool 24 at Clarksville, MO.	H. Doc. 552, 87th Cong., 2d sess.
Oct. 23, 1962	Remedial works at Sandy Slough, MO.	H. Doc. 419, 87th Cong., 2d sess.
Nov. 7, 1966	Repair of Stone Arch Bridge at Minneapolis, MN.	None
Oct. 21, 1978	Replacement of Lock and Dam 26	Public Law 95-502
Dec. 29, 1981	Change name of Lock and Dam 26 to Melvin Price Locks and Dam effective on the date of Melvin Price's death. (Apr. 22, 1988 - date of death)	Public Law 97-118
Nov. 17, 1986	Authorized a second lock at Locks and Dam 26, Alton, Illinois and Missouri	Public Law 99-662
Nov. 28, 1990	Modified PL 95-502 to authorize recreational development at Melvin Price Locks and Dam, requiring no separable project lands and cost sharing.	Public Law 101-640
Oct. 31, 1992	Authorized the construction of a 24,000 square foot regional visitor center at Melvin Price Locks and Dam.	Public Law 102-580
Oct. 12, 1996	Amended PL 101-640 to allow the use of project lands and other contiguous non-project lands.	Public Law 104-303

1. Deauthorized FY 75.
2. Inactive.
3. Deauthorized FY 87 (WRDA of 1986).
4. Guidewalls at Locks 3, 4, 5, 5A, 7, 8, 9, and 10 deauthorized FY 87 (WRDA of 1986).
5. Deauthorized FY 90 (WRDA of 1986).
6. Guidewall extensions at Locks 16, 18, and 21; construction of mooring facilities at Locks and Dams 11, 12, 14, 15, 16, 17, and 18; upper approach improvement at Lock 19 and Lock and Dam 20; and rock and/or conglomerate excavation in Pools 14, 18, and 21 deauthorized FY 90 (WRDA of 1986).

PITTSBURGH, PA DISTRICT

This District comprises part of eastern Ohio, western Pennsylvania, southwestern New York, northern West Virginia, and northwestern Maryland embraced in drainage basin of Ohio River and Tributaries above mile 127 (below Pittsburgh, PA), immediately upstream from New Martinsville, WV.

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Navigation

1. ALLEGHENY RIVER, PA

Location. The Allegheny River is 321 miles long. It rises in northern Pennsylvania, flows northwestward into New York, thence generally southwestward to Pittsburgh, PA, where it joins with Monongahela River to form the Ohio. (See Geological Survey Charts for western Pennsylvania and southwestern New York.)

Existing Project. The project consists of eight locks and dams to afford slack-water navigation for a length of 72 miles from Pittsburgh, PA to above East Brady, PA. Controlling depth through canalized portion is 9' at normal pool level. Channel width varies from a minimum of 200' to full width of river at mouth. Existing project is complete, the last lock, No. 9, was placed in service in 1938. All locks and dams are in fair condition. Navigation channel has been widened at certain points and, in general, maintained to project depth, thus affording adequate depth for passage of commercial tows.

Local Cooperation. Fully complied with.

Terminal Facilities. City of Pittsburgh constructed a modern wharf for river freight. There are numerous privately maintained terminals and docks, consisting of tipples, various types of hoists, chutes, and pipelines for use in loading and unloading coal, stone, sand, gravel, petroleum products, steel products and other commodities. Transshipment of freight between river and railroads is handled at privately owned river-to-rail terminals. Existing private terminals are adequate for shipments and receipt in Pittsburgh District of type of commerce now in existence.

Licenses. The Federal Energy Regulatory Commission granted license for construction on non-federal hydropower facilities on the abutment side of the dam at the following locations: Lock 5, Allegheny - FERC license 3671, generating capacity 9.3 megawatt, start of operation October 1988; Lock 6, Allegheny - FERC license 3494, generating capacity 8.6 megawatt, start of operation December 1988; Lock 8, Allegheny - FERC license 3021, generating capacity 13.6 megawatts, start of operation November 1990; Lock 9, Allegheny - FERC license 3021, generating capacity 18.0 megawatts, start of operation November 1990.

Operations & Maintenance, General. During FY03 there was no major work on the Allegheny River by contract. The river wall filling valve at Lock 2 was replaced by government labor at a cost of $468,004.

2. CONSTRUCTION OF LOCKS & DAMS, OHIO RIVER

See this heading under Ohio River portion.

3. MONONGAHELA RIVER, PA & WV

Location. Formed by junction of Tygart and West Fork Rivers about one mile south of Fairmont, WV, and flows northerly for 128.7 miles to its junction with Allegheny River, forming Ohio River at Pittsburgh, PA. (See Geological Survey Charts for southwestern Pennsylvania and northern West Virginia.)

Previous Project. For details see Annual Report for 1963, page 1070.

Existing Project. Provides for improvement of river by nine locks and dams to afford slack-water navigation for its entire length from Pittsburgh to above Fairmont, WV. Original Locks and Dams 7, 8 and 9 were replaced by new Locks and Dams 7 and 8 in 1925. Increased traffic necessitated enlargement and improvement of Locks and Dams 1 to 6 between Pittsburgh and Rices Landing, PA, by building two parallel chambers and fixed concrete dams during 1905 and 1932. Locks and Dam 1 were eliminated in 1938 by raising Emsworth Dam, Ohio River. Reconstruction of Lock 2 was completed in 1953 to provide two modern navigation chambers. The existing Locks and Dam 2 were originally completed in 1907; major modifications were made in 1923 and 1924, and in 1926 the upper guard and guide walls were extended. Construction of Maxwell Locks and Dam and the reconstruction of Dam 4 have allowed for removal of obsolete Locks and Dams 5 and 6. Small and antiquated original Locks and Dams 10 to 15, inclusive, have been replaced by three modern structures. Morgantown Lock and Dam, initial step in replacement program, was completed in 1950 replacing Locks and Dams 10 and 11. Hildebrand Lock and Dam, next upstream, was completed in 1959 replacing Locks and Dams 12 and 13. Raising crest of Dam 8 was also completed in 1959 as part of upper river improvement and eliminates restricted depth in upper reach of pool. Opekiska Lock and Dam was completed in 1967 replacing Locks and Dams 14 and 15. Completion of this link in upper river replacement program provides for entire river length of minimum channel depth of 9', varying in width from a minimum of 250' to practically full width at mouth.

Locks and Dam 3 showed advanced stages of deterioration and, because of its strategic location and its importance to industry throughout the greater Pittsburgh area and the nation, emergency remedial work had to be done in 1977. Major rehabilitation of Locks and Dam 3 was completed on October 27, 1980.

The Water Resources Development Act of 1986 authorized the replacement of Lock and Dam 7 with Grays Landing Lock and Dam and the construction of a new lock landward of the existing lock at Lock and Dam 8 (renamed Point Marion Lock and Dam). In accordance with the provisions of this act, 50% of the total cost of construction for the Grays Landing and Point Marion projects was derived from the Inland Waterways Trust Fund. Construction of a new lock at Point Marion was completed and put into service in December 1993. Construction of a new lock at Grays Landing was completed and put into service in May 1993. Construction of the dam at Grays Landing was completed in December 1995.

Local Cooperation. None required.

Terminal Facilities. City of Pittsburgh constructed a modern wharf for freight. Boat landings are maintained by some municipalities along the river. A large number of tipples at mines and various types of hoists at manufacturing plants and sand and gravel supply companies are maintained for private use in loading and unloading coal, coke, billets, steel products, sand, gravel, and other commodities. These terminals

and docks are not available for general commerce. A number of docks and pipelines are also privately maintained for petroleum and acid products. Marine ways are maintained by some of the larger industries. These are also several terminals for rail-to-river and river-to-rail transfer. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. New Work: construction of the new Grays Landing Dam was completed in December 1995 at an approximate cost of $25,000,000. Construction of the lock was completed in May 1993 at a contract cost of approximately $80,000,000. Removal of the old fixed crest dam and river lock wall at Lock and Dam 7 was completed in FY96 at a cost of $2,800,000. Work continues on cultural resources and finalizing real estate actions for the remainder of the project. The present project consists of 84 acres of fee land and 403.3 acres of easement. The estimated total cost of the project, which is scheduled to be complete in September 2005, is $181,000,000.

The Water Resources Development Act of 1992 authorized the District to proceed with navigation improvements on the Lower Monongahela River. Locks and Dams (L/D) 2, 3 and 4 are located within 50 miles of the "Point" in Pittsburgh. The authorized Lower Mon Project is a two-for-three improvement that will replace the 100-year old fixed-crest dam at L/D 2 with a gated dam (Braddock Dam) and replace the 70-year old, undersized Locks 4 with new twin 84' x 720' locks. The 100-year old L/D 3 will be removed and a new navigation pool will be established that will be 5' higher between Braddock and Elizabeth and 3.2' lower between Elizabeth and Charleroi. The project will adjust all municipally owned facilities adversely affected by these river level changed and dredge existing Pool 3. In addition, the Port Perry Railroad Bridge crossing at river mile 11.7 will be adjusted to accommodate the higher pool level under a cost sharing contract with Norfolk Southern Railroad. Construction delays fail to reduce risks associated with continued reliance and use of existing L/D 3 and Locks 4. A structural failure would cause a loss in transportation savings of over $200 million/year. Delays increase the cost of work by about 2.7%/year for inflation and result in continued transportation inefficiencies of about $30 million/year. Each year the project is delayed, $1,500,000 of Operations & Maintenance funds must be used to continue L/D 3 in service. The project is funded equally from General Appropriations from the U.S. Treasury and from the Inland Waterways Trust Fund. The new Braddock Dam was constructed from two large prefabricated concrete segments that were floated into place above, and set down upon, a pre-constructed foundation system of sheet-pile cut-off walls and large diameter drilled shafts. The segments placed in-the-wet form the base of the new dam, which was constructed above the water from floating plant. This in-the-wet technology is expected to save about $5,000,000 and reduce construction time by one year over traditional cofferdam construction. Approximately $170,000,000 of project construction has been undertaken through FY04, including the $107,400,000 Braddock Dam contract, prior improvements at L/D 2 in preparation of the new gated Braddock Dam, approach dikes for the new Charleroi Locks and initial Pool 3 dredging contract and relocations for West Elizabeth, Elizabeth, Dravosburg, Glassport, Charleroi and Mon Valley Sewage. A $7,900,000 site development contract is underway at Charleroi and will be completed in FY04. FY04 funds are being used for on-going construction at Braddock and Charleroi, including a $13 million contract for demolition of the Charleroi river chamber and engineering and design efforts to finalize plans and specification for the new Charleroi Locks. A contract for construction of the new river wall at Charleroi Locks will be awarded in late FY04.

Operations & Maintenance, General. Major contract work on the Monongahela River during FY03 included the start of fabrication of tow haulage equipment for Lock 2, total contract $437,288 and the start of dredging the Monongahela River, total contract $683,828. In FY03 government hired labor replaced the land wall emptying valve and middle wall filling valve at Lock 2 for $719,804. Also, the lock chamber was dewatered to renovate the downstream gate sill at Lock 4 for $ 1,251,904.

4. OPEN-CHANNEL WORK, OHIO RIVER

See this heading under Ohio River portion.

5. TYGART LAKE, WV

Location. Tygart Lake is located on the Tygart River in Taylor and Barbour Counties, north central WV. The lake is approximately 26 road miles due east of Clarksburg, WV and 30 road miles south of Morgantown. The dam is situated 22.7 river miles above the mouth of the Tygart River at Fairmont, or 2.25 miles upstream from Grafton, WV, and about 78 miles south of Pittsburgh, PA. (See Geological Survey Charts for Fairmont, Thornton, and Belington, WV.)

Existing Project. A reservoir for low water regulation and flood control. Dam is concrete gravity type with an uncontrolled center spillway flanked by abutment sections joining valley sides. Project was authorized by Public Works Administration January 11, 1934, and adopted by 1935 River and Harbor Act. For further project description see Annual Report for 1962. Authorized project is complete. Reservoir is in operation for low water control in Monongahela River and for purpose of flood protection in Monongahela and Ohio Valleys. Construction of dam was started in 1935 and placed in operation in 1938. Present project lands consist of 2,662.9 acres in fee, flowage easements over 1,216.9 acres and 1,731.9 acres of other easements.

Local Cooperation. The State of West Virginia has assumed responsibility for the development and operation of hunting and fishing areas as well as the Tygart Lake State Park. Controlled releases for downstream navigation and recreation are also coordinated with others to the extent feasible. No local cooperation is required at completed project; however, future recreational developments are subject to certain conditions of non-federal cost-sharing under Federal Water Project Recreation Act of 1965. A cost-sharing agreement was executed with the West Virginia Department of Recreation in May 1981.

Licenses. The Federal Energy Regulatory Commission granted a license to the City of Grafton for construction of a non-federal hydropower facility at this project (FERC license 11851). Details of the design and other issues are still being finalized. The deadline for the start of project construction expired on April 15, 1995; however, the developer was granted an extension which expired on March 1, 2004.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required, and project structures were operated and maintained in a serviceable condition throughout the year. Estimated flood control benefits achieved by this project through September 30, 2003 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $1,097,997,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public use facilities continued. This work was limited in scope as the State of West Virginia has jurisdiction over most of the recreation in the reservoir area.

Tygart Dam was selected as a Dam Safety Assurance Project in March 1996. The Evaluation Report was initiated in March 1994 to address spillway capacity and structural stability in relation to the probable maximum flood event. Findings of the report concluded that under present conditions, the probable maximum flood would overtop the dam and cause failure. The report recommends protecting the dam from failure to include downstream erosion protection and stilling basin modifications. The Design Memorandum was completed in September 1998 and Plans and Specifications were completed in July 1999. The construction contract was advertised in August 1999 and awarded to Joseph B. Fay Co. on September 28, 1999 for $5,628,929. The Notice to Proceed was issued in October 1999 and work was completed in November 2002. The project features included construction of a new road to provide access to the left bank abutment of the dam, new concrete channels consisting of a concrete wall (end sill) and concrete slope paving on the downstream side of the dam, new concrete lagging retaining walls on the left and right banks of the dam, modification of the existing parapet wall, and minor repairs to the roadway decking. The project is now in compliance with current Dam Safety requirements. A construction contract for the replacement of the bulkhead hoist and side gate rehab was advertised in April 2003 and awarded to OCCI, Inc. in June 2003 for $2,579,800. Work is currently 60% complete and construction will be completed in 2004.

An additional construction contract to upgrade the electrical and mechanical systems was advertised in September 2003 and will be awarded in 2004.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 18-C on other authorized navigation projects.

Flood Control - Local Protection

7. ELKINS, WV

Location. On Tygart River in north central Randolph County, WV, about 155 miles south of Pittsburgh, PA. It is at downstream end of a long, broad reach of upper Tygart Valley, about 75 miles above mouth of river. (See Geological Survey Chart for Elkins, WV.)

Existing Project. Provides flood protection by diverting flood discharges from upstream arm of loop of natural river channel into an artificial cutoff channel, thereby bypassing City of Elkins. Improvement is designed to accommodate discharges equivalent to maximum flood of reasonable expectancy. Project construction was started in May 1946 and completed in May 1949. Completed work, except that portion of channel maintained by federal government, has been operated and maintained by City of Elkins since March 31, 1949. Present project lands consist of 32.04 acres in fee and 526.01 acres in easements. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1222. Federal cost of completed project was $1,772,627; estimated non-federal cost for lands, easements, and rights-of-way was $40,000.

Local Cooperation. Fully complied with.

Operations During Fiscal Year. Operation & Maintenance, General: routine investigations and inspections were made. Project was last inspected in June 2002. Flood damages prevented through FY03 were estimated to be $19,669,000.

8. JOHNSTOWN, PA

Location. Project is located in southwestern Cambria County, PA, about 58 miles east of Pittsburgh, PA. It is in a deep and comparatively narrow valley at junction of Stoney Creek and Little Conemaugh River, which unite to form Conemaugh River. (See Geological Survey Chart for Johnstown, PA.)

Existing Project. Provides for increased channel capacity by enlarging and realigning channels and protecting banks with concrete pavement. Improvement designed to accommodate discharges equivalent to those of March 1936 flood, maximum natural flow of record, minimum of over-bank flow and to practically eliminate damages there from. Project construction began in August 1938 and was completed in November 1943. Footer protection for Unit 4 was completed in November 1949. Present project lands consist of easements over 199 acres. Project was authorized by Flood Control Acts of 1936 and 1937. For further project description see Annual Report for 1962, page 1215.

Local Cooperation. The rules of local cooperation for the rehabilitation of the existing project are governed by the FY91 Energy and Water Resources Appropriations Act. Pursuant to this act, the City of Johnstown will have a limited role in securing the needed rights of access to non-federal structures included in the line of protection and will hold and save the United States from damages due to construction or

operation and maintenance of the work on the non-federal structures, except for damages due to the fault or negligence of the United States or its contractors.

Operations During Fiscal Year. Operations & Maintenance, General: The FY91 Energy and Water Resources Development Appropriations Act authorized and directed the Corps to undertake a major rehabilitation of the existing project. The Project Design Memorandum was approved in June 1995. The major rehabilitation work is to be accomplished under the Construction, General appropriation at an estimate cost of $32,500,000. Contract plans and specifications were initiated in July 1995. Six of seven construction contracts were awarded through September 2002. The seventh contract is dependant on Operations & Maintenance funds availability. The CG project is scheduled to be physically complete in September 2004. The Construction, General work consists of the repair of 54 existing wall sections, slope paving and replacement of balustrade (safety) wall. Also included in the major rehabilitation is all the necessary Operation and Maintenance funded work. The O&M work estimated to cost $7,500,000 consists of concrete spall repairs, slope paving joint repairs, sediment removal and miscellaneous repairs. Through FY03 $30,000,000 CG and $3,600,000 O&M have been expended. Flood damages prevented by the project through September 30, 2003 were estimated to be $803,387,000.

9. PUNXSUTAWNEY, PA

Location. Borough of Punxsutawney is on Mahoning Creek in Jefferson County, PA, about 85 miles northeast of Pittsburgh, PA. It is on a comparatively wide, alluvial flood plain about 52 miles above mouth of stream and 30 miles above Mahoning Creek flood control dam. (See Geological Survey Charts for Punxsutawney and Smicksburg, PA.)

Existing Project. Provides flood protection by channel enlargement, dikes, and walls. Improvement is designed to accommodate discharges 20% greater than that of maximum flood of record. Construction was accomplished by construction of four units. Construction started in May 1946 and was completed in June 1950. Present project lands consist of perpetual easements over 72.6 acres. Completed works, except that portion of channel maintained by the federal government, have been operated and maintained by Borough of Punxsutawney since July 31, 1950. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1209.

Local Cooperation. Fully complied with.

Operations During Fiscal Year. Operations & Maintenance, General: operation activities continued and routine investigations and inspections were made. Project was last inspected in October 2002**.** Total flood damages prevented through FY03 were estimated to be $72,196,000.

10. SAW MILL RUN, PITTSBURGH, PA

Location: The project is located within the City of Pittsburgh, Allegheny County, at Ohio River mile 0.7 and traverses upstream from the mouth of Saw Mill Run approximately 4,700 L.F.

Existing Project: The proposed project was authorized in the 1986 WRDA in accordance with the Chief of Engineers report dated January 30, 1978. The 1996 WRDA increased the project estimate to $12,780,000 and increased to $22,000,000 in the FY04 Appropriations Act. This project was included in the FY97 appropriations as a new construction start.

Local Cooperation: The City of Pittsburgh is the local sponsor for this project and is responsible for real estate acquisition and relocation design and construction. The project will be cost shared 75% federal and 25% non-federal in accordance with the requirements of the 1986 WRDA.

Operations During Fiscal Year: In October 1997, a Project Cooperation Agreement was executed with the City of Pittsburgh. In June 1998, the District executed a Memorandum of Agreement (MOA) for the purpose of allowing the District to acquire the real estate and complete relocation work on behalf of the city. With the MOA executed and the funds for this effort transferred to the District in July 1998, real estate acquisition was initiated, and was completed in November 2000. Plans and specifications for the project were completed in March 2000 and the construction contract was advertised in November 2000. The contract was awarded to Carmen Paliotta Contracting in April 2001 for $12,881,875. The construction contract is currently 80% complete. The current completion date for the contract is May 2004. Once the contract is completed, it will be turned over to the City of Pittsburgh for operation and maintenance responsibilities. Due to contract overruns and unforeseen conditions certain project features were deleted from the existing construction contract in order to maintain project cost within funding constraints. When funding becomes available, an additional construction contract will be awarded to complete the items deleted from the previous contract.

11. WEST VIRGINIA & PENNSYLVANIA FLOOD CONTROL

Location. Projects under this program in the Pittsburgh District are located in the Tygart River Basin in West Virginia and the lower Allegheny River in Pennsylvania. The priority (named in the legislation) communities located in West Virginia are Phillipi, Belington, Parsons and Rowlesburg. The priority communities in Pennsylvania are New Bethlehem, Clymer, Benson, Hooversville, Meyersdale, Connellsville and Dubois. Section 581 of the Water Resources Development Act of 1996 authorizes the Secretary of the Army to design and construct flood control measures for these priority communities at a level of protection sufficient to prevent future losses from flooding equivalent to that which occurred in January 1996, but at least no less than a 100 year level of protection. Project development will consist of developing a least cost plan including structural and/or non-structural elements, to provide the authorized level of protection without guard to a benefit/cost ratio.

Local Cooperation. The reconnaissance phase is 100% federally funded. The Detailed Project Report (DPR), Plans and Specifications and Construction phases are cost shared at 65% federal funds and 35%

non-federal funds. A Design Agreement is required to design efforts and a Project Cooperation Agreement is required prior to the project construction. In September 1998, Director of Civil Works, HQUSACE, approved the District's request for a waiver of the up-front cost sharing for the design portion of the West Virginia projects. The basis for the approval of the waiver was that the priority communities in West Virginia qualified for a reduced cost share (5%) based on the ability to pay provisions of Section 103(m) of the Water Resources Development Act of 1986.

Operation During Fiscal Year. In Pennsylvania, the General Management Plans for the seven communities were completed in January 1999. Project Study Plans (PSP) for the seven communities were completed in July 2000. Design Agreements are being prepared and current plans call for the execution of these agreements pending the local sponsors' ability to obtain the non-federal cost share. Design Agreements were executed for the Meyersdale and Hooversville projects in FY01. A DPR for Meyersdale will be complete in FY04 and for Hooversville in FY05.

In West Virginia, the PSPs for the two communities were completed in September 1998 and approved in November 1998. Since no Design Agreement is required for these communities, work on the DPRs started in December 1998. The DPRs for the two communities remain under development. Least cost plans and locally preferred plans for both communities have been developed. The DPRs are currently scheduled for completion in FY04, but is dependent on adequate funds. A decision to implement a Flood Warning System for the two communities as the first phase of the projects was made in September 1999. An interim DPR for the Flood Warning System was submitted in November 2001. Installation of the Flood Warning System was completed.

Flood Control - Reservoirs

12. BERLIN LAKE, OH

Location. Dam is on Mahoning River about 73 miles above its confluence with Shenango River. It is about 10 miles above existing Milton Reservoir Dam and 35 miles upstream from Warren, Ohio. Reservoir is in Portage, Mahoning and Stark Counties, OH. (See Geological Survey charts for Warren, Ravenna, and Alliance, OH.)

Existing Project. A reservoir for flood control and water supply. Dam consists of a partially controlled, concrete gravity, center spillway flanked by rolled-earthfill abutment sections joining valley sides. Authorized project is complete and in operation for flood control and low water regulation purposes in industrialized Mahoning Valley below. Construction of dam was started in January 1942 and completed in June 1943. Present project lands consist of 6,885.3 acres in fee and 1,098.7 acres in easements. For further project description, see Annual Report for 1962, page 1233.

Local Cooperation. None required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated as required and necessary repairs were made to structures and appurtenances. Two prefabricated restrooms were installed as replacements for restrooms made inoperable due to wear and tear in September 2003, cost $70,000. A performance base indefinite delivery contract for gate attendants, janitorial services, grass mowing and trash pick up operated during FY03 at a total cost of $174,000.A National Public Lands Day event was held at the project in September 2003 with 150 NPLD volunteers and other project volunteers providing $25,500 in services during FY03. Four additional security gates were installed at the Dam and Dam Maintenance complex to complement existing security features. Estimated flood control benefits achieved in FY03 were $51,572,000; total benefits through September 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $549,672,000. A program to enable the dam facility to be operated remotely from the project or District Office was initiated in FY02 for completion in FY04. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operations and maintenance of public use facilities continued.

13. CONEMAUGH RIVER LAKE, PA

Location. Dam is on Conemaugh River in Indiana and Westmoreland Counties, PA, 7.5 miles above junction of Conemaugh River and Loyalhanna Creek, which form the head of the Kiskiminetas River. It is about 2 miles northeast of Tunnelton, PA, and about 42 miles east of Pittsburgh, PA. Reservoir is in Westmoreland and Indiana Counties, PA. (See Geological Survey Charts for Latrobe, New Florence and Elders Ridge, PA.)

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides and an earth embankment ending in right abutment. Authorized project is complete. Reservoir system is designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Present project lands consist of 7608.7 acres in fee and 522.8 acres in easements. Project authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1217.

Local Cooperation. None required by law.

Licenses. A non-federal hydropower project utilizing Conemaugh Lake was constructed downstream of the dam under FERC Licenses 3207. The 15-megawatt project began commercial operation on February 6, 1989. It is owned by National Renewable Resources, Inc.

Operations During Fiscal Year. Operation & Maintenance, General: Reservoir was operated for benefit of flood control as required, and necessary

repairs were made to structures and appurtenances. At the request of the Borough of Saltsburg, PA, the U.S. Congress added $50,000 for the Pittsburgh District to conduct a 3-year study/test of special weekend water releases from Conemaugh Dam for downstream recreation. A real estate license and cooperating association agreement with the Conemaugh Valley Conservancy (CVC) for the construction of a 3.5 mile section of hiking/biking trail named the West Penn Trail were signed in FY00, and construction was completed in June 2002. In 2003 the lease was amended to include a switchback trail over the Bow Ridge Recreation Area and through the Dam Site Recreation Area to the western border of federal property. Construction of that section is currently ongoing and is expected to be completed in 2004. The CVC and other trail organizations are planning future expansion of the West Penn Trail to the eastern border of Conemaugh River Lake with a northern spur connection to the Hootlebug Trail. Estimated flood control benefits achieved by this reservoir for FY03 were $6,423,000; total flood control benefits through September 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District were $1,531,353,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities were continued.

14. CROOKED CREEK LAKE, PA

Location. Dam is on Crooked Creek 6.7 miles above junction of creek with Allegheny River near Ford City, PA, and about 32 miles northeast of Pittsburgh, PA. (See Geological Survey Charts for Freeport and Elders Ridge, PA.)

Existing Project. A flood control reservoir dam of earth-fill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in March 1938 and completed in October 1940. Present project lands consist of 2,561.7 acres in fee and 100.22 acres in easements. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1213.

Local Cooperation. None required by law

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control, as required, and necessary repairs were made to structures and appurtenances. In 2003 Gate # 2 was refurbished and installed by the District's Repair Party. Four new flat wire ropes were installed on the gate hoisting machinery. In-house labor initiated the backlog maintenance of cleaning and repairing Weir #1. Contracted labor was used to begin additional clearing of woody vegetation from the Emergency Spillway. The lease with Manor Township for the Armstrong Horse Park remained in effect. Congress has mandated the transfer of 97.48 acres of free land to Manor Township for operation of the Armstrong Horse Park. Estimated flood control benefits achieved by this reservoir for FY03 were $2,492,000; total benefits achieved through September 30, 2003, revised to reflect damages prevented in down stream districts as well as Pittsburgh District, were estimated at $289,041,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued.

15. EAST BRANCH, CLARION RIVER LAKE, PA

Location. Dam is in Elk County, PA on East Branch of Clarion River above Middle Fork, 7.3 miles above junction of East and West branches of Clarion River at Johnsonburg, PA, and about 105 miles northeast of Pittsburgh, PA. Reservoir is in Elk County, PA. (See Geological Survey Chart for Mount Jewett, PA.)

Existing Project. A reservoir for flood control and low-water regulation. Dam is rolled-earthfill type with gate-controlled concrete tunnel under right abutment and a paved uncontrolled spillway on left abutment slope. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Clarion River Valley below and for flood control as a unit of a coordinated reservoir system for protection of Pittsburgh and upper Ohio Valley, generally. Construction of dam was started in June 1947 and completed in July 1952. Present project lands consist of 287.2 acres in fee and 1,296.7 acres in easements. Project was selected for construction under general authorization for Ohio River Basin in Flood Control Acts of 1938 and 1944. For further project description

see Annual Report for 1962, page 1206.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations & Maintenance, General: reservoir was operated for flood control and low-water regulation, as required; and necessary repairs were made to structures and appurtenances. Volunteers continued to apply limestone sand to tributary streams in an effort to neutralize acid mine drainage into the lake. In FY00 under a Cost Share Agreement between the District, US Forest Service, Willamette Industries, now known as Weyerhaeuser, Inc. and utilizing labor from the Federal Bureau of Prisons, the District began a modernization program in the campground. Twenty of thirty-two camp sites have been redesigned and enlarged with sixteen of the sites having 20/30/50 amp electrical service installed. Rehabilitation of non-electric sites will continue in FY04. Nine "walk-in" tent sites are planned which will bring the total campsites available to the authorized forty-one campsites. Congressman John Peterson, PA 5th Congressional District, secured funds to purchase a restroom/shower facility that is scheduled to be constructed in FY04 on the East Branch Campground. East Branch Lake was successful in securing a LECA agreement with the Elk County Sheriff's Office and they co-hosted the 7th Annual Elk County Rescue Weekend for emergency, rescue and other emergency services from local, regional, and other state agencies. Service Gates #3 and #4 were rehabilitated by the district repair party in addition to remedial repair to the service gate bulkhead. Some

reservoir management activity was performed throughout the year comprising sanitation measures, conservation, land management and operation of public-use facilities. Estimated flood control benefits achieved in FY03 were $50,000; total benefits through September 30, 2003, revised to include damages prevented in downstream districts as well as Pittsburgh District, were $73,906,000.

16. KINZUA DAM & ALLEGHENY RESERVOIR, PA & NY

Location. Dam site is on Allegheny River 7 miles above Warren, PA, and 198 miles above mouth of river at Pittsburgh, PA. Reservoir is in Warren and McKean Counties, PA, and Cattaraugus County, NY. (See Geological Survey Charts for Warren and Kinzua, PA-NY, and Randolph and Salamanca, NY.)

Existing Project. Reservoir provides flood control, low water regulation and recreation. Dam consists of a combination concrete gravity structure and rolled earth embankment with gate-controlled spillway and discharge conduits controlled by slide-gates in gravity section. Construction of project, initiated in February 1960, is complete. Construction of dam was started in September 1960 and completed in December 1965. Development of recreation area at Onoville under a cost-sharing agreement with Cattaraugus County was completed in June 1978. Present project lands consist of 2,646 acres in fee and easements over 22,420.0 acres. For further details see Annual Report for 1962, page 1202. Project was authorized by Flood Control Acts of 1936, 1938 and 1941.

Local Cooperation. None required by law.

Licenses. The Federal Power Commission granted a license to Pennsylvania Electric Company and Cleveland Electric Illuminating Company on December 28, 1965, for the joint construction, operation and maintenance of a 435-megawatt pumped-storage installation (FPC Project No. 2280). The project is complete. Present ownership is with First Energy Corporation.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required and necessary repairs were made to structures and appurtenances. A successful LECA was established with the Warren County Sheriff's Department in FY03. Kinzua Dam/Allegheny Reservoir hosted both the Pennsylvania and National Canoe Races in FY03. Estimated flood control benefits achieved by this reservoir for FY03 were $439,000. Total flood control benefits for this reservoir through September 30, 2003 were $949,835,000.

17. LOWER GIRARD DAM, OH

Location. Lower Girard Lake (formerly called Liberty Lake) is located in the northeast section of Ohio in Trumbull County in the City of Girard which lies just northwest of the City of Youngstown, OH. Lower Girard Lake Dam is located on Squaw Creek approximately 5,000' downstream of Girard Lake and approximately 2 miles upstream from Squaw Creek's confluence with the Mahoning River.

Existing Project. Lower Girard Lake together with Girard Lake, located immediately upstream, is a system of water supply reservoirs that was constructed in 1917 and operated by the Ohio Water Service Company to provide process water to local steel mills and industry. The Lower and Upper Girard Dams were purchased by the City of Girard from the Consumer Ohio Water Company in 1995. The dam is an Ambersen type buttress dam. It has been determined that the dam requires rehabilitation to meet modern dam safety standards.

Local Cooperation. The City of Girard, OH is the non-federal sponsor for this project. The city owns the dam and the lake impounded by it. A Design Agreement was executed in July 1998 with cost-sharing for the design portion set at 75% federal and 25% by the city.

Operations During Fiscal Year. In WRDA 1998 Congress added $2,500,000 for the Corps to investigate the safety of, and rehabilitate the Lower Girard Dam. The "Special Report and Environmental Assessment" recommended a rehabilitation plan to bring the dam up to present safety standards. Total cost for design and rehabilitation is estimated at $12,600,000. However, the economic analysis for the plan did not result in a favorable B/C ratio. Subsequently, in March 2002 the ASA(CW) determined that the least cost plan to render the dam safe would be to breach and decommission it at a cost of $1,100,000. During FY03 the City of Girard administration worked with the City Council and the Corps to propose alternatives to a full-breach which would leave the dam safe, but still retained. Presently, a $3,500,000 proposal is to lower the crest of the dam twelve feet which will result in a smaller but safe dam.

18. LOYALHANNA LAKE, PA

Location. Dam is on Loyalhanna Creek, 4.5 miles above junction of creek with Conemaugh River at Saltsburg, PA, and about 29 miles east of Pittsburgh, PA. Reservoir is in Westmoreland County PA. (See Geological Survey Chart for Latrobe, PA).

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides, and an earth embankment section ending in left abutment. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in October 1939 and completed in June 1942. Present project lands consist of 3,330.8 acres in fee and easements over 86.7 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1219.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. At the request of the Borough of Saltsburg, PA, the U.S. Congress added $50,000 for the Pittsburgh District to conduct a 3-year study/test of special weekend water

releases from Loyalhanna Dam for downstream recreation. Estimated flood control benefits achieved by this project for FY03 were $3,240,000. Total benefits for this reservoir through September 30, 2003 were $323,945,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

19. MAHONING CREEK LAKE, PA

Location. Dam is on Mahoning Creek in Armstrong County, PA, 22.9 miles above junction of creek with Allegheny River. It is about 6.50 miles southeast of New Bethlehem, PA, and about 51 miles northeast of Pittsburgh, PA. Reservoir is in Armstrong, Indiana and Jefferson Counties, PA. (See Geological Survey Charts for Rural Valley and Smicksburg, PA).

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam started in February 1939 and was completed in June 1941. Present project lands consist of 2,519.36 acres in fee and easements over 83.5 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1210.

Operations During Fiscal Year. Operations & Maintenance, general: reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. Estimated flood damages prevented by this project for FY03 were $1,299,000; total benefits through September 30, 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $430,589,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance for public-use facilities continued.

20. MICHAEL J. KIRWAN DAM & RESERVOIR, OH

Location. Dam site is on West Branch of Mahoning River which joins Mahoning River at Newton Falls, OH. It is 11 miles above mouth of branch and about 15 miles upstream from Warren, OH. Reservoir is in Portage County, OH. (See Geological Survey Charts for Ravenna, Garrettsville, Chagrin Falls, and Kent, OH.)

Existing Project. Reservoir provides flood control, low-water regulation and recreation. Dam consists of a rolled-earth embankment structure with gate-controlled outlet works and an uncontrolled side-hill spillway through left abutment. Authorized project is completed and in operation for flood control and low water regulation purposes. Present project lands consist of 6,298.9 acres fee and easements over 27.9 acres. For further description see Annual Report for 1962, page 1231 (West Branch Reservoir, Mahoning River, Ohio). Project was authorized by 1958 Flood Control Act (H. Doc. 191, 85th Cong. 1st sess.), with local contribution requirements modified by Flood Control Act of 1960. Federal costs of completed project are $17,370,000. Local interests contributed $3,230,000 during period of construction bringing initial project cost to $20,600,000. The State of Ohio has a lease from the Secretary of the Army for development and operation of recreation facilities in the reservoir area.

Local Cooperation. Local interests must contribute $5,200,000 for water pollution abatement and for municipal and industrial water supply purposes, of which $3,230,000 was paid in cash during construction. Unpaid balance at time project is placed in operation, $1,970,000, will be paid in cash at that time or on an annual basis. Of the unpaid balance of contributed funds due and payable, payment in full of Trumbull County's share in the amount of $663,040 has been received. Mahoning County elected to pay their share ($1,306,960) in 50 annual installments of $50,323.32, including interest.

Operations During Fiscal Year. Operations & Maintenance, General: reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this project for FY03 were $111,424,000. Total benefits for this reservoir through September 30, 2003 were $287,760,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as state of Ohio has jurisdiction over most of the recreation in reservoir area.

21. MOSQUITO CREEK LAKE, OH

Location. Dam is on Mosquito Creek, 12.6 miles above junction of creek with Mahoning River at Niles, OH, and about 18 miles northwest of Youngstown, OH. (See Geological Survey Charts for Bristolville and Kinsman, OH, and PA.)

Existing Project. A reservoir for flood control, low-water regulation and water supply storage. Dam is rolled-earthfill type with outlet facilities through dam, and an uncontrolled natural wasteway to discharge overflow from reservoir. Authorized project is complete and in operation for flood control and low-water regulation purposes in industrialized Mahoning and Beaver Valleys below. Construction of dam was started in July 1943 and was ready for beneficial use in January 1944. Present project lands consist of 11,180.4 acres in fees and easements over 276.0 acres. State of Ohio has a license from Secretary of the Army for development and operation of recreation facilities in reservoir area. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1228.

Local Cooperation. There is a water supply agreement with the City of Warren for municipal and industrial water storage in an amount equal to 11.1% of total reservoir storage. The City makes annual payments for this storage. No other local cooperation is required at completed project; however, future recreational developments are subject to certain

conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations During Fiscal Year. Operation & Maintenance, General: Reservoir was operated for benefit of flood control and low-flow regulation as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this reservoir for FY03 were $15,933,000. Total flood control benefits for this reservoir through September 30, 2003 were $138,832,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of certain public-use facilities continued. This work was limited in scope as State of Ohio has jurisdiction over most of the recreation in reservoir area.

22. OHIO RIVER BASIN (PITTSBURGH DISTRICT)

Location. A series of dikes, floodwalls, channel improvements, and reservoirs/lakes in Ohio River Basin within Pittsburgh District.

Existing Project. Individual projects considered in comprehensive plan within Pittsburgh District. (See Tables 18-B, 18-E and 18-K on Acts authorizing existing projects, local protection projects and reservoirs.)

Operations During Fiscal Year. New Work: none by the United States except as stated in individual projects. Completed local protection projects operated and maintained by local interests, including those projects for which individual reports have been included.

23. SHENANGO RIVER LAKE, PA & OH

Location. Dam is on Shenango River about 0.8 mile above Sharpsville, PA, and about 33 miles above junction of river with Mahoning River, which unite near New Castle, PA, to form Beaver River. Reservoir is in Mercer County, PA and Trumbull County, OH. (See Geological Survey Chart for Kinsman, OH, and Shenango, PA.)

Existing Project. A reservoir for flood control, low-flow augmentation and recreation. Dam consists of a concrete gravity structure with gate-controlled outlet works and an uncontrolled center spillway section. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Shenango River valley below and for flood control as a unit of a coordinated reservoir system for protection of Shenango River valley and the Beaver and upper Ohio River Valley, generally. Construction of dam was started in March 1963 and completed in May 1965. Present project lands consists of 14,485.94 acres in fee and easements over 198 acres. Approximately 65.94 acres in abandoned railroad right-of-way were acquired for project use. Future work consists of completion of project lands of any additional recreation facilities as required to serve the public needs. For further project description, see Annual Report for 1962, page 1230. Project was authorized by 1938 Flood Control Act.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations and Maintenance, General: Reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. Four comfort station roofs and one picnic shelter roof were replaced with a SeaBees Reserve unit providing the labor. Preparation work was done for the replacement of the standby generator unit . Estimated flood damages prevented in FY03 were $1,874,000. Estimated flood control benefits achieved through September 30, 2003 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $102,964,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance continued.

24. STONEWALL JACKSON LAKE, WV

Location. In Lewis County, North Central West Virginia, on the West Fork River, which joins the Tygart River at Fairmont, WV to form the Monongahela River. Dam site is located on Route 30 at Brownsville, WV, about 4 miles south of Weston and 72 miles above mouth of West Fork River at Fairmont, WV. (See Geological Survey Charts for Weston and Crawford, WV.)

Existing Project. Provides for construction of a reservoir for flood control, water supply, water quality control, area redevelopment and recreation. Dam is concrete gravity type, 95' high and 620' long. Outlet works consist of two multi-level sluices and three fixed-level sluices, spillway is uncontrolled. Storage capacity is 74,650 acre-feet controlling an area of 102 square miles. A station hydropower plant completed in 1995 supplies power to the dam, with excess power being sold to an electric utility company. Project was authorized by 1966 Flood Control Act. Estimated initial federal cost for new work (1991) is $231,000,000 (includes an estimated $24,900,000 reimbursement by non-federal interests.) Present project lands consist of 20,451 acres in fee and easements over 398 acres.

Local Cooperation. The reservoir contains 2,200 acre feet of storage designated for the purpose of municipal and industrial water storage. The storage is not under contract and there are no prospects of near-term water supply agreements. In accordance with the Federal Water Project Recreation Act local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement to make arrangements for repayment, under the provisions of the Water Supply Act of 1958, as amended, of that part of the construction cost and annual operation, maintenance and replacement costs allocated to municipal and industrial water supply, an amount presently estimated at $4,350,000 for construction; and $15,000 annually for operations, maintenance and replacements. Also, in accordance with Federal Water Project Recreation Act, local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement, pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first costs of the reservoir project allocated to recreation and fish and wildlife enhancement, an amount presently estimated at $24,810,000, bear all costs of operation, maintenance and replacement of

recreation and fish and wildlife land and facilities, the amount involved being currently estimated on an average annual basis to be $457,000, exercise to the full extent of their legal capability, control against removal of stream flow made available for water quality control; and contribute to the control of pollution of streams subject to low-flow augmentation by adequate treatment or other methods of controlling wastes at their source. The requirements of Section 221 were amended in 1971 to exempt assurances for future demands for water supply pursuant to the Water Supply Act of 1958 from the contractual requirements of the Act. Accordingly, the city of Weston, WV has provided assurances that it will enter into a water supply contract with the Department of the Army within a period of time which will permit paying out the costs allocated to the water supply storage within the life of the project. A recreation cost-sharing contract, in accordance with the requirements of the Federal Water Project Recreation Act, PL 89-72, was executed by the State of West Virginia on March 27, 1977. Local cooperation assurances for recreation cost-sharing were executed by the Governor and Attorney General of West Virginia on May 29, 1973. In this connection, Section 8 of PL 92-222 deleted the requirement that the State of West Virginia "hold and save the United States free from damages resulting from water rights claims due to construction and operation of the project." Legislation relieving Stonewall Jackson Lake, WV, project of the requirements of Section 221, PL 96-611 was contained in Water Resources Development Act of 1974 signed by the President on March 7, 1974.

Operations During Fiscal Year. New Work: The Corps worked with the State of West Virginia to revise the Master Plan to incorporate higher revenue producing recreation facilities, including a lodge, golf course, cabins and camping. The revised Master Plan was approved by the Corps in 1992. The FY92 Energy and Water Development Appropriations Act allows the state cost-sharing credits for all of these facilities except the golf course. In March 1994, the State and the Assistant Secretary of the Army for Civil Works executed an amendment to the 1977 Stonewall Jackson Lake Recreation Cost-Sharing Contract to reflect these credits. The state must design and build the approved remaining recreation facilities by March 2006, in accordance with the schedule and conditions set forth in the amended contract. The state broke ground in July 2001 for the $50,000,000 Stonewall Resort, which includes a 200-room lodge, conference center, spa, cabins and more camping areas, in addition to a championship 18-hole golf course that is not eligible for cost share credit. By the end of FY02, the state had essentially completed and opened to the public all facilities except additional camping.

Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as State of West Virginia has jurisdiction over most of the recreation in reservoir area.

Estimated flood control benefits achieved for this project for FY03 were $25,601,000; total flood control benefits through September 30, 2003, were $127,957,000.

25. TIONESTA LAKE, PA

Location. Dam is on Tionesta Creek, 1.25 miles above junction of creek with Allegheny River at Tionesta, PA, and about 78 miles northeast of Pittsburgh, PA. Reservoir is entirely in Forest County, PA. (See Geological Survey Charts for Tionesta, Tidioute and Sheffield, PA.)

Existing Project. A flood control reservoir dam of earthfill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in May 1938 and completed in January 1941. Present project lands consists of 2,794.77 acres in fee and easement over 13.1 acres. Approximately 2.53 acres of fee were disposed at the project. Future work consists of provision on project lands of additional recreational facilities as required to serve public needs. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1203.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operation & Maintenance, General: reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. Reservations in the Tionesta Recreation Area Campground using the National Recreation Reservation Service (NRRS) were suspended in FY02 due to renovations in this campground. These renovations were funded by a Congressional add of $1,218,000 and included restroom renovations, additional electrical service and new electric, water and sewage service to selected campsites. The first Law Enforcement Cooperative Agreement (LECA) in nearly 20 years was initiated during FY02. This was a welcome service addition to the visitor assistance program. Estimated flood control benefits achieved by this project for FY03 were $566,000. Total flood control benefits through September 30, 2003, revised to include downstream districts, were $420,350,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public-use facilities continued.

26. UNION CITY DAM, PA

Location. In Erie County, northwestern PA, on French Creek, a tributary of Allegheny River. Dam site is 24 miles upstream from Cambridge Springs, PA, and 41 miles upstream from Meadville, PA. (See Geological Survey Chart for Union City, PA - NY.)

Existing Project. A flood control reservoir dam of earth embankment non-gated type with uncontrolled side-channel spillway. Outlet works consist of a lower outlet located in valley floor constructed of reinforced concrete conduit 8' by 4.5' and an upper outlet consisting of an uncontrolled slot 9.5' wide through the north end of the ogee weir in the spillway. Dam is 1,420' long at top rising 88' above streambed and

provides gross capacity of 47,640 acre-feet from a drainage area of 222 square miles. Project authorization was modified to provide for a conservation pool and addition of recreation facilities. On November 5, 1974, a referendum proposal was defeated by the constituents of Erie County in regard to the cost-sharing for construction of recreation facilities. In view of the foregoing, all action toward implementation of the authorized project modification was discontinued. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth, Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Initial highway relocations were completed in October 1968 and remaining highway relocations were completed in May 1972. Construction of the dam was started in July 1968 and completed in September 1971. Present project lands consist of 161.4 acres in fee and easements over 2,410.29 acres. Existing project was authorized by 1962 Flood Control Act.

Local Cooperation. Local interests are required to inform affected interests in French Creek Basin at least annually, that the system of reservoirs of which Union City Dam is a part, will not provide protection against maximum floods. On November 10, 1964 the Department of Forests and Waters of the Commonwealth of Pennsylvania furnished formal assurances of local cooperation in respect to notifying local interests at least annually that the system of reservoirs will not provide protection against maximum floods. A referendum on the ballot during the November 1974 election regarding the approval to cost-share the maintenance of a summer pool was defeated by the local voters.

Operations During Fiscal Year. Operation & Maintenance, General: maintenance of the structure and appurtenances was performed as required. This dam acted as an uncontrolled detention type dam during the fiscal year. Estimated flood control benefits achieved for this project for FY03 were $613,000. Total flood control benefits for this reservoir through September 30, 2003, revised to include downstream districts, were $48,192,000.

27. WOODCOCK CREEK LAKE, PA

Location. In Crawford County, northwestern PA, on Woodcock Creek, a tributary of French Creek. Dam site is about 4.1 miles above mouth of Woodcock Creek and about 5 miles northeast of Meadville, PA. (See Geological Survey Chart for Meadville, PA.)

Existing Project. A flood-control reservoir dam of rolled-earth embankment type, gate-controlled outlet works with a 6 foot-wide by 7.75 foot-high conduit and uncontrolled saddle spillway on the left abutment. Dam is 4,650' long at top rising 90' above streambed and provides for gross capacity of 20,000 acre-feet from a drainage area of 46 square miles. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth. Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Authorized project is complete. Construction of dam was started in July 1970 and completed in July 1973. Land acquired for project consists of 1,731.5 acres in fee and easements over .56 acres. Project was authorized for flood control and recreation by 1962 Flood Control Act. Storage for water quality control was added to the project during the preconstruction planning stage.

Local Cooperation. Local interests must inform affected interests in French Creek Basin at least annually, in a manner satisfactory to District Engineer, that a system of reservoirs of which Woodcock Creek is a part, will not provide protection against maximum floods. Pennsylvania Department of Forests and Waters assumed responsibility of local cooperation for project.

Operations During Fiscal Year. Operation & Maintenance, General: maintenance of the structure and appurtenances was performed as required. Estimated flood control benefits achieved by this project for FY03 were $188,,000. Total flood control benefits achieved by this project through September 30, 2003, revised to include downstream districts were $27,057,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

28. YOUGHIOGHENY RIVER LAKE, PA & MD

Location. Dam is on Youghiogheny River about 74.2 miles above its junction with Monongahela River at McKeesport, PA. It is 1.2 miles upstream from Confluence, PA, and about 57 miles southeast of Pittsburgh, PA. Reservoir is in Fayette and Somerset Counties, PA, and Garrett County, MD. (See Geological Survey Charts for Confluence, PA, Accident, MD, West Virginia and Pennsylvania.)

Existing Project. Reservoir for flood control, low-flow augmentation, pollution abatement, and recreation purposes. Dam is rolled-earthfill type with separate uncontrolled side channel spillway and tunnel outlet works. Authorized project is complete. For flood control, reservoir is operated as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in June 1940 and completed in May 1944. Present project lands consist of 3,914.9 acres in fee and easements over 0.62 acres.

Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1223.

Local Cooperation. None required.

Licenses. A non-federal hydropower project utilizing releases from Youghiogheny River Lake was constructed in accordance with FERC License 3623. D/R Hydro Company is the authorized representative of the Licensee, Youghiogheny Hydroelectric Authority, and is responsible for operation of the plant. It has a 10-megawatt capacity. The plant began commercial operation on December 7, 1989.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low flow augmentation, as

required and necessary repairs were made to structures and appurtenances. In-house labor rehabilitated 24 campsites at the Outflow Recreation Area to make them high impact. The Outflow and Tub Run campgrounds operated on-line with the National Recreation Reservation Service (NRRS) for the FY03 recreation season. Youghiogheny Lake is designated as one of 13 Corps lakes in the country participating in the National Lake pilot program. The Lewis and Clark reenactor traveling the country on horseback made Youghiogheny his first stop in the Ohio River basin. The Center for Disease Control used the lake as one of the carbon monoxide test sites for monitoring motorboat CO hazards. Physical security at the dam was improved using Homeland Security funding. Estimated flood control benefits achieved by this reservoir for FY03 were $5,166,000. Total flood control benefits achieved by this project through September 30, 2003 revised to include damages prevented in downstream districts, were $451,109,000. Total recreation benefits for FY03 were $8,400,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

29. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within boundaries of their respective districts. Inspections were made of completed units transferred to local interests for maintenance and operation and local interests were advised, as necessary, of measures required to maintain these projects in accordance with standards prescribed by regulations. (See Table 18-L for dates of inspections.)

Costs for this fiscal year were $125,000; total cost to September 30, 2003 was $2,525,208.

30. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 18-E on other authorized flood control projects.

31. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATIONS

For emergency bank protection pursuant to Section 14, 1946 Flood Control Act, PL 79-526, as amended

See Table 18-M.

For flood control activities pursuant to Section 205, 1948 Flood Control Act, PL 80-858, as amended

See Table 18-M.

For aquatic ecosystem restoration pursuant to Section 206, 1996 WRDA, PL 104-303, as amended

See Table 18-M.

For modification for improvement of the environment pursuant to Section 1135, 1986 WRDA, PL 99-662, as amended

See Table 18-M.

For flood control and coastal emergencies pursuant to 1955 Emergency Flood Control Funds Act, PL 84-99 and antecedent legislation

See Table 18-M.

Environmental

32. CONEMAUGH RIVER BASIN, NANTY GLO, PA ENVIRONMENTAL RESTORATION

Location. Conemaugh River Basin is an area of 1,372 square miles located in southwestern Pennsylvania in Cambria and Indiana Counties. The Nanty Glo project is located in the headwaters of South Branch Blacklick Creek in the Borough of Nanty Glo, Cambria County.

Existing Projects. Authorized by WRDA 1992 (PL 102-580), Section 331, the Conemaugh River Basin Reconnaissance Report completed in February 1994 identified seven sites as candidates for ecosystem restoration studies. Remediation of a site at Nanty Glo, PA was identified as highest priority. The project involves restoration of environmental damage caused by the abandoned Webster Coal Mine. Its discharge accounts for much of the acid load in the creek and approximately 5% of the acid load downstream at the Corps' Conemaugh River Lake. Water from the mine is discharged into Pergrin Run, approximately 1,300' upstream from its confluence with South Branch Blacklick Creek. The project will involve a passive treatment system consisting of dual vertical flow ponds and a wetland. The project will treat the Webster Mine discharge, design flow of 450 gallons per minute with a PH of 3.0. The vertical flow ponds provide 3.9 acres of surface treatment area and the wetland provides 2.3 acres of surface treatment area. A pipe will carry water from Webster Mine to the vertical flow ponds. The PH of the treated design flow discharged from the wetland to Pergrin Run will be 6.5 Project implementation will restore the lower seven miles of the creek and promote return of a viable fishery to the waters.

Local Cooperation. The non-federal cost-sharing sponsor is the Cambria County Conservation and Recreation Authority (CCCRA). CCCRA has been the cost-sharing partner on this project since inception in l994. The CCCRA will cost share 25% of total project costs.

Operations During Fiscal Year. Real estate certified and construction contract was awarded in September 2002. Notice to Proceed issued September 20, 2002. Amount of contract as awarded is $2,979,997. Contractor is Charles J. Merlo Construction Incorporated. Length of construction contract is 660 calendar days with completion scheduled for August 2004.

33. SOUTH CENTRAL, PA ENVIRONMENTAL IMPROVEMENT WORK

Location. Projects under this program in the Pittsburgh District are located in the South Central, PA counties of Allegheny, Armstrong, Cambria, Fayette, Indiana, Somerset and Westmoreland.

Existing Projects. Section 313 authorizes the Secretary of the Army to establish a program to provide design and construction assistance to non-federal interests in south central Pennsylvania including projects for waste water treatment and related facilities, water supply, storage, treatment, and distribution facilities, and surface water resource protection and development. The following projects were authorized under Section 313 of the Water Resources Development Act of 1992. The Blacklick Valley Municipal Authority project consists of the installation of a sanitary sewer system. The total project cost is estimated at $1,700,000 ($1,250,000 federal; $450,000 non-federal). The Cambria Somerset Authority project consists of the rehabilitation of deteriorating sections of the pipeline which feeds commercial industries in and around the city of Johnstown, PA. The total project cost is estimated at $6,700,000 ($5,000,000 federal; $1,700,000 non-federal). The Armstrong County project consists of the separation of the combined sewer outflow in the town of New Bethlehem. The total project cost is estimated at $ 4,000,000 ($3,000,000 federal; $1,000,000 non-federal). The Georges Creek Municipal Authority project consists of the construction of a sewage treatment plant and collection system. The total project cost is estimated at $4,000,000 ($3,000,000 federal; $1,000,000 non-federal). The Kittanning-Plumcreek Water Authority project involves the design and construction of 62,000 linear feet of waterline along Route 422 from near Kittanning to the small village of Whitesburg, with several spurs along certain populated township roads which branch off Route 422. Also required is a booster pumping station and a ±250,000 gallon water storage tank. The total project cost is $3,200,000 ($2,400,000 federal; $800,000 non-federal). The Indiana County Municipal Services Authority has identified Armagh, Heilwood and Marion Center as areas in need of sanitary collection systems. The total estimated project costs are $2,000,000 ($1,500,000 federal; $500,000 non-federal). Additional projects identified for FY03 funding include Puketa Creek, Pine Township, Derry Township, Jefferson Township, Northmoreland Park, Unity Township, Paint Township, Menallen Township, Graysille Municipality, Mount Pleasant and Franklin Business Park.

Local Cooperation. Legislation requires the project to be cost shared at no more than 75% federal funds and a minimum of 25% non-federal funds. Project Cooperation Agreements are executed between the Corps of Engineers and the non-federal sponsors. Operation and maintenance of the projects will be at 100% non-federal costs.

Operations during Fiscal Year. Design/ construction PCA's were executed for Puketa Creek. Construction is continuing for Quemahoning pipeline, Whitesburg and Blacklick.

34. THREE RIVERS WET WEATHER DEMONSTRATION PROJECT

Location. The Three Rivers Wet Weather Demonstration Program administers grants to Allegheny County communities for innovative, cost-effective, watershed-based methods of wet weather sewer overflow elimination and management.

Existing Project. The District is working with the Three Rivers Wet Weather Demonstration Program under Section 219 of the 1992 WRDA, as amended. Under this program, the District is authorized to provide assistance to non-federal interests for carrying out water-related environmental infrastructure and resource protection and development project in Allegheny County. These projects include wastewater treatment and related facilities and water supply, storage, treatment and distribution facilities.

Local Cooperation. For the current study phase the Three Rivers Wet Weather Demonstration Program identified the Allegheny County Sanitary Authority (ALCOSAN) as the cost sharing partner for the Sheraden Park effort. The project is cost shared 75% federal and 25% non-federal.

Operations During Fiscal Year. The District is currently working through the Three Rivers Wet Weather Demonstration Program to identify potential projects in Allegheny County. The 1st project identified is Sheraden Park. A study was completed in Sep 2003 which identified the most cost effective manner to remove storm water from the existing combined sanitary sewer system. In addition to separating storm water from the sanitary sewer, the study of a stream day lighting project is to be completed under Sec 206 Authority. Stream day-lighting is a process where streams that are currently piped underground are restored to the surface, and reintegrated into the natural systems and communities. The next phase to the Sheraden Park Project will be the completion of plans and specifications. These will be initiated in FY04 and completed in early FY05. Project will be scheduled for construction in Spring FY05 providing funds are available. A second project Homestead Run has been identified. A letter report will be prepared in FY04 with a design agreement to prepare plans and specifications to follow. Other projects will be identified as funds become available.

35. FORMERLY USED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

Location. Shallow Land Disposal Area (SLDA) is a 44-acre site in Armstrong County, Pennsylvania, about 23 miles east-northeast of Pittsburgh.

Existing Project. The site includes ten trenches containing estimated 23,500-36,000 cubic yards of potentially contaminated waste and soil. The total trench surface-area is 1.2 acres. The trenches are separated into two general areas; one area containing trenches 1 through 9 and a second area containing trench 10. Uranium and thorium contaminated wastes consisting of process wastes, equipment, scrap and trash from the nearby Apollo nuclear fuel fabrication

facility were disposed of in the SLDA between 1961 and 1970. The uranium in the trenches is present at various levels of enrichment from highly depleted to highly enriched. Americium and plutonium, whose presence is attributed to storage of equipment used in Parks Facility, have been detected in surface soils in trench 10 area. Nuclear Materials and Equipment Corporation (predecessor of current owner BWX Technologies) conducted the disposals according to the Atomic Energy Commission regulations. The NRC license requires BWXT to properly maintain the site to ensure the protection of workers and the public.

PL 107-117, Section 8143 directs the Corps of Engineers to clean up radioactive waste at the SLDA site, consistent with the Memorandum of Understanding between the United States Nuclear Regulatory Commission and United States Army Corps of Engineers dated July 5, 2001 for the coordination of cleanup and decommissioning of FUSRAP sites with NRC-licensed facilities and in accordance with Section 611 of PL 106-60. The SLDA site will be remediated following the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process.

Local Cooperation. The project is currently conducted with congressionally authorized FUSRAP funds.

Operations During Fiscal Year. The site designation and preliminary assessment stages of the CERCLA process are completed and the project is currently at the remedial investigation stage. The feasibility study, proposed plan, record of decision, remedial design, remedial action and project closeout are forthcoming.

General Investigations

36. SURVEYS

Navigation Studies	$1,091,495
Flood Damage Prevention Studies	75,438
Special Studies	914,912
Review of Authorized Projects	20,666
Miscellaneous Activities	78,204
Coordination with other Federal Agencies	43,356
Total Federal Cost for Fiscal Year	$2,224,071

37. COLLECTION & STUDY OF BASIC DATA

Federal costs this fiscal year were $105,109 for flood plain management services.

38. PRECONSTRUCTION, ENGINEERING & DESIGN

Mon River, WV	$4,860
Weirton Port, WV	6,150
Total Federal Cost for Fiscal Year	$11,010

TABLE 18-A **COST & FINANCIAL STATEMENT**

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
Navigation							
1.	Allegheny River, PA	New Work					
		Approp.	---	---	---	---	18,157,860[1]
		Cost	---	---	---	---	18,157,860[1]
		Maint.					
		Approp.	11,052,000	13,132,152	6,119,429	5,727,000	208,465,324[2]
		Cost	13,984,568	13,126,688	5,996,649	5,843,525	208,437,455[2]
3.	Monongahela River, PA & WV	New Work					
		Approp.	45,465,000	57,402,000	37,379,000	36,590,000	649,325,835[3]
		Cost	45,018,588	58,365,732	38,246,302	36,688,840	639,782,291[4]
		Maint.					
		Approp.	13,447,000	14,599,264	13,029,101	12,947,000	366,683,222[5]
		Cost	13,429,900	14,610,760	12,883,205	12,961,717	366,541,836[6]
		Major Rehab.					
		Approp.	---	---	---	---	15,857,000
		Cost	---	---	---	---	15,857,000
5.	Tygart Lake, WV	New Work					
		Approp.	2,070,000	3,948,000	546,000	(5,000)	28,059,932[7]
		Cost	2,056,653	4,005,181	474,252	41,181	28,022,533[7]
		Maint.					
		Approp.	1,690,000	1,012,327	1,102,915	1,447,000	27,690,483[8]
		Cost	1,698,084	1,012,981	1,098,994	1,425,202	27,661,625[8]
		Major Rehab.					
		Approp.	---	---	---	---	89,000
		Cost	---	---	---	---	88,999
Flood Control – Local Protection							
	Chartiers Creek, PA	New Work					
		Approp.	---	---	---	---	30,818,153[41]
		Cost	---	---	---	---	30,818,153[41]
7.	Elkins, WV	New Work					
		Approp.	---	---	---	---	1,772,627
		Cost	---	---	---	---	1,772,627
		Maint.					
		Approp.	16,000	15,966	18,000	16,000	438,158
		Cost	16,254	11,766	19,479	18,933	438,138
8.	Johnstown, PA	New Work					
		Approp.	---	---	---	---	8,865,388[9]
		Cost	---	---	---	---	8,865,388[9]
		Maint.					
		Approp.	1,008,000	262,972	113,500	1,633,000	10,961,662
		Cost	1,036,127	265,309	113,415	1,625,223	10,965,855
		Major Rehab.					
		Approp.	8,832,000	6,591,000	989,000	1,322,000	36,408,000[43]
		Cost	8,940,917	6,695,566	944,566	1,088,784	36,067,833[44]
9.	Punxsutawney, PA	New Work					
		Approp.	---	---	---	---	3,586,107[10]
		Cost	---	---	---	---	3,586,107[10]
		Maint.					
		Approp.	12,000	2,537,972	15,000	13,000	1,721,569[11]
		Cost	16,864	317,657	14,710	12,968	1,721,220[11]
10.	Saw Mill Run, Pittsburgh, PA	New Work					
		Approp.	243,000	2,754,000	6,127,000	4,470,435	14,155,435[6]
		Cost	197,563	554,329	7,031,897	4,854,114	13,194,9794[6]
	Turtle Creek, PA	New Work					
		Approp.	---	---	---	---	26,680.799[38]
		Cost	---	---	---	---	26,680.799[38]
11.	West Virginia & Pennsylvania Flood Control	New Work					
		Approp.	1,454,000	1,801,313	289,000	650,000	6,794,313[47]
		Cost	1,346,120	1,595,154	1,420,082	901,230	6,416,451[47]

TABLE 18-A **COST & FINANCIAL STATEMENT**

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
Flood Control – Reservoirs							
12.	Berlin Lake, OH	New Work					
		Approp.	---	---	---	---	8,739,987[12]
		Cost	---	---	---	---	8,739,987[12]
		Maint.					
		Approp.	4,422,000	4,640,968	2,806,238	2,083,000	54,689,311[13]
		Cost	4,387,787	4,682,432	2,719,205	2,135,608	54,651,498[13]
13.	Conemaugh River Lake, PA	New Work					
		Approp.	---	---	---	---	46,012,411[14]
		Cost	---	---	---	---	46,012,411[14]
		Maint.					
		Approp.	1,005,000	909,293	1,034,200	988,000	27,983,379[39]
		Cost	1,009,019	907,349	1,018,457	972,753	27,949,737[39]
14.	Crooked Creek Lake, PA	New Work					
		Approp.	---	---	---	---	4,482,933[15]
		Cost	---	---	---	---	4,482,933[15]
		Maint.					
		Approp.	1,586,000	1,227,749	1,576,733	1,509,000	38,863,101[16]
		Cost	1,575,244	1,241,922	1,492,454	1,579,249	38.848,205[16]
15.	East Branch, Clarion River Lake, PA	New Work					
		Approp.	---	---	---	---	9,539,586[17]
		Cost	---	---	---	---	9,539,586[17]
		Maint.					
		Approp.	1,043,000	809,058	1,082,866	1,164,000	23,540,148[18]
		Cost	1,029,793	822,686	1,063,336	1,165,359	23,520,451[18]
16.	Kinzua Dam & Allegheny Reservoir, PA & NY	New Work					
		Approp.	---	---	---	---	109,305,076[19]
		Cost	---	---	---	---	109,305,076[19]
		Maint.					
		Approp.	1,337,000	1,245,835	1,308,954	1,471,000	36,931,546[39]
		Cost	1,324,820	1,261,543	1,299,938	1,467,316	36,915,837[39]
		Major Rehab.					
		Approp.	---	---	---	---	2,921,000
		Cost	---	---	---	---	2,921,000
17.	Lower Girard Dam, OH	New Work					
		Approp.	536,500	688,060	80,000	0	1,939,560[48]
		Cost	544,361	747,757	39,502	78,522	1,884,649[48]
18.	Loyalhanna Lake, PA	New Work					
		Approp.	---	---	---	---	5,727,531[20]
		Cost	---	---	---	---	5,727,531[20]
		Maint.					
		Approp.	1,247,000	964,177	942,153	1,002,000	28,224,883[21]
		Cost	1,245,382	961,873	937,561	985,572	28,199,344[21]
19.	Mahoning Creek Lake, PA	New Work					
		Approp.	---	---	---	---	7,144,973[22]
		Cost	---	---	---	---	7,144,973[23]
		Maint.					
		Approp.	971,000	768,907	874,907	818,000	24,729,376[40]
		Cost	954,989	783,453	847,040	845,350	24,726,605[40]
		Minor Rehab.					
		Approp.	---	---	---	---	47,033
		Cost	---	---	---	---	47,033
20.	Michael J. Kirwan Dam & Reservoir, OH	New Work					
		Approp.	---	---	---	---	17,376,097[24]
		Cost	---	---	---	---	17,376,097[24]
		Maint.					
		Approp.	753,000	777,779	828,325	748,000	20,298,918[25]
		Cost	751,564	775,590	813,843	757,174	20,289,931[25]

TABLE 18-A **COST & FINANCIAL STATEMENT**

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
21.	Mosquito Creek Lake, OH	New Work					
		Approp.	---	---	---	---	4,253,029[26]
		Cost	---	---	---	---	4,253,029[26]
		Maint.					
		Approp.	1,143,000	974,142	1,193,238	1,057,000	22,992,281[45]
		Cost	1,135,988	977,429	1,157,153	1,089,449	22,984,017[45]
22.	Ohio River Basin, PA (Pittsburgh District)	New Work					
		Approp.	---	---	---	---	985,197[27]
		Cost	---	---	---	---	985,197[27]
23.	Shenango River Lake, PA & OH	New Work					
		Approp.	---	---	---	---	40,217,201[28]
		Cost	---	---	---	---	40,217,201[28]
		Maint.					
		Approp.	2,270,000	2,244,914	2,243,359	2,333,000	53,491,830[29]
		Cost	2,271,569	2,226,516	2,185,615	2,383,195	53,454,772[29]
24.	Stonewall Jackson Lake, WV	New Work					
		Approp.	(70,000)	150,000	0	5,000	211,529,741
		Cost	25,548	73,147	43,120	39,772	211,522,459
		Maint.					
		Approp.	881,000	848,385	871,056	934,000	13,725,584
		Cost	883,275	844,650	867,957	930,896	13,711,877
25.	Tionesta Lake, PA	New Work					
		Approp.	---	---	---	---	7,792,378[30]
		Cost	---	---	---	---	7,792,378[31]
		Maint.					
		Approp.	1,506,000	1,353,155	2,405,752	2,309,000	36,435,705[32]
		Cost	1,495,070	1,358,705	2,326,174	2,351,420	36,386,636[32]
26.	Union City Dam, PA	New Work					
		Approp.	---	---	---	---	14,559,800
		Cost	---	---	---	---	14,559,800
		Maint.					
		Approp.	198,000	186,445	216,365	214,000	7,404,508
		Cost	195,607	188,472	214,722	215,518	7,403,614
27.	Woodcock Creek Lake, PA	New Work					
		Approp.	---	---	---	---	20,545,065[33]
		Cost	---	---	---	---	20,545,065[34]
		Maint.					
		Approp.	729,000	681,243	742,333	769,000	18,379,043[35]
		Cost	727,211	680,486	735,362	776,540	18,375,835[35]
28.	Youghiogheny River Lake, PA & MD	New Work					
		Approp.	---	---	---	---	12,521,167[36]
		Cost	---	---	---	---	12,521,167[36]
		Maint.					
		Approp.	3,173,000	1,998,176	1,840,394	1,815,000	48,486,440[37]
		Cost	3,127,000	2,043,075	1,804,618	1,865,773	48,470,820[37]
Environmental							
	Central West Virginia Environmental Infrastructure, WV	New Work					
		Approp.	---	25,000	0	0	25,000
		Cost	---	4,154	1,654	812	6,620
32.	Nanty Glo, PA Environmental Restoration	New Work					
		Approp.	---	67,000	140,000	2,386,337	2,593,337[49]
		Cost	---	3,615	150,591	2,246,765	2,400,971[49]
	Ohio Environmental Infrastructure, OH	New Work					
		Approp.	---	40,000	310,000	0	350,000
		Cost	---	22,894	288,361	4,733	315,988

TABLE 18-A **COST & FINANCIAL STATEMENT**

Section in Text		Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
33.	South Central, PA Environmental Improvement Program	New Work Approp.	0	8,380,000	1,233,000	5,261,000	51,676,000[42]
		Cost	8,641,623	3,426,574	9,686,132	9,085,540	48,450,038[42]
34.	Three Rivers Wet Weather Demo	New Work Approp.	---	---	400,000	71,000	471,000[50]
		Cost	---	---	38,667	378,738	417,405[50]
35.	Formerly Used Sites Remedial Action Program	New Work Approp.	---	185,000	695,000	2,150,000	3,030,000
		Cost	---	132,861	429,041	2,326,626	2,888,528

[1] Includes $2,453,737 from emergency relief funds and $1,250,049 from public works funds.
[2] Includes $64,365 public works acceleration, executive funds (1963) and $191,400 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $995,000 appropriated and expended for major maintenance at L&D 2, 3 & 4.
[3]Includes amounts appropriated to date for: Point Marion, L&D 8, PA - $113,013,400 for CG and IWTF, $3,322,057 for raising crest of dam in 1958-9, $2,086,438 for original reconstruction years 1923-26 and $618,758 for AE&D. Grays Landing, L&D 7, PA - $172,793,200 for CG and IWTF, and $803,000 for AE&D. L&D 2, 3 & 4 - $237,481,700 for CG and IWTF.
[4] Includes amounts expended to date on: Point Marion, L&D 9, PA - $112,667,403 for CG and IWTF, $3,322,057 for raising crest of dam in 1958-9, $2,086,438 for original reconstruction years 1923-6 and $618,758 for AE&D. Grays Landing, L&D 7, PA - $172,751,744 for CG and IWTF, and $803,000 for AE&D. L&D 2, 3 & 4 - $237,123,612 for CG and IWTF.
[5] Includes $22,549 public works acceleration, executive funds (1963), $742 for maintenance for previous project and $582,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
[6] Includes $22,549 public works acceleration, executive funds (1963), $742 for maintenance for previous project and $464,508 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
[7] Includes $1,999,995 emergency relief funds, $10,000,000 public work funds, $234,000 Code 711 funds and $412,088 Code 713 funds, $462,000 appropriated to and $218,374 expended on the Dam Safety Assurance Program - CG; excludes $409,622 contributed by local interest.
[8] Includes $89,000 provided from the Productive Employment Appropriations, Act (PL 98-8) 1983 funds. Also includes $425,000 appropriated to and $424,493 expended on the Dam Safety Assurance Program O&M.
[9] Includes $33,423 from emergency relief funds.
[10] Excludes $180,485 for new work expended from contributed funds.
[11] Includes $283,988 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
[12] Includes $1,542,500 Code 711 funds, $809,700 Code 712 funds and $99,111 Code 713 funds; excludes $100,000 contributed by local interest.
[13] Includes $40,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $7,679 appropriated to and expended from M&O of dams in FY97 and $703,407 expended to date on M&O of dams.
[14] Includes $5,351 from emergency relief funds and $328,000 Code 711 funds.
[15] Includes $63,788 from emergency relief funds. Also includes $278,044 Code 711 funds.
[16] Includes $45,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $1,918 appropriated to and expended from M&O of dams in FY97 and $697,646 expended to date on M&O of dams.
[17] Includes $156,812 Code 711 funds.
[18] Includes $322,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $12,674 appropriated to and $12,674 expended to date on M&O of dams.
[19] Includes $2,791 emergency relief funds, $14,622 Code 711 funds, $568,265 Code 713 funds; excludes $389,370 contributed by local interest.
[20] Includes $7,339 from emergency relief funds and $274,669 Code 711 funds.
[21] Includes $256,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $104,866 appropriated to and $104,864 expended to date on M&O of dams.
[22] Includes $25,671 emergency relief funds, $162,381 Code 711 funds, $561,247 Code 713 funds; excludes $500,086 contributed by local interests.
[23] Includes $25,671 emergency relief funds, $162,381 Code 711 funds, $561,247 Code 713 funds; excludes $456,611 contributed by local interests.
[24] Includes $74,900 Code 711 funds; excludes $4,585,627.29 for new work contributed by local interest.
[25] Includes $315,500 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $3,174 appropriated to and $3,713 expended to date on M&O of dams.
[26] Includes $122,729 Code 711 funds and $94,900 Code 713 funds.
[27] Includes $8,914 from emergency relief funds.
28 Includes $1,730,100 Code 711 funds and $1,618,300 Code 713 funds.
[29] Includes $152,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $11,896 appropriated to and $11,891 expended to date on M&O of dams.
[30] Includes $2,303,076 Code 711 funds ($256,760 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), $275,900 Code 712 funds, and $24,201 emergency relief funds.
[31] Includes $2,303,077 Code 711 funds, ($256,531 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), $275,900 Code 712 funds, and $24,201 emergency relief funds.
[32] Includes $203,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $9,362 appropriated to and $9,360 expended to date on M&O of dams.
[33] Includes $1,671,366 Code 711 funds.
[34] Includes $1,671,366 Code 711 funds.
[35] Includes $85,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds).

[36] Includes $2,846,263 Code 711 funds ($293,000 provided from the Productive Employment Appropriations Act. (PL 98-8) 1983 funds).
[37] Includes $591,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $22,240 appropriated to and $22,236 expended to date on M&O of Dams.
[38] Includes $1,840,000 (non-federal) original construction cost and an additional $4,205,000 (non-federal) contributed and $4,159,759 (non-federal) expended to date.
[39] Includes $701,504 appropriated to and $701,504 expended to date on M&O of dams.
[40] Includes $104,684 appropriated to and $104,683 expended to date on M&O of dams.
[41] Includes $4,225,188 (non-federal) contributed and expended to date.
[42] Includes $285,000 (non-federal) contributed funds and $282,914 (non-federal) expended to date.
[43] Includes $4,894,000 appropriated to date for Rehab O&M and $2,925,000 appropriated to date for Rehab Construction, General. Also includes $222,000 (non-federal) contributed funds to date.
[44] Includes $4,880,202 expended to date for Rehab O&M and $2,824,695 expended to date for Rehab Construction, General. Also includes $425 (non-federal) expended to date.
[45] Includes $701,504 appropriated to and $701,504 expended to date on M&O of dams.
[46] Includes $3,244,435 (non-federal) contributed funds and $2,565,808 (non-federal) expended to date.
[47] Includes $132,313 (non-federal) contributed funds and $94,418 (non-federal) expended to date.
[48] Includes $480,560 (non-federal) contributed funds and $440,103 (non-federal) expended to date.
[49] Includes $586,337 (non-federal) contributed funds and $405,606 (non-federal) expended to date.
[50] Includes $125,000 (non-federal) contributed funds and $92,207 (non-federal) expended to date.

TABLE 18-B **AUTHORIZATION LEGISLATION**

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
1.		**Allegheny River, PA**	
	Aug 5, 1886	For lock and dam 1. (Fixed dam contemplated. Sep 29, 1891 Secretary of War authorized change to a moveable dam.)	Annual Report, 1886, p. 1545 Annual Report, 1891, p. 2366
	Jun 3, 1896	For locks and dams 2 and 3.	H. Doc. 204, 54th Cong., 1st Sess. Annual Report 1896, p. 2212
	Jul 25, 1912	For locks and dam 4 to 8 inclusive.	H. Doc. 540, 62nd Cong., 2nd Sess.
	Jul 3, 1930	For a depth of 9' in the lower 61 miles.	H. Doc. 356, 71st Cong., 2nd Sess.
	Aug 30, 1935[1]	Replace lock and dam 1 by a dredged channel, 9' deep and 200' wide up to lock 2, and construct new locks and dams 2 and 3, to replace existing locks and dams 2 and 3.	Rivers and Harbors Committee, Doc. 16, 72nd Cong., 1st Sess.
	Aug 30, 1935[1]	Construct locks and dam 9, raising crest of dam 8, and dredging a navigable channel to head of pool 8.	H. Doc. 721, 71st Cong., 3rd Sess. Rivers and Harbors Committee, Doc. 27, 73rd Cong., 2nd Sess.
	Jun 26, 1934[2]	Operation and care of locks and dams provided for with funds from War Department appropriation for rivers and harbors.	
3.		**Monongahela River, PA & WV**	
	Mar 3, 1899	Enlarge and improve lock and dam 6, additional work at lock 3; new repair steamer and new dredge boat with equipment; all at an estimated cost of $185,556.	Annual Report, 1897, p. 2423
	Jun 13, 1902	Rebuild lock and dam 2 at estimated cost of $655,961. (Estimate increased in 1910 to $698,961.)	Annual Report, 1909, p. 1756
	Mar 3, 1905	Acquisition of land and additional improvements at 5 and 6 at a cost of $7,850.	Annual Report, 1904, p. 460
	Mar 3, 1905	Rebuild lock and dam 3 at estimated cost of $589,196.	H. Doc. 209, 58th Cong., 2nd Sess.
	Mar 2, 1907	Reconstruct lock and dam 5 at estimated cost of $756,042.	H. Doc. 209, 58th Cong., 2nd Sess.
	Mar 4, 1913	Reconstruct lock and dam 6 at estimated cost of $356,400. (Estimate increased in 1916 to $418,860.)	H. Doc. 1217, 62nd Cong., 3rd Sess.
	Sep 22, 1922	Additional improvements at estimated cost as follow: Guide walls and guard walls, 1 to 6, $1,255,130; lengthen land chamber of lock 3 to 720', $787,722; new chamber (360' $1,161, 24 long), lock 4, $699,786; lock and dam 7, Lock and dam 8, $1,165,758; lock and dam 7 second chamber, $419,126; Lock and dam 8 second chamber, $504,465; reconstruction dam 4, $397,211; marine ways, repair plant, office and warehouse, $250,000 for a total of $6,640,439.	H. Doc. 288, 67th Cong., 2nd Sess.
	Jul 3, 1930	Construct new locks and dam 2.5 miles below existing structure, at estimated cost of $2,175,000 in lieu of work authorized at old lock and dam 4.	Rivers and Harbors Committee, Doc. 22, 70th Cong., 2nd Sess.
	Jan 31, 1931[3]	Chief of Engineers authorized to locate new locks and dam 4 above existing structure and on such site as they may deem most desirable.	
	Jun 26, 1934[2]	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	May 17, 1950	Modification of existing project as follows: Provide 2 new locks and dams similar to Morgantown lock and dam to replace existing locks and dams 12 to 15 inclusive. Provide a movable crest on existing dam 8 to raise existing pool full elevation 4'. Provide a navigation channel of 300' minimum bottom width and a 9' project depth above lock and dam 8. Provide an extension of navigable channel of upper Monongahela River, into lower Tygart River for 2.1 miles at a maximum bottom width of 200' and a 9' project depth.	S. Doc. 100, 81st Cong., 1st Sess.

TABLE 18-B **AUTHORIZATION LEGISLATION**

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	Nov 17, 1986	Construct new lock and dam 7 (Grays Landing Lock and Dam) as follows: The Grays Landing Lock and Dam will be located 3.0 miles downriver from existing Lock and Dam 7. It will consist of a single lock chamber, 84' wide by 720' long, with a fixed crest dam 576' in length. The existing Maxwell Pool at elevation 763.0 will be shortened 3 miles and the existing Pool 7 at elevation 778.0 will be extended downriver to the new dam. There will be no change in pool elevation above existing Dam 7. Upon completion of the new replacement lock and dam, existing Lock and Dam 7 will be removed. Total authorized cost is $181,000,000.	Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301(a)
	Nov 17, 1986	Replace existing 56' by 360' lock chamber at Point Marion Lock and Dam (Lock and Dam 8) with new 84' x 720' chamber. Existing movable crest dam to remain; no change in pool elevations. Total authorized cost is $53,600,000.	Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301 (a)
	Oct 31, 1992	Navigation improvements as follows: The project replaces the fixed crest dam at Locks and Dam 2 with a gated dam; raises the existing pool 2 by 5', constructs twin 84' x 720' locks at Locks and Dam 4, and eliminates Locks and Dam 3; lowering the existing pool 3 by 3.2'. Authorized cost is $705,000,000. Cost of construction is to be paid equally from the general fund of the Treasury and the Inland Waterways Trust Fund.	Water Resources Development Act of 1992; PL 102-580, Sec. 101
5.		**Tygart Lake, WV**	
	Jan 11, 1934	Construction of a dam and reservoir for low water regulation and flood control.	H. Doc. 1792, 64th Cong., 2nd Sess.
	Aug 30, 1935		H. Doc 106, 76th Cong., 1st Sess.
7.		**Elkins, WV**	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
8.		**Johnstown, PA**	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
9.		**Punxsutawney, PA**	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
10.		**Saw Mill Run, Pittsburgh, PA**	
	Nov 17, 1986	For construction of local flood protection projects.	Water Resources Development Act of 1986
	Oct 12, 1996		Water Resources Development Act of 1996
11.		**West Virginia & Pennsylvania Flood Control**	
	Oct 12, 1996	For construction of local flood protection projects.	Water Resources Development Act of 1996, PL 102-580, Sec 313
12.		**Berlin Lake, OH**	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
13.		**Conemaugh River Lake, PA**	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc, 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
14.		**Crooked Creek Lake, PA**	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.

TABLE 18-B **AUTHORIZATION LEGISLATION**

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
15.		**East Branch, Clarion River Lake, PA**	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
16.		**Kinzua Dam & Allegheny Reservoir, PA & NY**	
	Jun 22, 1936 amended by Jun 28, 1938 modified by Aug 18, 1941	Construction of a dam and reservoir for flood control and low Water regulation and recreation.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
		Construction of a dam and reservoir for flood control, pollution Abatement, low water regulation and recreation.	H. Doc. 300, 76th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
17.		**Lower Girard Dam, OH**	
		Design and construction assistance to non-federal interests for repair and rehabilitation of the Lower Girard Dam	Sec 507, WRDA 1996 PL 104-303
18.		**Loyalhanna Lake, PA**	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
19.		**Mahoning Creek Lake, PA**	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
20.		**Michael J. Kirwan Dam & Reservoir, OH**	
	Jul 3, 1958	Construction of a dam and reservoir for flood control, water Supply, low water regulation and recreation.	H. Doc. 191, 85th Cong., 1st Sess.
	Jul 14, 1960	To define cost-sharing arrangement for municipal and industrial water supply and water for pollution abatement purposes.	PL 86-645
21.		**Mosquito Creek Lake, OH**	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
22.		**Ohio River Basin (Pittsburgh District)**	
	Aug 28, 1937	Construct levees, floodwalls and drainage structures for protection of cities and towns in Ohio River Basin. Projects to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed $24,877,000 for construction.	Flood Control Committee, Doc. 1, 75th Cong., 1st Sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized $75,000,000 for reservoirs and $50,300,000 for local flood protection works.	Flood Control Committee, Doc. 1, 75th Cong., 1st Sess.
	Aug 18, 1941	Additional $45 million for prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 300, 76th Cong., 1st Sess.
	Dec 22, 1944	Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin, including additional projects in tributary basins.	H. Doc. 762, 77th Cong., 2nd Sess.
	Jul 24, 1946	Additional $125 million for further prosecution of comprehensive plan including additional projects in tributary basins.	H. Doc. 506, 78th Cong., 1st Sess.

TABLE 18-B **AUTHORIZATION LEGISLATION**

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	May 17, 1950	Additional $100 million for prosecution of comprehensive plan for Ohio River Basin	S. Doc. 20, 81st Cong., 1st Sess.
	Dec 30, 1963	Additional $150 million for further prosecution of comprehensive plan for flood control and other purposes in Ohio River Basin.	PL 88-253, 88th Cong., 1st Sess.
	Jun 18, 1965	Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89th Cong., 1st Sess.
	May 12, 1967	Additional $38 million for further prosecution of comprehensive plan for Ohio River Basin.	PL 90-17, 90th Cong., 1st Sess.
	Aug 13, 1968	Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin.	PL 90-483, 90th Cong., 2nd Sess.
	Jun 19, 1970	Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 15166, 91st Cong., 2nd Sess.
	Mar 7, 1974	Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 10203, 93rd Cong. River Basin Monetary Authorization Act of 1974
	Oct 22, 1976	Authorized Phase I design memorandum stage of advanced engineering and design of the project for abatement of acid mine drainage in the Clarion River Basin, PA.	Water Resources Development Act of 1976; PL 94-587, Sec. 101 (a)
23.		**Shenango River Lake, PA & OH**	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation and recreation.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
24.		**Stonewall Jackson Lake, WV**	
	Nov 7, 1966	Construction of a dam and reservoir for flood control, water supply, water quality control, area redevelopment and recreation.	S. Doc. 109, 89th Cong., 2nd Sess.
25.		**Tionesta Lake, PA**	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
26.		**Union City Dam, PA**	
	Oct 23, 1962	Construction of a dam and reservoir for flood control.	S. Doc. 95, 87th Cong., 2nd Sess.
27.		**Woodcock Creek Lake, PA**	
	Oct 23, 1962	Construction of a dam and reservoir for flood control, recreation and storage for water quality control.	S. Doc. 95, 87th Cong., 2nd Sess.
28.		**Youghiogheny River Lake, PA & MD**	
	Jun 28, 1938	Construction of a dam and reservoir for flood control, low-flow Augmentation and pollution abatement purposes.	H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
33.		**South Central, PA Environmental Improvement Program**	
	Oct 31, 1992	Construction of local flood protection projects.	Water Resources Development Act of 1992; PL 102-580, Sec 313
34.		**Three Rivers Wet Weather Demonstration Project**	
	Oct 31,1992	Environmental infrastructure	Water Resources Development Act Of 1992, PL 102-850, Sec 219
35.		**Formerly Used Sites Remedial Action Program (FUSRAP)**	
	Jul 5, 2001	Coordination on cleanup and decommissioning of the FUSRAP sites.	PL 107-117, Sec 8143

[1] Included in the Emergency Relief Program, April 8, 1935.
[2] Permanent Appropriations Repeal Act.
[3] Public Res. 117, 71st Cong., 3rd Sess.

TABLE 18-C **OTHER AUTHORIZED NAVIGATION PROJECTS**
(See Section 6 of Text)

Project	Status	For Last Full Report See Annual Report	Construction	Cost to September 30, 2003 Operations and Maintenance
Allegheny River, PA Open-Channel Work	Completed	1934	197,000	133,940
Buckhannon River, WV[1,2]	Completed	1893	5,500	
Cheat River, WV[1,2]	Completed	1895	12,997	
Pittsburgh Harbor, PA	Completed	1922	110,663	81,613

[1] Abandonment recommended in H. Doc. 467, 69th Cong., 1st Sess.
[2] No commerce reported.

TABLE 18-E **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**
(All Projects Not Specifically Identified in Text)

Project and Status	For Last Full Report See Annual Report For	Construction (Federal Cost)	Non-Federal Cost	Cost to September 30, 2003 Operations and Maintenance
Flood Protection				
Specifically Authorized Projects Completed:				
Bradford, PA	1962	7,601,763	1,895,000	
Brookville, PA	1963	964,976	289,000	
Buckhannon, WV	1972	1,568,661	75,000	
Butler, PA	1970	1,556,181	534,000	
DuBois, PA	1979	4,464,607	910,000	
Johnsonburg, PA	1958	674,664	130,000	
Kittanning, PA, Part 1	1949	130,317	2,000	
Latrobe, PA	1951	207,659	44,400	
Latrobe, PA	1970	2,556,652	698,000	
Olean, NY	1954	3,217,531	597,000	
Portage, PA	1965	150,386	14,900	
Portville, NY	1954	2,070,484	353,000	
Reynoldsville, PA	1959	385,494	26,000	
Ridgeway, PA (Elk Creek)	1964	628,888	465,000	
Salamanca, NY	1972	2,880,535	4,180,720	
Turtle Creek, PA	1998	22,500,079	323,000	
Washington, PA	1964	789,093	113,000	
Wellsville, OR Section 1	1965	483,910		
Wellsville, OR Section 11	1956	157,633	152,200	
Youngstown, OH	1976	3,621,134		
Specifically Authorized Projects Deferred:				
Benwood, WV	1954	81,028		
Chartiers Creek, PA	1998	26,592,965		
Authorized by Chief of Engineers Completed:				
Amsterdam, OH	1964	183,072	22,500	
Big Run, PA	1965	364,208	35,900	
Burgettstown, PA		83,129		
Friendsville, MD		41,529	2,200	
Girty's Run, Millvale, PA	1986	2,655,934	701,722	
Grantville, PA	--	75,908	3,000	
Leetonia, OH	--	89,299	17,200	
Oil City, PA	--	43,595		
Oil City Ice Control Structures	1987	3,927,792	25,000	
Root Creek, Bolivar, NY	1986	1,591,436		
Slovan, PA	--	57,811		
Sykesville, PA	--	184,246	9,000	
Tarentum, PA	1964	136,591	24,600	
Tenmile Creek at Marianna, PA	1981	1,554,428		
West Little Pine Creek, Etna, PA	--	2,021,852	86,200	
Wilmore, PA	--	96,853	1,300	
Authorized by Chief of Engineers Active:				
Ridgeway & Vicinity (Clarion River)[2]	1979	132,464		
Authorized by Chief of Engineers Inactive:				
Black Fork at Hendricks, WV	1972	6,800		
Oakdale, PA	--	14,127		
Rouseville, PA	--	1,642		
Wallace, WV[1]	--	11,035		
Weston Mills, Olean, NY	--	50,100		
Weston Mills, Portville, NY	--	52,100		
Reservoirs				
Rowlesburg Lake, WV	1977	2,873,799		

[1] Lacks local support.
[2] No longer economically justified.

TABLE 18-G **DEAUTHORIZED PROJECTS**

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Adena, OH (Short Creek)		Aug 5, 1977	13,452	
Allegany, NY Unit I (Allegheny River)[1]		Nov 17, 1986	4,100	
Allegany, NY Unit II (Five Mile Creek Area)[1]	1975	Nov 17, 1986	64,851	
Bellaire, OH		May 6, 1981	76,487	
Brackenridge, Tarentum and Natrona, PA[1]		Nov 17, 1986		
Brilliant, OH		Aug 5, 1977		
Brockway, PA (Allegheny River Basin)		Aug 5, 1977	194	
Clarington, OH		Aug 5, 1977		
Coraopolis, PA		Aug 5, 1977		
Dillonvale, OH (Short Creek)		Aug 5, 1977	16,884	
Eagle Creek Reservoir, OH		Jan 1, 1990	100,000	
Empire-Stratton, OH[1]		Nov 17, 1986	33,031	
Follansbee, WV		Aug 5, 1977		
Freeport, PA (Allegheny River)		Aug 5, 1977		
Industry, PA		Aug 5, 1977		
Kittannng, PA, Part 11 (Allegheny River)		Nov 6, 1977		
Lake Chautauqua and Chadakoin River, NY[2]	1965	Mar 2, 1970	190,722	
Lake Erie-OW Canal, OH and PA - 1935 Act	1972	May 6, 1981	1,342,000	
Leetsdale, PA		Nov 17, 1986		
Martins Ferry, OH[1]	1941	Nov 17, 1986	25,164	
McKees Rocks, PA		Oct 3, 1978		
Mingo Junction, QH		Aug 5, 1977		
Moundsville, WV[1]		Nov 17, 1986		
Muddy Creek Dam, PA[1]	1977	Nov 17, 1986	402,459	
Neville Island, PA[1]		Nov 17, 1986		
New Cumberland, WV		Aug 5, 1977		
New Kensington and Parnassus, PA[1]		Nov 17, 1986		
Pittsburgh, PA (Golden Triangle)		Oct 3, 1978		
Pittsburgh, PA (North Side)		Oct 3, 1978		
Pittsburgh, PA (The Strip)		Oct 3, 1978		
Powhaten Point, OH[1]		Nov 17, 1986		
Proctor, WV[1]		Nov 17, 1986		
Redbank Creek Lake, PA		Aug 5, 1977	156,377	
Rochester, PA[1]		Nov 17, 1986		
St. Marys, PA (Allegheny River Basin)		Aug 5, 1977	13,529	
Smith Ferry, PA		Aug 5, 1977		
Uniontown, PA	1956	Jan 1, 1990		
Warwood, WV[1]		Nov 17, 1986		
Wellsburg, WV		Aug 5, 1977	6,387	
West Bridgewater, PA		Aug 5, 1977		
Wheeling, WV[1]	1954	Nov 17, 1986	189,067	
Wheeling, WV (North Wheeling)[1]		Nov 17, 1986		
Wheeling, WV (Wheeling Island)[1]		Nov 17, 1986	21,700	
Wilcox, PA[3]		Mar 5, 1955	16,761	
Woodlands, WV[1]		Nov 17, 1986		
Youghiogheny River, PA and MD (Canalization)[1, 4]	1971	Nov 17, 1986	232,863	

[1] Deauthorized under Water Resource Act of 1986 (PL 99-662).
[2] Local interests failed to meet requirements of cooperation, authority for project expired Mar 2, 1970.
[3] Local interests failed to meet requirements of cooperation, authority for project expired Mar 5, 1955.
[4] Includes $47,195 construction costs expended under previous project and $1,700 O&M costs expended under previous project.

TABLE 18-H — ALLEGHENY RIVER, PA, LOCKS AND DAMS (See Section 1 of Text)

No.	Miles Above Mouth	Nearest Town	Dimensions: Width of Chamber (feet)	Dimensions: Available Length to Full Width (feet)	Dimensions: Upper Lift at Normal Pool Level (feet)	Dimensions: Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills at Normal Pool Level[1]: Lower (feet)	Depth on Miter Sills at Normal Pool Level[1]: Upper (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Kind of Dam	Type of Construction: Lock	Type of Construction: Dam	Percent Complete	Year Open to Nav	Actual Cost
2	6.7	Aspinwall, PA	56	360	11.0	721.0	12.0	10.9	Rock	Rock	Fixed	Concrete	Concrete	100	1934[2]	1,763,485
3	14.5	Cheswick, PA	56	360	13.8	734.8	10.8	11.8	Rock	Pile-Rock	Fixed	Concrete	Concrete	100	1934[2]	1,875.665
4	24.2	Natrona, PA	56	360	10.6	745.4	10.0	8.5	Rock	Rock	Fixed	Concrete	Concrete	100	1927	1,707.690
5	30.4	Freeport, PA	56	360	11.6	757.0	10.5	10.3	Piling	Crib-Pile	Fixed	Concrete	Concrete	100	1927	1,940,537
6	36.3	Clinton, PA	56	360	12.4	769.4	10.6	10.8	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1928	1,523,959
7	45.7	Kittanning, PA	56	360	13.0	782.4	9.8	10.9	Piling	Steel Sheet Piling	Fixed	Concrete	Concrete	100	1930	1,460,008
8	52.6	Templeton, PA	56	360	17.8	800.2	10.4	13.8	Rock	Rock	Fixed	Concrete	Concrete	100	1931	2,848,920
9	62.2	Rimer, PA	56	360	22.0	822.2	10.5	11.3	Rock	Rock	Fixed	Concrete	Concrete	100	1938	2,510,373
Abandoned lock and dam 1																591,187
Abandoned lock and dam 2																544,929
Abandoned lock and dam 3																310,103
Demolishing old dam 1																26,001
Dredging channel																1,055,003
		Total														18,157,860

[1] All depths as shown are on guard sills and are controlling depth.
[2] Dates shown represent replacement structures.

TABLE 18-I — MONONGAHELA RIVER, PA, LOCKS AND DAMS (See Section 3 of Text)

No.	Miles Above Mouth	Nearest Town	Dimensions: Width of Chamber (feet)	Dimensions: Available Length to Full Width (feet)	Dimensions: Upper Lift at Normal Pool Level (feet)	Dimensions: Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills at Normal Pool Level[1]: Lower (feet)	Depth on Miter Sills at Normal Pool Level[1]: Upper (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Kind Of Dam	Type of Construction: Lock	Type of Construction: Dam	Percent Complete	Year Open to Nav	Actual Cost
2	11.2	Braddock, PA	56 110	360 720	8.7	718.7	16.0	16.0	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1953[2]	133,091,064[5,7]
3	23.8	Elizabeth, PA	56[3]	360 720	8.2	726.9	11.6	11.9	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1907	58,132,804[5,8]
4	41.5	Charleroi, PA	56[3]	360 720	16.6	743.5	10.7	20.0	Piles	Piles	Gated	Concrete	Concrete	100	1932[2]	86,601,010[5,6]
- -	61.2	Maxwell Locks and Dam - Maxwell, PA	84[3]	720	19.5	763.0	15.0	20.5	Rock	Rock	Gated	Concrete	Concrete	100	1964[2]	30,110,889[5]

TABLE 18-I

MONONGAHELA RIVER, PA, LOCKS AND DAMS
(See Section 3 of Text)

No.	Miles Above Mouth	Nearest Town	Dimensions: Width of Chamber (feet)	Dimensions: Available Length to Full Width (feet)	Dimensions: Upper Lift at Normal Pool Level (feet)	Dimensions: Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills at Normal Pool Level[1]: Lower (feet)	Depth on Miter Sills at Normal Pool Level[1]: Upper (feet)	Character of Foundation: Lock	Character of Foundation: Dam	Kind Of Dam	Type of Construction: Lock	Type of Construction: Dam	Percent Complete	Year Open to Nav	Actual Cost
-	82.2	Grays Landing Locks and Dam, PA	84	720	15.0	778.0	18.0	26.0	Rock	Rock	Fixed	Concrete	Concrete	100	1994	173,554,744[9]
-	90.8	Point Marion Locks and Dam, PA	84	720	19.0	797.0	16.2	16.2	Rock	Rock	Gated	Concrete	Concrete	100	1993[2]	118,694,656[10]
-	102.0	Morgantown Locks and Dam, PA	84	600	17.0	814.0	14.5	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1950	8,778,000[5]
-	108.0	Hildebrand Locks and Dam, 6 miles Morgantown, WV	84	600	21.0	835.0	15.0	14.0	Rock	Rock	Gated	Concrete	Concrete	100	1959	12,506,829[5]
-	115.4	Opekiska Locks And Dam, 13.4 miles Morgantown, WV	84	600	22.0	857.0	14.0	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1964	25,179,622[5]
Marine Ways, etc.																250,000
Abandoned lock and dam 1																1,019,907[5]
Abandoned lock and dam 4																780,816[5]
Abandoned lock and dam 5																1,074,812[5]
Abandoned lock and dam 6																770,449[5]
Abandoned lock and dam 7																2,853,580[5]
Abandoned lock and dam 8																245,900[10]
Abandoned lock and dam 9																191,000[5]
Abandoned lock and dam 10																210,445[5]
Abandoned lock and dam 11																227,668[5]
Abandoned lock and dam 12																200,550[5]
Abandoned lock and dam 13																190,691[5]
Abandoned lock and dam 14																210,127[5]
Abandoned lock and dam 15																175,829[5]
Dredging channel																587,899[5]
		Total														655,639,291[5]

[1] All depths as shown are on guard sills and controlling depth.
[2] Dates shown for locks and dams number 2 to 8 inclusive represent reconstruction.
[3] 2 chamber.
[4] Includes $3,322,057 for raising crest of dam (1958-9), $2,086,438 for original reconstruction (1923-6), $618,758 AE&D costs for replacement of lock, and $112,667,403 for replacement of lock ($56,215,160 CG funds; $56,452,243 from Inland Waterways Trust Fund).
[5] Actual cost may include estimated costs which have been footnoted as necessary.
[6] Includes $2,173,767 for original reconstruction (1931-2) and $15,080,304 for reconstruction of dam (1963-7).
[7] Includes $16,967,114 for reconstruction of locks.
[8] Includes $15,857,000 for major rehabilitation.
[9] Includes AE&D costs for proposed lock ($803,000) as well as $172,692,644 expended in CG and IWTF.
[10] Includes $213,776 original project and $2,639,804 for reconstruction (1925).

TABLE 18-J **MONONGAHELA RIVER, PA & WV**
TOTAL COSTS OF EXISTING PROJECT TO END OF FISCAL YEAR
(See Section 3 of Text)

Funds	New Work	Operations & Maintenance, General	Total
Regular	$655,639,291[1, 3]	$366,066,664[2]	$1,021,705,955[1, 2, 3]
Maintenance and Operation		452,623	452,623
Public Works Acceleration Exec		22,549	22,549
Total	$655,639,291[1, 3]	$366,541,836[2]	$1,022,181,127[1, 2, 3]

[1] Includes $5,420,541 for new work for previous projects.
[2] Includes $20,446,587 expended between July 7, 1897 and June 30, 1937 on operation and care of works of improvement under revisions of permanent appropriation for such purposes and excludes $742 for maintenance of previous projects.
[3] Includes $15,857,000 for major rehabilitation of L/D 3.

TABLE 18-K **OHIO RIVER BASIN (PITTSBURGH DISTRICT)**
RESERVOIRS (See Section 22 of Text)

Tributary Basin and Reservoir	Stream	Total Cost
Allegheny:		
Conemaugh River, PA	Conemaugh River	$ 46,012,411
Crooked Creek, PA	Crooked Creek	4,482,933
East Branch, Clarion River, PA	Clarion River	9,539,586
Kinzua Dam and Allegheny Reservoir, PA and NY	Allegheny River	112,226,076[1]
Loyalhanna, PA	Loyalhanna Creek	5,727,531
Mahoning Creek, PA	Mahoning Creek	7,144,973
Tionesta, PA	Tionesta Creek	7,792,378
Union City, PA	French Creek	14,559,800
Woodcock Creek, PA	Woodcock Creek	20,545,065
Beaver:		
Berlin, OH	Mahoning River	8,739,987
Michael J. Kirwan, OH	Mahoning River	17,376,097
Mosquito Creek, OH	Mosquito Creek	4,253,029
Shenango River, PA and OH	Shenango River	40,217,201
Monongahela:		
Stonewall Jackson Lake, WV	West Fork River	211,522,459
Youghiogheny River, PA and MD	Youghiogheny River	12,521,167

[1] Includes $2,921,000 for dam rehabilitation.

TABLE 18-L **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**
(See Section 29 of Text)

Project	Date of Inspection	Project	Date of Inspection	Project	Date of Inspection
Amsterdam, OH	Apr 2003	Friendsville, MD	May 2002	Portville, NY	Nov 2003
Big Run, PA	Oct 2003	Granville, PA	Apr 2001	Reynoldsville, PA	Oct 2002
Bolivar, NY	Nov 2003	Johnsonburg, PA	Apr 2002	Ridgway, PA	Apr 2003
Bradford, PA	Apr 2003	Kittanning, PA	Apr 1997	Salamanca, NY	Nov 2003
Buckhannon, WV	Oct 2002	Latrobe, PA	Sep 2002	Stonewood-Nutter Fort, WV	Jun 1992
Burgettstown-Slovan, PA	Jun 2002	Leetonia, OH	Jul 2002	Sykesville, PA	Oct 2003
Butler, PA	Apr 2002	Marianna, PA	May 2001	Tarentum, PA	Sep 1997
Charters Creek, PA		Millvale, PA	Mar 2002	Turtle Creek, PA	Apr 2001
Canonsburg-Houston Reach	May 2003	Oil City		Washington, PA	Mar 2001
James G. Fulton Reach	Mar 2001	Ice Control Structure		Wellsville, OH	Jun 2003
Colliers, WV	Sep 1994	Allegheny River, PA	Apr 2001	Weston, WV	Oct 1996
DuBois, PA	Oct 2003	Oil City LPP (dike), PA	Apr 2001	Wilmore, PA	Oct 2002
Eldred, PA	Apr 1987	Olean, NY	Nov 2001	Youngstown, OH	Jun 2000
Etna, PA	May 2003	Portage, PA	Nov 2002		

PITTSBURGH, PA, DISTRICT

TABLE 18-M **FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION (See Section 31 of Text)**

Project/Study Identification	Federal Fiscal Year Costs
Emergency Bank Protection - Section 14, 1946 Flood Control Act, PL 79-526	
Allenport, PA	$44,926
Avonmore (Kiskiminetas River, STP), PA	36,708
Bear Creek, Walnut St., Friendsville, MD	188,734
Blackville, PA, Dunkard Creek	66,059
Center Treatment Plant, Elkhorn Run, PA	8,836
Conway, Crows Run	7,417
Coordination Account	37,865
Ford City, AR, First Street	70,609
Lincoln Borough, PA	58,890
Little Plum Creek, Municipal Building, PA	104,917
McCandless, PA	47,283
Moon Treatment Plant, Elkhorn Run, PA	13,583
New Castle, PA (Neshannock Creek)	33,489
Nickleplate Rd., French Creek, Fairfield	13,222
Pricketts Fort, WV	585
Salamanca, NY	35,477
Shinnston, WV	3,410
Ten Mile Creek, Washington County, PA	6,894
Tygart Lake, WV, Access Road	5,021
West Elizabeth, PA	52,820
Weston, WV	38,785
Total Federal Cost for Current Fiscal Year	$875,530
Flood Control Activities - Section 205, 1948 Flood Control Act, PL 80-858, as amended	
Coordination Account	$13,412
Dawson, PA	26,747
Duquesne, Sewage Treatment Plant, PA	37
Follensbee, WV	4,981
Weirton, WV (Harmon Creek)	23,128
West Elizabeth, Mon River, PA	51,453
Total Federal Cost for Current Fiscal Year	$119,758
Aquatic Ecosystem Restoration - Section 206, 1996 WRDA, PL 104-303, as amended	
Buhl Park Lake, Sharon, PA	$106,007
Coordination Account	19,522
East Palestine, OH	31,766
Falls Run/Wheeling Creek, Belmont, OH	167,460
Lick Run, WV	117,823
Lorraine Pile, PA	504
Nine Mile Run, Allegheny County, PA	61,295
North Fork Yellow Creek, OH	1,076
North Park Lake, PA	386,298
Pringle Run, WV	420
Saxman Run	176,461
Total Federal Cost for Current Fiscal Year	$1,068,632
Modifications for Improvement of the Environment – Section 1135, 1986 WRDA, PL 99-662, as amended	
Bone Run, Kinzua	$76,544
Coordination Account	9,420
Preliminary Restoration Plan	1,136
Shenango River Lake, PA (Shorebird Habitat)	532
Tygart Lake, WV (Scab Run)	21,429
Tygart River Lake (Pleasant Creek Wetland)	(169)
Total Cost for Current Fiscal Year	$108,892
Flood Control and Coastal Emergencies - PL 99, 84th Congress and antecedent legislation	
Disaster Preparedness	$270,673
Emergency Operations	25,416
Rehabilitation	88,354
Total Federal Cost for Current Fiscal Year	$384,443

OHIO RIVER

For actual construction of locks and dams, and operation and care of completed structures, the Ohio River is divided into three sections under immediate supervision and direction of District Engineers at Pittsburgh, Huntington, and Louisville. Pittsburgh section extends 127 miles from head of river at Pittsburgh, PA, to a point immediately upstream from New Martinsville, WV, and includes Emsworth, Dashields, Montgomery, New Cumberland, Pike Island, and Hannibal Locks and Dams. Huntington section extends 311 miles from mile 127 to 438 immediately upstream from Foster, KY, and includes Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, and Captain Anthony Meldahl Locks and Dams. Louisville section extends 543 miles from mile 438 to mouth of river, and includes Markland and McAlpine Locks and Dams (with Louisville and Portland Canal), Cannelton, Newburgh, John T. Myers, and Smithland Locks and Dams, and Locks and Dams 52 and 53.

Improvements

Navigation

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Navigation

1. CONSTRUCTION OF LOCKS AND DAMS ON OHIO RIVER

Location. Ohio River is formed by junction of Allegheny and Monongahela Rivers at Pittsburgh, PA, and flows generally southwesterly for 981 miles to join Mississippi River near Cairo, IL. For description of river see page 1227, 1932 Annual Report.

Previous Projects. For details see page 1907 of Annual Report for 1915.

Existing project. Provides for improvement of entire river by construction of locks and dams to provide channel depth of 9 feet and for widening Louisville and Portland Canal at Louisville, KY. Project provides for two locks (110 feet by 600 feet and 56 feet by 360 feet) at Emsworth, Dashields and Montgomery. The dams at Emsworth and Montgomery are movable crests while at Dashields it is a fixed crest. Below Montgomery Locks and Dam, the existing project consists of fixed dams with movable crests with two locks (110 by 1,200 feet and 110 by 600 feet) at New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, Captain Anthony Meldahl, Markland, Cannelton, Newburgh, and John T. Myers; two locks 110 by 1,200 feet at Smithland; 110- by 1,200-foot temporary locks in addition to the existing locks at Locks and Dams 52 and 53, and reconstruction to provide a 110- by 1,200-foot lock in addition to existing locks and a fixed dam with two sections of movable crest at McAlpine Locks and Dam; widening Louisville and Portland Canal to 500 feet. Auxiliary lock 56 by 360 feet at McAlpine Locks and Dam has been inoperative since failure of downstream lock gates in December 1972. Rehabilitation of existing Locks and Dams 52 and 53 was started in September 1979 under the purview of Section 6, March 1909 Act. Mound City was also considered authorized under purview of 1909 Act, and preconstruction planning was performed in the period 1965 to 1972. The ruling of the U.S. District Court, District of Columbia, on September 6, 1974, with reference to Lock and Dam 26, Mississippi River, would also apply to this project. Consequently, it is no longer considered authorized. Operation and care of locks and

dams were included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. Estimated Federal cost of new work, is $3,600,490,636. Foregoing estimate does not include expenditures on previous projects. Various items previously included in this project are considered inactive or unnecessary and are excluded from foregoing cost estimate. See page 693, Annual Report, 1968, for items and estimated cost. Under authority of 1910 River and Harbor Act, Louisville and Portland Canal was widened to 200 feet; Locks and Dams 40 and 42 eliminated; Locks and Dams 1 and 2 replaced by Emsworth Locks and Dam; Lock and Dam 3 replaced by Dashields Locks and Dam; and Locks and Dams 4, 5, and 6 replaced by Montgomery Locks and Dam. Locks and Dams 24, 25, and 26 were replaced by Robert C. Byrd Locks and Dam authorized by August 30, 1935, Act, and constructed under project for improving lower Kanawha River. Locks and Dams 7, 8, and 9 were replaced by New Cumberland Locks and Dam; Locks and Dams 10 and 11 were replaced by Pike Island Locks and Dam; Locks and Dams 12, 13, and 14 were replaced by Hannibal Locks and Dam; Locks and Dams 15, 16, and 17 were replaced by Willow Island Locks and Dam; Locks and Dams 18, 19, and 20 were replaced by Belleville Locks and Dam; Locks and Dams 21, 22, and 23 were replaced by Racine Locks and Dam; Locks and Dams 27, 28, 29, and 30 were replaced by Greenup Locks and Dam; Locks and Dams 31, 32, 33, and 34 were replaced by Captain Anthony Meldahl Locks and Dam; Locks and Dams 35, 36, 37, 38, and 39 were replaced by Markland Locks and Dam; the Louisville and Portland Canal at McAlpine Locks and Dam was widened to 500 feet. Locks and Dams 43, 44, and 45 were replaced by Cannelton Locks and Dam; Locks and Dams 46 and 47 were replaced by Newburgh Locks and Dam; Locks and Dams 48 and 49 were replaced by John T. Myers Locks and Dam, and Locks and Dams 50 and 51 were replaced by Smithland Locks and Dam, as modifications to existing project under purview of Section 6, March 3, 1909 Act, reducing total number of structures to 20. The Water Resources Development Act of 1974 combined the Newburgh Bank Protection Works project with the Newburgh Locks and Dam project. A December 1981 Act established the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks and Dam to protect and preserve existing fossilized coral and a diversity of wildlife. A November 17, 1988 Act authorized a replacement structure for Locks & Dams 52 & 53 at Olmsted, IL. A November 28, 1990 Act authorized an interpretive center at the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks & Dam and a replacement of the existing 110 foot x 600 foot lock at McAlpine Locks & Dam, IN & KY. Table 19-J contains data relative to various features of locks and dams included in existing project. For list of principal towns and cities along Ohio River with their mileage below Pittsburgh, PA, see page 1060, 1962 Annual Report. See Table 19-I for licenses.

Navigation system of 20 locks and dams is in operation and 9-foot navigation throughout length of river is generally available at all times. At certain unstable bars project depth is maintained by dredging, supplemented by contraction works. (See "Open Channel Work, Ohio River.") Table 19-J shows cost and year completion of locks and dams now in operation. New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Greenup, Captain Anthony Meldahl, Markland, McAlpine, Cannelton, Newburgh, John T. Myers, and Smithland replacement locks and dams are in operation, replacing 39 old low-lift locks and dams. For total cost of existing project, see Table 19-H.

Terminal facilities. Modern public terminals, with warehouses, equipped with operating machinery for transferring materials, have been constructed by private interests at some of the larger cities and towns. A list of terminals on Ohio River is revised annually and can be obtained from Division Engineer, U.S. Army Engineer Division, Great Lakes & Ohio River, Cincinnati, Ohio.

Operations during fiscal year. New work by contract and hired labor:

Greenup Locks and Dam: WRDA 2000 authorized improvements to Greenup L&D, KY. A Preconstruction Engineering and Design study is underway consisting of preparation of plans and specifications for a mooring facility, geotechnical investigations, design report for the lock extension, mitigation model studies, and archaeological, historical, cultural, and biological work. Studies are scheduled for completion in 2005.

Robert C. Byrd Locks and Dam: The existing project, constructed under project for improving lower Kanawha River, was placed in operation in August 1937. The dimensions of the existing locks chambers and poor approach conditions, particularly to downstream traffic, have created a higher than normal accident rate to the structure with corresponding hazards and delays to traffic. The Water Resources Development Act of 1976 authorized Phase I studies for 1,200-foot locks in a bypass canal. These studies are complete.

Initial Construction, General funds for the continuation of Engineering activities were received in September 1985. Real estate acquisition is complete. The contract for the Locks was awarded in October 1987 and is complete. The contract for the Dam Rehabilitation was awarded in June 1993 and is 98 percent complete. The total estimated cost of the project is $381.0 million, which is 50 percent federal cost and 50 percent Inland Waterways Trust Fund cost.

Falls of the Ohio National Wildlife Conversation Area Was authorized by 97-137 on December 29,1981 and modified by Public Law 101-640 on November 28, 1990 to design and construct an interpretive center. The Conservation Area protects 1,000 acres, which consists of birdlife and other wildlife. Planning consisted of efforts to define facilities to be cost shared with local interests. All Real Estate tracts have been acquired and one tract remains in a condemnation trial. A construction contract to construct the cost-shared recreation facilities was awarded on 30 September 1993, and completed in February 1995. The Indiana Department of Natural Resources manages the area under a Public Park and Recreation Lease granted on 1 Jan 1992.

John T. Myers Locks and Dam: Construction was initiated in June 1965. All work is complete. An extension of the existing 600-foot x 110-foot auxiliary lock chamber to a 1,200-foot x110-foot chamber was authorized by the WRDA of 2000 in Public Law 106-541 on 11 December 2000. This effort will give the J.T. Myers project twin 1,200-foot locks for inland navigation tow traffic. A Preconstruction and Design study is underway consisting of the preparation of geotechnical investigations, design reports for the lock extension and aquatic mitigation, hydraulic model studies, and economic and archeological, historical, cultural and biological work. Studies are scheduled for completion in 2004.

McAlpine Locks and Dam: A replacement of the existing 110 foot x 600 foot lock with a new 100 foot x 1,200 foot lock was authorized by WRDA of 1990 in Public Law 101-640. Construction has been initiated. A contract to construct a cofferdam and demolish the 360 foot and 600 foot locks was awarded in May 2000 and was completed March 2003. A contract to construct a boat mooring facility was awarded 4 April 2002 for $2,680,000 and is 90% complete. A contract to construct the new 1,200 foot lock and an access bridge to Shippingport Island was awarded 24 Sep 2002 for $221,441,468. Notice to proceed was issued 30 Oct 2002. $133,658,000 has been allocated for the lock replacement and ancillary efforts.

Olmsted Locks & Dam: A replacement structure for Locks and Dams 52 & 53 was authorized by the WRDA of 1988 in Public Law 100-676 on 17 November 1988. Planning Engineering and Design continued. A contract to construct the approach wall was awarded 26 August 1999 for $98,980,610 and advanced to 94 percent completion. A contract to relocate the Village of Olmsted's Boat Ramp was awarded June 4, 2001, for $1,358,242 and was turned over to the user in October 2002. A contract for the Operating and Maintenance Bulkheads was awarded on September 27, 2001, for $24,156,000 and advanced to 70% complete. The design-build contract for the Gate Storage contract was awarded 8 March 2002 and advanced to 59% complete. The Mooring Cells were awarded 4 June 2002 and advanced to 95% complete. In April 2003 a contract was awarded to upgrade pump #1 at the Ballard Wildlife Management Area. The Dam P&S were completed in FY03 and the advertisement for construction began. In FY03, $29,967,500 was expended on the Olmsted project.

Emsworth Locks and Dam: FY03 effort included starting repairs on filling valves for the land chamber by hired labor, cost $1,238,210.

Montgomery Locks and Dam: In FY03 a security fence was installed, contract cost of $133,646.

New Cumberland Locks and Dam: In FY03 hired labor efforts included dewatering the river chamber and installing miter gates, cost $2,763,409.

Pike Island Locks and Dam: FY03 efforts included renovation of the river wall emptying valve by hired labor, cost $955,027.

Hannibal Locks and Dam: Hired labor efforts in FY03 replaced the middle wall filling valve, cost $860,649.

Dashields Locks and Dam: FY03 efforts included replacement of land wall filling and emptying valves at a hired labor cost of $952,754. A security fence was installed at a contract cost of $94,258.

Operation and maintenance, general. Locks and dams operated as required and necessary repairs and improvements made thereto and to operator's quarters, grounds and esplanades. Costs were $17,528,037 for Huntington District, $30,807,991 for Louisville District and $20,398,457 for Pittsburgh District.

2. OPEN CHANNEL WORK, OHIO RIVER

Location. Under jurisdiction of district engineer in whose district work is located. Portion of river included in project extends 974.7 miles from head of river at Pittsburgh, PA, to mouth of Cache River (Mound City, IL). Open channel improvement from mouth of Cache River to mouth of Ohio River is under jurisdiction of Mississippi River Commission.

Existing Projects. Before completion of canalization project, no project depth had been fixed by Congress under project for open channel work; but, in order to properly aid packet and barge navigation, it was necessary to secure a low-water channel with a minimum depth of 4 to 6 feet, and a width, depending upon

difficulty of running channel, of 400-600 feet; also, to permit movement of large coal tows, which movement occurred at stages of water exceeding 10 feet, it was necessary to remove points of projecting bars which formed at various locations along river. Accomplishment of this purpose involved concentration of current by closing back channels at islands with low dams, contraction and straightening wide open channels by low dikes, dredging bars and shoals, and removal of snags and wrecks. Incidental to direct improvement of Ohio River is construction and maintenance of ice piers as required for protection of river craft. Stage of extreme high water on Ohio River varies from 46 feet at Pittsburgh, PA, to 80 feet at Cincinnati, OH, with 57.2 feet at Louisville, KY (head of falls, 53.8 feet at Evansville, IN, and 59.5 feet at Cairo, IL (mouth of river). Estimated cost of new work is $16.16 million, exclusive of following items which are considered inactive: Ice piers authorized by 1927 River and Harbor Act; reforestation of sloughs of Kentucky Peninsula near Evansville, IN, authorized by 1930 River and Harbor Act; dredging to widen channel at certain points; and placing revetment at various points. Estimated cost of these items is $6,565,000. Operation of snag boats on Ohio River below Pennsylvania State line was included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. See Table 19-B for authorizing legislation.

New work under this project is substantially complete, since it is not anticipated that work on inactive portion of project will be accomplished. In addition to dredging, local stabilization of channel has been effected at various points by construction of dikes and revetment. Work, which remains, consists of dredging to widen channels at certain points to project depth.

Local cooperation. River and Harbor Act of January 21, 1927, authorizing construction of ice piers for general open channel work, imposes condition that before work is begun on any pier, local interests convey to the United States free of cost such riparian rights as may be deemed necessary in connection with the improvements at locality (H. Doc. 187, 67th Congr., 2nd Sess.). Existing ice piers are adequate for present purposes and local cooperation is not needed since no additional construction is under consideration. River and Harbor Act of July 3, 1930, provides for reforestation of sloughs of Kentucky Peninsula and bank protection and that no expense shall be incurred by the United States for acquiring lands required for purpose of this improvement (H. Doc. 409, 69th Congr., 1st Sess.). However, since no serious overbank erosion has occurred since bank revetment in 1933-34, reforestation is not considered justifiable at this time and no local cooperation is required.

Operations during fiscal year. Operation and maintenance, general: Dredging was done where required to provide an adequate and dependable channel of project depth at minimum pool conditions. Dikes and revetments were maintained and routine work of maintaining navigation aids, removing snags, making channel studies, hydrographic surveys and mapping was performed as required. Channel soundings, hydrographic surveys, steam gauging operations, channel inspections and aids to navigation, and miscellaneous inspections and reports cost $2,313,495. In FY 2003 dredging by contract in the Huntington District was 258,145 cubic yards at $1,205,235, Louisville District 697,526 cubic yards at $2,267,679, and Pittsburgh District 18,000 cubic yards at $251,915.

TABLE 19-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep 30, 2003	(footnotes)
1.	Construction of Locks & Dams on OH River	New Work						
		Approp.	$103,603,000	$87,527,000	$80,991,000	$57,341,500	$2,468,067,261	1 3 5 10 17 21
		Cost	104,909,063	87,242,902	80,736,124	58,015,792	2,467,742,907	1 3 6 11 12 15 16 18 22 23
		Maint.						
		Approp.	71,813,499	70,560,691	79,741,066	81,693,494	1,471,079,299	2 4 19
		Cost	71,541,494	70,809,500	73,159,376	68,733,288	1,451,202,973	2 13 14 19 20
		Rehab.						
		Approp.	0	0	0	0	82,972,138	
		Cost	0	0	0	0	82,972,138	
		Rehab.(O&M)						
		Approp.	0	0	0	0	33,914,252	
		Cost	0	0	0	0	33,914,252	
2.	Open Channel Work, Ohio River	New Work						
		Approp.	-	-	-	-	15,962,260	8
		Cost	-	-	-	-	15,962,260	8
		Maint.						
		Approp.	6,861,375	5,395,023	4,571,723	6,227,494	196,602,234	7 9
		Cost	6,837,404	5,148,194	4,835,993	5,899,144	195,953,913	7 9
		Rehab.						
		Approp.	-	-	-	-	944,649	
		Cost	-	-	-	-	944,649	

1 Includes $17,003,761 for previous 6-foot canalization project.

2 Includes $36,943,217 expended from 1885 to 1937 on operation and care of work of improvement under provisions of permanent indefinite appropriations for such purposes.

3 Includes $215,812 public works acceleration, executive 1963.

4 Includes $38,766 public works acceleration, executive 1963.

5 Excludes $251,769 contributed funds for new work.

6 Excludes $250,102 contributed funds for new work.

7 Excludes $1,621,349 expended in operation of snag boats under provisions of permanent indefinite appropriation for such purposes, and $267 transferred to project without reimbursement.

8 Includes $1,040,236 Public Works funds.

9 Includes $1,000 for removal of obstructions in Licking River under authority of Section 3, R&H Act of 1930.

10 Includes $100,000 placed in FY 1971 Budget Reserve.

11 Excludes $3,899 transferred from project without reimbursement.

12 Surplus property valued at $3,553 transferred to project without reimbursement.

13 Excludes $2,140 transferred to project without reimbursement.

14 Excludes surplus property valued at $73,832 transferred to project without reimbursement.

15 Includes $87,724,158 prior construction cost.

16 Excludes surplus property valued at $297,385 transferred to project without reimbursement.

17 Includes $549,392 Code 710 Funds, $572,162 Code 711 Funds, $532,677 Code 712 Funds and $1,759,812 Code 713 Funds.

18 Includes $549,392 Code 710 Funds, $342,162 Code 711 Funds, $532,677 Code 712 Funds and $1,989,812 Code 713 Funds.

19 Includes $2,158,073 Funds provided from The Productive Employment Appropriations Act of 1983 (PL 98-8).

20 Includes $920,945 cost for operations & care of previous projects.

21 Includes **$ 542,561,750** Inland Waterways Trust Funds.

22 Includes **$ 542,414,927** Inland Waterways Trust Funds.

23 Excludes $9,525,437 settlement from the U S Treasury Dept. Judgment Fund.

Table 19-B **Authorizing Legislation**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
2.		**Open Channel Work, Ohio River**	
March 3, 1827		Project adopted by this act originally covered entire length of Ohio River from its mouth near Cairo to Pittsburgh, a distance of 981 miles. It provided for removal of all obstructions, which tend to endanger steamboat navigation.	
January 21, 1927		Construct ice piers as a part of allotted from appropriations for general open channel work.	H. Doc. 187, 67th Cong., 2nd Sess.
July 3, 1930		Reforestation of sloughs on Kentucky Peninsula near Evansville, IN, and a 200-foot strip along bank and for bank protection at an estimated cost of $200,000.	H. Doc. 409, 69th Cong., 1st Sess.
July 3, 1958		Act of March 3, 1827, modified to include maintenance of existing Licking River Channel within lower 3-mile limit of river slack water, at an estimated increase of $1,000 in cost of average annual maintenance.	H. Doc. 434, 84th Cong., 2nd Sess.
		Locks and Dams, Ohio River	
December 29, 1981		Act of December 29, 1981, established the 1,000-acre Falls of the Ohio National Wildlife Conservation Area, at a cost not to exceed $300,000.	H.R. 2241, PL97-137, Title II, 95 Stat. 1710
November 17, 1988		Act of November 17, 1988 authorized a replacement structure for Locks and Dams 52 and 53 at Olmsted, Illinois.	PL 100-676, 100th Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990, modified PL 97-137 by authorizing an interpretive center at Falls of the Ohio National Wildlife Conservation Area, at an estimated total cost of $3,200,000.	PL 101-640, 101st Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990 authorized a modernization of the existing 110 foot x 600 foot lock at McAlpine Locks and Dam, Indiana and Kentucky at a total cost of $219,600,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 101-640, 101st Cong., 2nd Sess.
October 31, 1992		Act of October 31, 1992 renamed the Gallipolis Locks and Dam to the Robert C. Byrd Locks and Dam.	PL 102-580, 102nd Cong., 2nd Sess.
October 1, 1996		Act of October 1, 1996 renamed the Uniontown Locks and Dam to the John T. Myers Locks and Dam.	PL 104-303, 104th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at John T. Myers Locks and Dam, Indiana and Kentucky at a total cost of $181,700,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 106-541, 106th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at Greenup Locks and Dam, Kentucky and Ohio, at a total cost of $175,500,000 with one-half appropriated from the Treasury and one-half from the Inland Waterway Trust Fund.	PL 106-541, 106th Cong.
October 31, 2000		Act of October 31, 2000 authorized projects for ecosystem restoration on Ohio River Mainstem, Kentucky, Illinois, Indiana, Ohio, West Virginia and Pennsylvania at a total cost of $307,700,000 with an estimated Federal cost of $200,000,000 and an estimated non-Federal cost of $107,700,000.	PL 106-541, 106th Cong.

Table 19-H Construction of Locks and Dams on Ohio River Total Cost of Existing Project to September 30, 2003

(See Section 1 of Text)

Funds	New Work	Operations and Maintenance General	Rehabilitation	Total
Regular	$2,375,345,732	$1,410,241,256	$116,886,390	$3,902,473,378
Public Works	3,258,368	0	0	3,258,368
Emergency Relief	1,198,837	19,000	0	1,217,837
Maintenance & Operation	0	3,039,789	0	3,039,789
Public Works Acceleration	215,812	38,766	0	354,578
Executive 1963	0	0	0	0
Total	$2,380,018,749 [3]	$1,413,338,811 [1] [2]	$116,886,390 [4]	$3,910,243,950

[1] Excludes $36,943,217 expended from 1885 to 1937 under permanent indefinite appropriation.

[2] Excludes $920,945 cost for operation and care of previous projects.

[3] Excludes $87,724,158 prior construction cost.

[4] Includes $33,914,252 cost for O & M Rehabilitation.
Note: All other cost variations are listed in the Footnotes of Table 19-A.

Table 19-I Federal Energy Regulatory Commission Licenses At Locks and Dams, Ohio River

	Markland Dam	McAlpine Dam	Racine Dam	Greenup Dam	Hannibal Dam
F.E.R.C License	2,211	289:1,000	2,570	2,614	3,206
License	Public Service Co. of Indiana	Louisville Gas and Electric Co.	Ohio Power Co.	City of Vanceburg, Kentucky	City of New Martinsville, WV
Annual Charge	$ 45,950	$ 95,000	$ 64,232	$ 261,103	0
Collections to end of Fiscal Year 2003	$1,698,216.64	$9,670,353.94	$2,228,846	$5,195,883	$197,589.03

Table 19-J

Ohio River Locks and Dams
(See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills Upper (feet)	Depth on Miter Sills Lower (feet)	Character of Foundation Lock	Character of Foundation Dam	Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
1	-	Replaced	-	-	-	-	-	-	-	-	- -		$ 870,034
	6.2	Emsworth Locks	110	600	18.0	710.0	17.0 [1, 4]	12.9 [3]	Rock	Rock	100	1921	43,347,635 [2,13]
		Emsworth, PA	56	360			15.5 [1 ,5]	12.9 [3]		Piles			
2	-	Replaced	-	-	-	-	-	-	-	-	-	-	976,767
3	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,144,588
	13.3	Dashields Locks	110	600									
		and Dam 1.6 miles below Sewickley, PA	56	360	10.0	692.0	13.4 [1]	17.5 [3]	Rock	Rock	100	1929	37,447,328 [14]
4	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,071,472
5	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,080,132
6	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,123,442
	31.7	Montgomery	110	600									
		Locks and Dam, 1.4 miles above Industry, PA	56	360	17.5	682.0	16.0 [1]	14.6 [3]	Rock and Piles	Rock and Piles	100	1936	37,754,307 [15]
7	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,075,000
8	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,167,456
	54.4	New Cumberland	110	1,200									
		Locks and Dam, Stratton, OH	110	600	20.5	664.5	7.0 [1]	14.8 [3]	Rock	Rock	100	1959	39,099,688
9	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,177,100
10	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,138,000
11	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,162,165
	84.3	Pike Island Locks	110	1,200									
		and Dam, 2 miles upstream from Warwood, WV	110	600	21.0	644.0	17.0 [1]	18.0 [1]	Rock	Rock	100	1968	56,623,946
12	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,166,104
13	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,222,389
14	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,133,371
	126.4	Hannibal Locks	110	1,200									
		and Dam, 1.6 miles upstream from New Martinsville, WV	110	600	21.0	623.0	38.0	17.0	Rock	Rock	99	1972	87,902,000
15	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,180,478

Table 19-J (continued)

Ohio River Locks and Dams (See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills Upper (feet)	Depth on Miter Sills Lower (feet)	Character of Foundation Lock	Character of Foundation Dam	Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
16	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,275,532
	161.7	Willow Island	110	1,200									
		Locks and Dam, 2.7 miles above Waverly, WV	110	600	20.0	602.0	35.0	15.0	Rock and Piles	Rock	100	1972	78,173,881
17	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,362,591
18	-	Replaced	-	-	-	-	-	-	-	-	-	-	927,091
19	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,213,848
20	-	Replaced	-	-	-	-	-	-	-	-	-	-	936,696
	103.9	Belleville	110	1,200									
		Locks and Dam, 0.3 mile below Reedsville, OH	110	600	22.0	582.0	37.0	15.0 [3]	Rock and Piles	Rock	100	1968	62,591,255
21	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,484,562
22	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,218,798
23	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,851,488
	237.5	Racine Locks	110	1,200									
		and Dam, 1.5 miles below Letart Falls, OH	110	600	22.0	560.0	18.0	15.0	Rock and Piles	Rock	100	1971	64,922,680
24	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,187,542
25	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,925,205
26	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,307,241
	279.2	Robert C. Byrd Locks and Dam, 0.7 mile below 6 Hogsett, WV											
		Robert C. Byrd Modernization	110	1,200	-	-	-	-	-	-	-	-	3,452,066
27	Rehab	Dam and New Lock	110	1,200	23.0	538.0	18.0	15.0	Rock	Rock	100	1992	366,639,499 [16]
27	-	Replaced	110	600	-	-	-	-	-	-	-	-	
28	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,063,133
29	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,088,802
30	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,579,618
	341.0	Greenup Locks	110	1,200									
		and Dam, 4.9 miles below Greenup, KY	110	600	30.0	515.0	18.0 [1]	13.0	Rock	Rock	100	1959	57,464,191
31	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,359,231
32	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,951,216
33	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,937,166

Table 19-J (continued)

Ohio River Locks and Dams (See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills Upper (feet)	Depth on Miter Sills Lower (feet)	Character of Foundation Lock	Character of Foundation Dam	Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
34	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,437,057
	436.2	Captain Anthony	110	1,200									
		Meldahl Locks and Dam, 2.2 miles above Foster, KY	110	600	30.0	485.0	18.0 [1]	15.0	Rock	Rock	100	1962	74,188,216
35	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,894,942
36	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,704,535
37	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,297,924
38	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,857,040
	531.5	Markland Locks	110	1,200									
		and Dam, 1 mile above Markland, IN	110	600	35.0	455.0	50.0	15.0	Rock	Piles	100	1963	63,019,403
39	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,222,448
40	-	Eliminated	-	-	-	-	-	-	-	-	-	-	
41	-	-	-	-	-	-	-	-	-	-	-	-	7,658,134 [6]
		Falls of the Ohio, 1 mile above McAlpine	N/A	N/A					N/A	N/A	0	N/A	2,367,918
	604.0	McAlpine Locks	110	1,200		49.0	12.0						
		and Dam			37.0	420.0		11.0	Rock	Rock	100	1961	154,304,928 [6,7,18]
42	-	Eliminated	-	-	-	-	-	-	-	-	-	-	
43	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,592,242
44	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,819,930
45	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,202,890
	720.7	Cannelton Locks	110	1,200	25.0	383.0	38.0	13.0	Rock	Rock	100	1972	99,032,866 [9]
		and Dam, 3 miles above Cannelton, IN	110	600									
46	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,129,028
	776.1	Newburgh Locks	110	1,200									
		and Dam, 16 miles above Evansville, IN	110	600	16.0	358.0	32.0	16.0	Rock	Pile	99	1975	104,496,840
47	-	Replaced	-	-	-	-	-	-	-	-	-	-	4,415,526
48	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,062,710

Table 19-J (continued)

Ohio River Locks and Dams (See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet, mean sea level)	Depth on Miter Sills Upper (feet)	Depth on Miter Sills Lower (feet)	Character of Foundation Lock	Character of Foundation Dam	Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
49	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,325,964
	846.0	John T. Myers	110	1,200									
		Locks and Dam,	110	600	22.0	342.0	34.0	12.0	Rock	Rock	99	1975	102,190,120
		3.5 miles below Uniontown, KY											
50	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,571,762
51	-	Replaced	-	-	-	-	-	-	-	-	-	-	4,370,566
	918.5	Smithland Locks	110	1,200									
		and Dam, 2	110	1,200	22.0	324.0	34.0	12.0	Rock	Rock	99	1980	273,725,470
		miles above Smithland, KY											
52	938.9	1.4 miles below Brookport, IL	110	600	12.0	302.0	15.4	11.0	Pile	Pile	100	1928	13,337,747 [10]
	938.9	1.4 miles below Brookport, IL (New lock) Dam at Olmsted, IL	110	1,200	12.0	302.0	15.4	11.0	Pile	Pile	100	1969	10,197,516
53	962.6	10.8 miles above Mound City, IL	110	600	13.4	290.0	15.4	9.6 [8]	Pile	Pile	100	1929	10,004,240 [11]
	962.6	10.8 miles above Mound City, IL (New lock)	110	1,200	13.4	290.0	15.4	9.6	Pile	-	100	1982	38,570,920
	964.4	Olmsted Locks &	110	1,200	21.0	300.0	18.0	18.0	Pile	Pile	52	2008	600,120,806 [17]
	974.2	Mound City Lock and Dam, 1 mile below Mound City, IL	-	-	-	-	-	-	-	-	-	-	1,539,470 [12]
		TOTAL											$2,577,615,892 [19]

Table 19-J Ohio River Locks and Dams (Continued)

Footnotes

[1] Depths are on emergency dam foundation and re-controlling depths.

[2] Change from fixed dam to lift-gate dam completed in 1938.

[3] Depths are on poiree dam foundation and are controlling depths.

[4] Land chamber.

[5] River chamber.

[6] Lock and Dam 41 completed with 110- by 600-foot lock in 1921. Completed with new dam and raised canal and lock wall in 1928. Auxiliary 56- by 360-foot lock constructed in 1929-30. Reconstruction and modernization began 1956, renamed McAlpine Locks and Dam in 1960. Operation of auxiliary lock suspended in 1971.

[7] Existing structures are complete except for deferred alteration of railroad bridge. Construction of the new 110 foot x 1,200 foot lock began in September 2002.

[8] Dam below not yet constructed. Depth on lower miter sill at lower water.

[9] Excludes $2,219,975 payment for settlement of damage to dam caused by barge accident in April 1978.

[10] Major rehabilitation ($8,876,000) initiated in FY 79 is complete.

[11] Major rehabilitation ($4,593,572) initiated in FY 79 is complete.

[12] For preconstruction planning 1965 to 1972. No longer considered authorized. (See Section 1 of Text.)

[13] Includes $37,485,870 for major rehabilitation completed in FY 84

[14] Includes $33,914,252 for major rehabilitation completed in FY 90 (O&M funds).

[15] Includes $33,016,696 for major rehabilitation completed in FY 89.

[16] Includes $188,072,098 Inland Waterways Trust Funds.

[17] Includes $300,059,899 Inland Waterways Trust Funds.

[18] Includes $54,282,930 Inland Waterways Trust Funds.

[19] Exclusive of $7,013,405 details below.

Additional Features Entering into Cost of Project	
Louisville and Portland Canal and Indiana chute (under previous project).	$5,359,203
Examinations, survey contingencies, plants, and miscellaneous	966,232
Waterfront Development at Huntington, WV (Greenup Pool)	19,170
Recreation facilities, pool area, Gallipolis Locks and Dam.	668,800
Total	7,013,405
Grand Total	$2,584,629,297

BUFFALO, NY DISTRICT

The District comprises northern OH, northwestern PA and western and northern NY, embracing U.S. waters of Lake Erie exclusive of a small portion of the western end, Lake Ontario, and St. Lawrence River, with their tributary drainage basins from boundaries between the states of OH and MI to international boundary line east of Frontier, NY.

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NAVIGATION

1. ASHTABULA HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Ashtabula River, 59 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14836.)

Previous projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1593 of Annual Report for 1938.

Existing project. For description see pgs. 1297-99 of Annual Report for 1966. Federal cost of completed project is $12,240,147. Non-Federal costs of $5,743,000, including contribution of $47,000, were for construction of access roads, docks, storage and handling facilities and dockside dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed $47,000 for work authorized by 1936 and 1970 Acts.

Terminal facilities. There are sixteen piers and wharves. Coast Guard owns one facility. Ten facilities are along banks of Ashtabula River and six are on south side of outer harbor. Eleven terminals have railroad connections and six have mechanical handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.
Maintenance: Federal funds for project condition surveys cost $30,000. The U.S. Derrick boat *McCauley* and the Tug *Koziol* were used to repair 600 lf. of West Breakwater, rebuild 255 lf. of East Breakwater (laid up inside (Station 1350 to 1605) rubble mound outside), repair 255 lf. of rubble mound on East Breakwater, snag and clear 7 trees and remove and replace Light No. 4 for the Coast Guard. Dredging cost $460,441 to remove approximately 35,380 cubic yards of shoaled material from the inner harbor. (Depth 28 ft. LWD; width 1,000 ft; length .5 mi.) A total of $331,769 was expended for the Ashtabula River Partnership Project for removal of contaminated sediments from the Ashtabula River. This amount includes $2,670 expended for coordination with partnering agencies, $27,868 expended for the project's Comprehensive Management Plan and Environmental Impact Statement, and $301,231 expended for continuation of Preconstruction Engineering and Design.

2. BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY

Location. Improvement is essentially that of upper 13.5 miles of Niagara River from its head at Lake Erie, Buffalo, NY, to and including Tonawanda Harbor, NY. It comprises improvements formerly designated by three titles; Lake Erie entrance to Black Rock Harbor and Erie Basin, NY, Black Rock Harbor and Channel, NY and Tonawanda Harbor and Niagara River, NY. (See NOAA Nautical Chart 14832.)

Previous projects. For details, see items 5 and 7, pg. 1970 of Annual Report for 1915, and pg. 1612 of Annual Report for 1938.

Existing project. For description of existing project and Federally owned Black Rock ship lock, see pg. 1548 of Annual Report for 1962. Improvement of guide pier at Black Rock Lock, as authorized by 1935 Act was de-authorized by Congress in Aug 1977. Cost for completed portion of new work is $10,457,093. Enlarging of existing 21-foot turning basin and deepening lower 1,500 feet of Tonawanda Inner Harbor from 16 to 21 feet, authorized by the 1954 Act, was de-authorized by Congress in May 1981, and is excluded from foregoing cost. Non-Federal costs are estimated at $1,540,000 for costs incurred by NY State for construction of Erie Basin and protecting breakwater, and construction and extension of Bird Island Pier, and by other local interest for relocation of utilities. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with for existing project. Contract for cost-shared recreation development at completed projects (Code 713 program) was executed by the NY State Department of Environmental Conservation, Albany, NY on Apr 16, 1985, and was approved by the Assistant Secretary of the Army and Chief of Engineers on May 3, 1985.

Terminal facilities. Two facilities are along the upstream end of the channel. Below Black Rock Lock and at Tonawanda Harbor there are 13 privately owned terminals. There are two State-owned barge canal terminals at Tonawanda, NY, and several marine service and supply docks for recreational and other small craft. The Corps owns a wharf adjacent to Black Rock Lock that is private. Ten terminals have railroad connections and six mechanical-handling facilities. Facilities considered adequate for existing commerce. (Port Series No. 41, revised 1971, Corps of Engineers.)

Operations and results during fiscal year
Maintenance: The lock did not close for major maintenance during the 2003 fiscal year. All maintenance required during FY 2003 was accomplished with minimal impact on commercial and recreational navigation interests. Total costs of $1,950,390 were distributed as follows: Operation and care of lock and ordinary maintenance and repair cost $955,486. Project condition surveys cost

$4,110; water control management cost $17,997. A cost of $55,966 was incurred for clearing and snagging; $11,840 for stream gaging; $829,733 for rehabilitation of the upper west wall; $3,671 for rehabilitation of the upper west wing wall; $50,351 for engineering analysis of the lower west guide wall; $19,133 for real estate support and $2,104 for the O&M manual update.

3. BUFFALO HARBOR, NY

Location. At eastern end of Lake Erie, at head of Niagara River, 176 miles easterly from Cleveland, OH. (See NOAA Nautical Charts 14820 and 14833.)

Previous projects. For details see pg. 1967 of Annual Report for 1915 and pg. 1606 of Annual Report for 1938.

Existing project. For description see pg. 1368 of Annual Report for 1963. In addition, on Dec 15, 1980, OCE authorized the removal of bridge abutments of South Michigan Avenue Bridge. New work for completed project cost $18,837,601. Estimated non-Federal costs were $9,188,000 for deepening, widening, and improving Buffalo River and ship canal, constructing piers, retaining walls, and dikes and performing dockside dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. There are 27 piers, wharves, and docks of which five are on the outer harbor, nine are on the Lackawanna, Union, and Buffalo Ship Canals, and thirteen are located along the deep-draft section of the Buffalo River. Gateway Metroport, Division of Gateway Trade Center, Inc., owns and operates, for the former Bethlehem Steel Corp., wharves at Lackawanna for the receipt and shipment of general cargo and bulk commodities. Buildings of the former steel plant are utilized for transit and long-term storage of cargo as required. The Niagara Frontier Transportation Authority owns Terminals A and B in the outer harbor used for handling general cargo. Twenty terminals have railroad connections. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.
Maintenance: Federal funds for real estate support cost $9,830; project condition surveys cost $49,970; water control management cost $32,047. $170,601 was expended to rebuild 144 linear feet of collapsed crown on the North Breakwater using the U.S. Derrick boat *McCauley* and the Tug *Koziol*. Coastal mapping cost $101,489; engineering and design of the North Breakwater cost $147,683. Dredging cost $520,108 to remove approximately 78,750 cy of shoaled material. Environmental activities cost $16,330.

4. BUFFALO HARBOR ENVIRONMENTAL DREDGING, NY

Location: The eastern end of Lake Erie at the head of the Niagara River, 176 miles easterly from Cleveland, OH.

Previous projects: None

Existing project: An outer harbor, about 4-1/2 miles long and 1,600 feet wide, formed by a breakwater system, approximately parallel to the lake shore, 22,718 feet in length, with entrances near north end and south end and one confined disposal facility. A west breakwater 1,800 feet long located in Lake Erie protecting the north entrance. The inner harbor consists of a south pier at the mouth of the Buffalo River, about 5.8 miles of Federal Channel in the Buffalo River, and a 2-mile channel in the Buffalo Ship Canal.

Local cooperation: Fully complied with.

Terminal facilities: There are 13 wharves and docks located along the deep-draft section of the Buffalo River. Grain storage facilities, a cement transfer operation and a fuel storage/transfer operation are found along the Buffalo River on both banks. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.
Maintenance: $14,244 was expended to finalize the write-up of the recon report that involved the initiation of an investigation on the dredging of contaminated sediments outside and adjacent to the Federal navigation channels in Buffalo Harbor and in the Buffalo River. The recon report was submitted to HQ for certification in Dec 03. GI funds were budgeted for in FY04 to prepare a feasibility phase PMP and execute a Feasibility Phase Cost Sharing Agreement (FCSA).

5. CLEVELAND HARBOR, OH

Location. On south shore of Lake Erie, at mouth of Cuyahoga River, 176 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14839.)

Previous projects. For details see pg. 1962, Annual Report for 1915, and pg. 1585, Annual Report for 1938.

Existing project. For description of existing project, as authorized through the 1966 modification, see pg. 1269 of Annual Report for 1967. Further improvements in the interest of commercial navigation and recreational navigation were authorized in the 1985 Supplemental Appropriations Act (PL 99-88). For details of the commercial navigation portion of the project, see pg. 20-4 of the Annual Report for 1995. For details of the recreational navigation portion of the project, see pg. 20-3 of Annual Report for 1994. The Water Resources Development Act of 1986 (PL 99-662) and the FY 88 Energy and Water Appropriations Act (PL 100-202) authorized the recreational navigation project. These acts authorized additional undefined improvements to Cleveland Harbor. A portion of the project was de-authorized by the Inter-model Surface Transportation Efficiency Act of 1991. Estimated total Federal cost of the existing project is $33,852,100 (Oct 1991) exclusive of undefined, inactive and deferred portions of the project. The amount of $29,315,100 is for completed work and the balance of $4,537,000 is for new work. Estimated non-Federal cost is $13,740,000 (Oct 1991) of which $9,203,000 is actual cost for completed work and the balance of $4,537,000 is required for work authorized by PL 99-88, PL 99-662, and PL 100-202. Remaining work authorized by 1946 River and Harbor Act, consisting of widening and deepening the right bank of Cuyahoga River at the downstream end of Cut 4, is considered inactive and excluded from foregoing cost estimate. Estimated Federal cost (1966) of this portion is $85,600 and non-Federal cost (1966) $5,000,000. Remaining work authorized by 1958 R&H Act, consisting of planning and replacement of bridges number 19 (E.L.R.R.) and 32 (B. & O.R.R.) and widening Cuyahoga and Old River channels, and remaining work authorized by the 1960 R&H Act, consisting of deepening the remainder of the Cuyahoga River from bridge number 1 to and including the Old River to a depth of 27 feet, has been classified as deferred and is also excluded from foregoing estimate. Estimated Federal cost (Oct 1976) of this portion is $18,033,300 and estimated non-Federal cost (Oct 1976) is $21,251,000. The 1989 Energy and Water Development Appropriations Act (PL 101-101) authorized the Corps to begin a Reconnaissance study of the Cuyahoga River, to address the concerns of boat traffic congestion and related risks, accidents and safety of the public. Preliminary plans were studied to alleviate the commercial navigation problem and inadequate width and depth, in the Old and Cuyahoga Rivers. The cost of this Reconnaissance study was $250,000. The Reconnaissance Report recommended a feasibility study for one plan which has three structural features and the potential for yielding commercial (priority) outputs. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility phase of the study. Therefore, the study was reclassified as "inactive". (See Table 32-B for authorizing legislation.) A confined disposal facility (CDF) (Dike 10B) was constructed adjacent to the Burke Lakefront Airport for containment of dredged material from Cleveland Harbor. The rubble mound structure was designed to hold material unsuitable for open-lake disposal. The sixty-eight (68) acre site should provide sufficient CDF capacity for approximately twenty years. The project was constructed with Federal O&M funds at a cost of $17,500,000 and was completed in 1998.

Terminal facilities. Fifty-one piers, wharves, and docks are situated in the Port of Cleveland. Eleven are located in the east and west basins of the outer harbor; 7 along the banks of the Old River and 17 and 16 along the right and left banks of the Cuyahoga River, respectively. Twenty-two terminals have both railroad connections and mechanical-handling facilities. The Corps owns a wharf at the foot of East 9th Street. The City of Cleveland owns and operates a wharf for mooring the city fireboat. U.S. Coast Guard vessels are moored east of the foot of 9th Street in the east basin. (See Port Series No. 43, revised 1989, U.S. Army Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $50,000; dredging cost $2,122,817 to remove approximately 355,000 cubic yards of shoaled material from the Cuyahoga River. (Depth 23-26 ft. LWD; width 100+ ft.; length 5.5 mi.) Contract will be finalized in FY 04. Costs for the Confined Disposal Facility (CDF) Site 10B cost $81,562. In order to achieve original design consolidated capacity of 2,900,000 cubic yards at the CDF, a capacity investigation and the design of the south perimeter berm were initiated in May 2003. Technical documents will be completed in January 2004. Following FAA review and approval, a berm or filling plan will be implemented. A total of $809,123 was expended to repair 30 lf. of the East Breakwater (station 28+50 to 28+80); 300 lf. of rubble mound on the West Arrowhead (lakeside); rebuild 200 lf. of the West Arrowhead (100 lf. lakeside, 100 lf. shore side); rebuild 60 lf. of the East Shore Arm of the East Arrowhead at three locations and snag and clear at the East Shore Arm and harbor channel. $1,737 was expended for coordination with Detroit District to evaluate feasibility of using Detroit's floating plant to repair the east rubble mound breakwater and complete cost comparison with contract construction. Real estate support cost $10,851; engineering and design of the East

Breakwater cost $268,153. Economic evaluation of the harbor, a review of future dredge disposal capacity, and preliminary investigations to determine the feasibility of extending the life of the existing CDF, cost $105,679. Initiation of the DMMP Phase I was initiated in May 2003 and will be completed in May 2004. The Preliminary Assessment and Scope of Work were drafted during FY 2003 and will be completed in FY 2004. Extensive DMMP coordination with the Cleveland area Federal and non-Federal municipal and regulatory agencies occurred during FY 2003. A Letter of Intent will be provided to the Corps of Engineers in FY 2004. In addition, an Interim Dredged Material, Disposal Study as initiated and will be completed in FY 2004. A credit of $14,990 was a result a Real Estate Administrative Fee collection for processing an outgrant with the Northeast Ohio Regional Sewer District for a sewer outfall extending thru the U.S. West Breakwater.

6. CONNEAUT HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Conneaut River, 73 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14824.)

Previous projects. For details see pg. 1964, Annual Report for 1915.

Existing project. For description see pg. 1274 of Annual Report for 1967. Actual costs for new work for completed portion of the project were $7,541,369. For completed work, non-Federal costs were $200,000 for dockside dredging and removal of existing dolphins. The most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910, was de-authorized Oct. 96. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with for completed portion of project.

Terminal facilities. There are seven piers and wharves. Six are privately owned and operated and located in inner harbor. Remaining facility is city owned on the south side of outer harbor. Six terminals have railroad connections and four mechanical-handling facilities. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $16,000. Environmental studies cost $47,377. Structure repairs cost $398,363 to repair 850 l.f. of West Breakwater and to fortify rubble mound around the navigation light and East Breakwater.

7. DUNKIRK HARBOR, NY

Location. On south shore of Lake Erie, 37 miles southwesterly from Buffalo, NY. (See NOAA Nautical Chart 14823.)

Previous projects. For details see pg. 1966 of Annual Report for 1915, and pg. 1604 of Annual Report for 1938.

Existing project. For description of completed portion of existing project see pg. 32-8 of Annual Report for 1976. For description of small boat harbor project as authorized under Section 201 of Flood Control Act of 1965, see pg. 32-8 of Annual Report for 1978. Actual costs for completed work are $3,010,024. Actual non-Federal costs are $1,961,000. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $29,925. $208,825 was expended for dredging to remove approx. 13,961 cubic yards from the outer entrance channel. (Depth 17 ft. LWD; width 300 ft.; length 600 ft.) $100,774 was expended to clear brush off the breakwater using the workboat *Palmetto*.

8. ERIE HARBOR, PA

Location. On southerly side of bay formed by Presque Isle Peninsula, on south shore of Lake Erie, 78 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14835.)

Previous projects. For details see pg. 1965 of Annual Report for 1915 and pg. 1600 of Annual Report for 1938.

Existing projects. For description see pgs. 1363-64 of Annual Report for 1963. The FY 93 Appropriations Act (PL102-377) authorized the planning, design and dredging of an access channel and berthing area. Entire project modification authorized by 1945 River and Harbor Act, providing for deepening channel and basin, both 23 feet deep, to Penn Central Company coal docks at westerly end of harbor, was de-authorized by Congress in Aug 1977. Actual costs for new work for completed portion of project were $2,860,906. Extension of north pier portion, authorized by 1899 Act was de-authorized in Nov 1981. A portion of work authorized by 1960 Act, deepening strips adjacent to north and south piers, was de-authorized in Aug 1982. Non-Federal costs for completed work were $51,000 for providing ore dock and dredging slip adjacent thereto. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Sixteen piers and wharves, of which twelve are privately owned and operated. Erie International Marine Terminal No. 1 owned by Port Commission, City of Erie, is along main waterfront on south side of Presque Isle Bay and Coast Guard facilities are on north side. Two offshore oil docks are on Lake Erie. Eight terminals have railroad connections and six mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $40,000; real estate cost $10,000; and environmental activities cost $40,905. Miscellaneous costs for the Confined Disposal Facility were $975. The north pier safety ladders cost $39,230.

9. FAIRPORT HARBOR, OH

Location. On south shore of Lake Erie at mouth of Grand River, 33 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14837.)

Previous projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1590 of Annual Report for 1938.

Existing project. For description of existing project, see pg. 1526 of Annual Report for 1962. Total Federal cost of $2,591,000 is actual cost for completed portion of project. Total non-Federal cost is $101,000 for bulkheads and dockside dredging for completed portion of project. (See Table 20-B for authorizing legislation.)

Local cooperation. See pg. 32-11 of 1976 Annual Report regarding assurances of local cooperation for work authorized by R&H Act of 1927.

Terminal facilities. Sixteen piers and wharves, all along banks of Grand River. Coast Guard owns one facility. Nine terminals have railroad connections and ten mechanical-handling facilities. Facilities considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $40,000. Dredging cost $673,159 to remove approximately 67,775 cubic yards of shoaled material from the entrance channel and river. (Depth from 22-26 ft.; width 200+ ft.; length 1.5 mi.) $765,225 was expended to repair 300 l.f. rubble mound on the East Breakwater and rebuild 200 l.f. of East Breakwater, station 1220 to 1100.

10. GREAT SODUS BAY HARBOR, NY

Location. On Sodus Bay, which is a nearly land-locked indentation on south shore of Lake Ontario, 29 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14814.)

Previous project. For details, see pg. 1972 of Annual Report for 1915, and pg. 1526 of Annual Report for 1938.

Existing project. For description, see pg. 1380 of Annual Report for 1963. Improvements authorized by 1962 Act, consisting of deepening lake approach channel, entrance channel and inner approach channel were deauthorized by Congress in Aug 1977. Actual costs of new work for completed portion of project were $249,187. Costs incurred by local interests are not available. (See Table 20-B for authorization legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $17,912 and real estate activities resulted in a credit of $37. Environmental activities cost $6,930 and coastal mapping cost $57,843.

11. HURON HARBOR, OH

Location. On south shore of Lake Erie at mouth of Huron River, 47 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14843.)

Previous project. For details, see pg. 1961 of Annual Report for 1915, and pg. 1576 of Annual Report for 1938.

Existing project. For description, see pg. 1347 of Annual Report for 1963 and pg. 32-12 of Annual Report for 1978. Cost of completed portion of existing project was $4,834,006. Construction of detached breakwater as authorized by 1962 R&H Act was de-authorized Jan 1, 1990. Non-Federal costs of $163,000 were incurred by local interests in 1963 for dockside dredging of areas between Federal improvement and terminal facilities. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Six privately owned wharves and docks, one along left bank of Huron River and remainder along right bank. Four terminals have railroad connections and four mechanical-handling facilities. Facilities are regarded as adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $50,000. Dredging cost $870,898 to

dredge 223,931 cubic yards of shoaled material from the inner river. (Depth 27 ft.; width 150+ ft.; length 3,000 ft.)

12. LITTLE SODUS BAY HARBOR, NY

Location. Little Sodus Bay, on south shore of Lake Ontario, 15 miles west of Oswego, NY. (See NOAA Nautical Chart 14803.)

Previous projects. For details see page 1973 of Annual Report for 1915, and page 1628 of Annual Report for 1938.

Existing project. For description see page 1378 of Annual Report for 1958. New work for completed project cost $69,066. Non-Federal costs of $6,000 were incurred for channel dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Not required.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities cost $6,969; coastal mapping cost $57,978; and real estate costs resulted in a credit of $51.

13. LORAIN HARBOR, OH

Location. On south shore of Lake Erie at mouth of Black River, 25 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14841.)

Previous projects. For details, see pg. 1961 of Annual Report for 1915, and pg. 1580 of Annual Report for 1938.

Existing project. For description see pgs. 1319-22 of Annual Report for 1966. Federal cost of new work is $20,475,000. Deepening and widening remainder of Black River Channel at Cut 1 and construction of bank stabilization, authorized by 1960 Act and modified by 1965 Act was de-authorized Jan 1, 1990. A portion of work authorized by 1960 Act, dredging of 15-to-25 foot wide strips adjacent to the U.S. East and West Piers were also de-authorized Jan 1, 1990. Total non-Federal cost is $3,000 contributed by local interests towards construction of west shore arm. (See Table 20-B for authorizing legislation.) The Water Resources Development Act (WRDA) of 1986 (PL 99-662) authorized construction of commercial navigation improvements consisting of two bend cuts on the Black River to widen and straighten the channel between the Norfolk and Western Railroad Bridge and the 21st Street Bridge. These cuts are to be excavated to the existing channel depth of 27 feet. The authorized plan also includes widening the Upper Turning Basin at the existing depth of 21 feet. Estimated costs for this work are $2,290,000 Federal and $1,510,000 non-Federal (Oct 1989). This portion of the project has been classified deferred. On Mar 12, 1986, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbors Act, as amended, authorized construction of a small boat harbor that was completed in Jul 1987. The project consists of a 225-foot detached rubble mound breakwater and an 800-foot long rubble mound breakwater attached to the east breakwater shorearm in the east basin of the outer harbor. Construction costs for this project, including supervision and administration, were $775,025 Federal and $775,025 non-Federal.

Local cooperation. For completed work, local interests contributed $3,000. Work authorized by 1960 Act (and modified by 1965 Act) is de-authorized. All other conditions fully complied with. On Mar 25, 1986, the City of Lorain, OH signed the Local Cooperation Agreement (LCA), for the Section 107 project. For details see pg. 32-7 of Annual Report for 1986. For details of LCA for deferred project authorized by the 1986 WRDA, see pgs. 32-9 of Annual Report for FY 87.

Terminal facilities. There are 23 piers and wharves, of which three are on the outer harbor and the remainder is along banks of Black River. Two are owned by the city. Eight terminals have railroad connections and 15 mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $50,000. Federal funds for the East Pier construction (880 feet long by 20 feet wide) cost $1,907,010. The project is 98% complete. The contract will be finalized in FY 2004. The construction contract ($2.8 million) for the West Pier (1,000 feet long by 17 to 23 feet wide) was awarded in Sep 2003. $280,970 was expended on the West Pier for plans and specifications, field inspections, diving inspections, subsurface investigation, Design Document Report, and a value engineering study. Construction of the project is about 5% complete. Real estate cost was $2,000. A credit of $850 was a result of a real estate administrative fee collected for processing an Outgrant with the Lorain Port Authority for recreational use of the Lorain Harbor, OH, Federal navigation project. Dredging cost $504,171 to remove approximately 61,917 cubic yards of shoaled material from the Federal channel. (Depth 18-28 ft.; Width 240 ft.; Length 14,000 ft.) Costs for initiating the Dredged Material Management Plan (DMMP) were $244,305. These costs included the cost of completing the Preliminary

Assessment and Scope of Work for the DMMP. $119,860 was expended to modify the weir structure. $ 683,483 was expended to repair 300 l.f. of rubble mound on the West Breakwater; rebuild 250 l.f. of West Breakwater (125 l.f. lakeside; 125 l.f. shore side); rebuild 20 l.f. of collapsed crown and slope stone on the West Breakwater; and install missing truck tire bumpers along Lorain City Dock.

14. OAK ORCHARD, NY

Location. On south shore of Lake Ontario, at mouth of Oak Orchard Creek, 33 miles westerly of Rochester, NY. (See NOAA Nautical Chart 14805.)

Previous project. For details see pg. 628 of Annual Report for 1905.

Existing project. For description of completed existing project see pg. 32-14 of 1975 Annual Report. Actual Federal cost for completed project was $1,613,500. Estimated non-Federal cost is $270,000 (Jul 1971) including cash contribution of $170,700 and $54,002 for recreational facilities and remainder for lands and construction of wharf. Existing project was authorized by the 1945 River and Harbor Act (H. Doc. 446, 78th Cong., 2nd sess.).

Local cooperation. Fully complied with. Local interests contributed $224,702.

Terminal facilities. There is no commercial navigation at Oak Orchard Harbor. Terminal facilities consist of private docks for recreational craft.

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities were $29,832. Real estate activities resulted in a credit of $25.

15. OLCOTT HARBOR, NY

Location. On south shore of Lake Ontario at mouth of Eighteen Mile Creek about 18 miles east of mouth of Niagara River and 63 miles by water west of Rochester, N.Y. (See NOAA Nautical Chart 14806.)

Previous project. For details see page 1971 of Annual Report for 1915 and page 1621 of Annual Report for 1938.

Existing project. For description see page 1555 of Annual Report for 1962. Cost of new work for completed project was $1,500 exclusive of amount expended on previous projects, all of which was contributed by local interests. (See Table 20-B for authorizing legislation.) The authorized modification to the existing project consists of breakwaters to provide optimum harbor protection a stone jetty and recreational fishing facilities including a footbridge, walkways and guardrails, access facilities, sanitary facilities and parking areas. The estimated cost of the authorized modification is $17,000,000 (Oct. 1990) of which $8,500,000 is Federal and $8,500,000 is non-Federal. Modification of the existing project was authorized by the 1986 Water Resources Development Act (WRDA) (PL 99-662).

Local cooperation. Fully complied with for completed project. Local interests contributed $1,500. Modifications authorized by the 1986 WRDA will require local interests to pay 50% of project cost including lands easements, right-of-way and dredge disposal areas. They are also responsible for construction of necessary docks and berthing spaces, construction of launching ramp, parking areas, sanitary facilities, and necessary access roads. After construction, non-Federal responsibilities would include fishing facility maintenance, except for the aids to navigation.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support cost $5,000.

16. OSWEGO HARBOR, NY

Locations. On South shore of Lake Ontario, at mouth of Oswego River, 59 miles easterly from Rochester, NY. (See NOAA Nautical Chart 14813.)

Previous projects. For details see pg. 1973 of Annual Report for 1915, and pg. 1630 of Annual Report for 1938.

Existing project. For description see pgs. 1383-84 of Annual Report for 1963. Completed portion of project cost $7,242,039 and non-Federal costs for completed work were $4,440,000 for lands, dockside dredging, construction of terminal wharves, and cargo handling facilities. Deepening a 200-foot wide strip along harbor line east of mouth of Oswego River, remaining feature of work authorized by the 1930 Act, was de-authorized Jan 1, 1990. Deepening to 22 feet a 150-foot wide strip along harbor line in west outer harbor, remaining feature of work authorized by 1940 Act, was de-authorized in May 1981. The portion of the Federal Channel from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of Lake Street Bridge authorized by the 1910 R&H Act as amended by the 1935 R&H Act was de-authorized Oct 96. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. There are seven piers and wharves in the harbor and along the river channel. The Port of Oswego owns and operates a general

cargo terminal at the mouth of the Oswego River. The Port Authority also operates a grain elevator west of the mouth of the river. The U.S. Coast Guard moors patrol and environmental research vessels west of the mouth of the river.

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities cost $87,966 and coastal mapping cost $57,978. Real estate cost resulted in a credit of $18.

17. OTTAWA RIVER HARBOR, MI & OH

Location. At westerly end of Lake Erie, at Toledo, OH 99 miles westerly from Cleveland, OH (See NOAA Nautical Chart 14847).

Existing project. A reevaluation study and report investigated the authorized project as described in the 1976 Phase I General Design Memo (GDM) and developed several scaled down alternatives including: (1) No Action, (2) dredging of a five-foot shallow draft recreational access channel approximately 14,700 feet in length from Lake Mile (LM) 3.15 of the Toledo Harbor shipping channel in a northwesterly direction to the mouth of the Ottawa River then continuing approximately 9,500 feet upstream to the Summit Street Bridge. (3) Same as 2 except at four-feet deep. (4) Same as 2 except extending a four-foot channel approximately 8,000 feet in the Ottawa River between Summit Street and Suder Avenue. (5) Same as 2 except adding by dredging an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek. (6) Same as 2 except adding by dredging an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. (7) Same as 4 except adding by dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run (8) same as 2 except adding by dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. The locally preferred plan is 8, dredging of a five-foot shallow draft recreational access channel approximately 14,700 feet in length from Lake Mile (LM) 3.15 of the Toledo Harbor shipping channel in a northwesterly direction to the mouth of the Ottawa River then continuing approximately 9,500 feet upstream to the Summit Street Bridge and dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. However, at the present time this plan has not received approval. The project, originally authorized under provisions of Section 201 of the 1965 Flood Control Act, (PL 89-298) by the House and Senate Committees on Public Works Resolutions, dated December 15 and 17, 1970, respectively, was continued by the 1990 Water Resources Development Act (PL 101-640).

Local cooperation. The potential local sponsor is the city of Toledo, OH. The local sponsor must provide 50% of the total project cost that includes lands, easements, rights-of-way, and relocations.

Operations and results during fiscal year. New Work: FY03 cost was $116,691 to conduct a new re-evaluation study and write the Reevaluation Report.

18. PORT CLINTON HARBOR, OH

Location. Comprises lower half-mile of Portage River. River empties into Lake Erie 72 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14820.)

Existing project. Provides for parallel jetties at river mouth and a channel in Lake Erie and Portage River with a project depth of 10 feet. For additional details, see pg. 1899 of Annual Report for 1951. (See Table 20-B for authorizing legislation.)

Terminal facilities. A total of 11 docks exist; one public fish dock, one private sand dock, one private fuel dock, one lumber dock, one coal dock and five private docks. The Village of Port Clinton owns a dock at the foot of Madison Avenue that is open to the public. A shipyard builds small boats. Terminal facilities are adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support cost $29,899.

19. PORT ONTARIO HARBOR, NY

Location. On southeasterly end of Lake Ontario, 19 miles northeasterly of Oswego, N.Y. and 32 miles southerly of Sackets Harbor, N.Y. (See NOAA Nautical Chart 14803.)

Previous projects. Adopted by the River and

Harbor Act July 4, 1836. Only information available is the index to the report of the Chief of Engineers.

Existing project. As modified by Phase I and II General Design Memorandum, provides for: (a) two shore connected rubble mound breakwaters in Lake Ontario at mouth of Salmon River, south breakwater about 1,350 feet and north breakwater about 350 feet long; (b) entrance channel between breakwaters, 100 feet wide and 8 feet deep, from deep water in lake to a limit about 1,200 feet from 8-foot depth contour in lake; (c) river channel 85 feet wide and 6 feet deep from inner limit of entrance channel for a distance upstream of about 450 feet. Federal cost for project was $2,221,873. Non-Federal cost for new work was $1,467,132 including cash contribution of $1,431,507. Existing project was authorized by the River and Harbor Act of Mar 2, 1945 (H. Doc 446, 78th Cong., 2d sess.).

Local cooperation. See page 32-16 of Annual Report for 1976 for details of requirements of local cooperation. Assurances were received from the New York State Office of Parks, Recreation and Historic Preservation. The LCA was executed on Jun 24, 1986.

Terminal facilities. The only commercial navigation at Port Ontario is charter boat fishing. Terminal facilities consist of private docks for recreational craft.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support resulted in a credit of $26.

20. ROCHESTER HARBOR, NY

Location. On south shore of Lake Ontario, at mouth of Genesee River, 59 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14815.)

Previous project. For details see pg. 1471 of Annual Report for 1915, and pg. 1623 of Annual Report for 1938.

Existing project. For description see pg. 1556 of Annual Report for 1962. Actual cost for new work for completed project is $2,191,514. Non-Federal costs are estimated at $2,260,000, all for 1960 Act, for lands, relocation of submarine cable crossing, relocations of small docks and boathouses, dockside dredging, structure modifications, and replacement of Baltimore & OH coal loader. (See Table 20-B for authorizing legislation.)

Local cooperation. Complied with except provision for replacement of coal loading facility as required by River and Harbor Act of Jul 14, 1960.

Terminal facilities. There are 3 docks at Rochester Harbor. The City of Rochester owns an 830-foot long wharf at the entrance to the Genesee River. Three storage buildings at the terminal, formerly used as transit sheds, have approximately 100,000 square feet of storage space. Approximately 3 acres of open storage area is located at the upper end of the facility. The facility has not been used for handling cargo for over 10 years. The U.S. Coast Guard moors search and rescue vessels at the mouth of the Genesee River. Another private facility is located 1.6 miles above the Stutson Street Bridge.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support were $5,000; environmental activities cost $120,796; project condition surveys cost $35,000; and coastal mapping cost $38,876.

21. ROCKY RIVER, OH

Location. At mouth of Rocky River which empties into Lake Erie seven miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing project. For description see pg. 1329 of Annual Report for 1966. Federal cost for completed project was $343.494 and non-Federal cost was a cash contribution of $249,346. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed $249,346 for new work.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $20,000 and environmental activities cost $55,540.

22. SACKETS HARBOR, NY

Location. On south shore of Black River Bay at easterly end of Lake Ontario, about 41 miles northerly of Oswego, N.Y. (See NOAA Nautical Chart 14802.)

Previous project. For details see page 3160 of Annual Report for 1896 and page 2809 of Annual Report for 1898.

Existing project. For description see page 2456 of Annual Report for 1948. Actual cost for new work for completed portion of project was $19,010. Deepening of the harbor area to project dimensions as authorized by 1945 Act, was deauthorized by Congress in May 1981. (See Table 32-B for authorizing legislation.)

Local cooperation. See page 2457 of 1948 Annual Report for details.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned

servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support resulted in a credit of $52.

23. SANDUSKY HARBOR, OH

Location. On south shore of Lake Erie, in southeastern portion of Sandusky Bay, 50 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14845.)

Previous project. For description see pgs. 1511-12 of Annual Report for 1962. Actual costs for new work for completed project were $6,250,121, excluding $325,000 contributed by local interests. Non-Federal costs for completed project are estimated at $675,000, including $325,000 cash contribution and the remaining $350,000 is for dockside dredging adjacent to deepening channels authorized by 1960 Act. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed $325,000 for new work.

Terminal facilities. Fourteen piers and wharves, three at west end of harbor and remainder along dock channel. One is a base for State-owned fish research and patrol boats. One publicly owned and six privately owned used for mooring fishing boats and recreational craft and for ferry service. Five terminals have railroad connections and five mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY. Maintenance: Federal funds for project condition surveys cost $60,000; real estate support cost $58; and economic evaluation cost $18,814. Dredging cost $962,922 to remove approximately 239,891 cubic yards of shoaled material from the upper bay channel (Depth 25 ft.; width 150 ft.; length; 8,000 ft.)

24. STURGEON POINT, EVANS, NY

Location. On south shore of Lake Erie, 17 miles southwest of Buffalo, NY and 22 miles northeast of Dunkirk, NY. (See Geological Survey map of Angola, NY.)

Existing project. For description of existing project, see pg. 20-11 of Annual Report for 1991. Federal project cost is $ 1,460,000. Non-Federal project cost is $1,475,000. In addition, the local sponsor provided associated costs for upland development of $1,000,000.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with the Town of Evans, NY, signed Oct 26, 1987.

Operations and results during fiscal year. Maintenance: Federal funds for sand by-pass reimbursement cost $14,898.

25. TOLEDO HARBOR, OH

Location. Comprises lower seven miles of Maumee River and channel through Maumee Bay to Lake Erie. Maumee River has its source in northern Indiana and empties into Lake Erie. Harbor is at the westerly end of Lake Erie, 99 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14847.)

Previous projects. For details see pg. 1959 of Annual Report for 1915, and pg. 1565 of Annual Report for 1938.

Existing project. For description of existing project see pgs. 32-18 and 32-19 of Annual Report for 1978. Cost of completed existing project was $15,567,147. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Thirty-five piers, wharves and docks are located in the Port of Toledo. Seven are located on Maumee River; and 28 are equally divided along the right and left banks of the lower seven miles of the Maumee River. The Toledo-Lucas County Port Authority Facility No. 1 Wharf handles conventional and containerized general cargo as well as an increasing amount of miscellaneous bulk materials. Fifteen of the terminals have railroad connections and mechanical handling facilities. (See Port Series No. 44, revised 1989, U.S. Army Corps of Engineers.)

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $115,000. Dredging cost $568,377 to remove 1430,063 cubic yards of shoaled material from the Maumee Bay (Depth 29 ft.; width 500 ft.; length 1 mi.). $1,642,714 was expended to remove 476,000 cubic yards of shoaled material from the Maumee River. (Depth 28ft.; width 400 ft.; length 2 mi.). Costs to continue the Long-Term Management Strategy (LTMS) were $101,923. These costs included the cost of finalizing the Environmental Assessment for the LTMS recommendations, and finalization of the LTMS Phase 4 report. These costs included initiation of the plans and specifications for reutilization of Grassy Island, also known as Island 18.

26. TOUSSAINT RIVER, OH

Location. At westerly end of Lake Erie, 8 miles west of Port Clinton and 22 miles east of Toledo, Ohio. (See NOAA Nautical Chart 14847.)

Existing project. For description of existing project, pg 20-12 of Annual Report for 1991. (See Table 20-B for authorizing legislation.) Project is deferred due to discovery of unexploded ordnance in the dredging area.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with Carroll Twnsp., OH, signed Apr 3, 1991.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $20,000. Dredging cost $104,549 to provide technical assistance to the local sponsor in an effort to minimize the amount of dredging required on a regular basis. This project is cost shared and the local sponsor was unable to provide their cost share until FY04. Dredging of the Toussaint River will start on March 19, 2004 and be completed by the end of March 2004.

27. VERMILION HARBOR, OH

Location. On south shore of Lake Erie at mouth of Vermilion River, 37 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing project. For description of existing project see pgs. 32-17 and 32-18 of Annual Report for 1975. Actual Federal cost for the completed existing project was $1,156,118. Estimated non-Federal cost for new work is $754,679 including cash contribution of $740,679 and remainder for relocation of submarine cable and construction of public wharf. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed $740,679.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. A reconnaissance study to alleviate the ice-jam and free-flow flooding of the river was completed in 1986 at a cost of $180,000. The proposed project was an ice-retention structure. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility study; the project was therefore reclassified as "inactive".

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities cost $56,883; project condition surveys cost $16,000. $109,954 was expended to repair around the East Breakwater navigation light and rebuild 92 l.f. of the East Breakwater from the navigation light (channel side).

28. WEST HARBOR, OH

Location. On southwest shore of Lake Erie, 13 miles northeast of Port Clinton, OH. (See NOAA Nautical Chart 14847.)

Existing project. For description of existing project, see pg. 32-10 of Annual Report for 1983. Total Federal cost for new work was $3,303,898. Total non-Federal cost for new work was $3,922,000 including cash contribution of $3,795,000. Existing project was authorized by 1965 River and Harbor Act (H. Doc. 245, 88th Cong., 2nd sess.).

Local cooperation. See pg. 32-20 of 1978 Annual Report for requirements of local cooperation. By letter dated Jan 31, 1978, State of OH stated its intent to furnish assurances of local cooperation, and executed LCA was received on Mar 9, 1981.

Terminal facilities. Commerce at the harbor presently consists of recreational boating and affiliated activities.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost $27,500.

29. WILSON HARBOR, NY

Location. At mouth of east branch of Twelve-Mile Creek, which enters Lake Ontario 12 miles easterly of mouth of Niagara River, and 67 miles westerly of Rochester Harbor, NY. (See NOAA Nautical Chart 14806.)

Previous projects. For details see pg. 2395 of Annual Report for 1889, and pg. 628 of Annual Report for 1905.

Existing project. For description of existing project see pg. 32-18 of Annual Report for 1975. Actual Federal cost for completed existing project was $477,904. Estimated non-Federal costs are $774,000 that includes cost of $16,000 for previously completed work. Remainder of non-Federal costs is for work required for 1968 R&H Act including cash contribution of $166,988. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support resulted in a credit of $77. Project condition surveys cost $8,975.

30. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys performed by the Buffalo District cost $68,381.

Project	Date of Survey
Port Clinton, OH	Nov 2002
Cooley Canal, OH	Jul 2003
Cattaraugus Creek, NY	Dec, Jan 2002
Port Ontario, NY	Dec, Jan 2002
Oak Orchard, NY	Dec, Jan 2002
Olcott Harbor, NY	Dec, Jan 2002
Irondequoit, NY	Dec, Jan 2002
Great Sodus, NY	Dec, Jan 2002
Little Sodus, NY	Dec, Jan 2002
Niagara River, NY	Dec, Jan 2002

NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

31. NEW YORK STATE CANAL SYSTEM

Location. The New York State Canal System runs primarily east west through New York State. It consists of 4 components: Erie Canal, Oswego Canal, Cayuga/Seneca Canal, and Champlain Canal.

Existing Project. Reimburse the State of New York 50% of non-Federal operation, maintenance and rehabilitation costs as well as make capital improvements. Sec. 1105, WRDA 1986 and Sec. 553, WRDA 1996 and Sec 341, WRDA 1999 authorized the existing project.

Local Cooperation. Fully complied with.

Terminal Facilities. Numerous piers, wharves and locks used for recreational craft.

Operations and Results during FY. New work Funds in the amount of $408,208 were expended to prepare a Decision Document and reimburse the state of NY for a completed project.

SHORE PROTECTION

32. PRESQUE ISLE PENINSULA, ERIE, PA

Location. At Erie, PA, on south shore of Lake Erie, 78 miles southwest of Buffalo, NY and 102 miles east-northeast of Cleveland, OH. (See NOAA Nautical Charts 14824 and 14835.)

Existing Project. For description of completed portion of existing project see pg. 1393 of Annual Report for 1963. For details of project authorized by the 1974 Water Resources Development Act (WRDA), 1976 WRDA and 1986 WRDA, see pg. 32-14 of Annual Report for FY 87. Actual Federal cost for the authorized beach nourishment project modifications through FY 92 is $16,879,000 which includes $5,646,000 for completed work authorized by the 1954 and 1960 R&H Acts and 1974 WRDA Act and $11,233,000 for completed work authorized by the 1976 WRDA Act. Actual non-Federal cost for the authorized project and modifications through FY 92 is $8,798,000 which includes $3,983,000 for completed work authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act and $4,815,000 for completed work authorized by the 1976 WRDA Act. Beach nourishment as authorized by the 1976 WRDA was completed in FY 91. The estimated Federal cost (Oct 1999) for the 55 breakwaters project is $66,335,000. This estimate includes $13,435,000 for the initial construction and $52,900,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project is also $66,335,000. The estimated Federal cost (June 2003) for the 55 breakwaters project is $56,310,000. This estimate includes $13,435,000 for the initial construction and $42,875,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project is also $56,310,000. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed project as authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act. An agreement between the United States of America and the Commonwealth of PA, acting through the Department of Environmental Resources was entered into on Feb 21, 1979 for the annual nourishment which was extended by the 1976 WRDA Act.

Operations and Results during FY. New work: Annual nourishment for a 50 year period, beginning in FY 93, continued in FY 03 for the eleventh year of this 50-year period. Federal expenditures were $384,773 for the nourishment contract, and $46,374 for contract supervision and administration. Non-Federal costs were $381,108 for the nourishment contract, $39,081 for contract supervision and administration; $250,000 for the North Pier modification construction contract.

FLOOD CONTROL

33. MT. MORRIS LAKE, GENESEE RIVER, NY

Location. Dam is on Genesee River 66.9 miles above river mouth and about 32 miles southwesterly of Rochester, NY. Reservoir is in Livingston and Wyoming Counties, NY. (See Ecological Survey maps of Nunda and Portage, NY).

Existing Project. For description of existing project, as authorized by 1944 Flood Control Act, see pg. 1575 of Annual Report for 1962. New work for completed project cost $23,365,559. In addition, $5,000 contributed funds were expended for new work.

Local Cooperation. None required. Local interests contributed $5,000 for new work.

Operations and Results during FY.
Maintenance: Federal funds for the operation of the dam, reservoir and service facilities, real estate support and miscellaneous reports were accomplished by hired labor at a cost of $966,914. Flood emergency plans cost $95,630; water control management cost $374,150 and $42,824 for dam safety. Operation and maintenance costs for the visitor center and recreation facilities were $302,613; debris removal cost $162,013. Costs for road repairs were $484,180.

URBAN STORM WATER MANAGEMENT

34. ONONDAGA STORM WATER DISCHARGE, NY

Location. Onondaga Lake is located in Central NY State, northwest of the City of Syracuse, within the Oswego River Basin, which is tributary to Lake Ontario. It is also part of the NY State Barge Canal System. (See Geological Survey map of Syracuse, NY.)

Existing Project. Existing project is authorized under Section 307 of the Waters Resources Development Act of 1992 (PL 102-580) and will demonstrate the effectiveness of using swirl concentrator system technology for combined Sewer Overflow abatement at Hiawatha Boulevard to improve water quality in Onondaga Lake. The project has three separate components: interceptor sewers; a treatment and storage facility; and out fall pipe and force main which will be designed and constructed by others. Federal cost will be $3,406,000. Non-Federal cost is estimated to be $3,786,000.

Local Cooperation. The project will be cost-shared 75% Federal, 25% non-Federal up to the maximum Federal contribution ($4,000,000).

Operations and Results during FY. New work: Federal costs for FY 03 were $1,998,932. Non-federal costs were $433,259.

MISCELLANEOUS

35. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM (CDPP)

Local Preparedness.....$15,639
National Emergency Facilities.....13,143
National Preparedness.....4,577
Training and Exercise Task Force.....47
Total CDPP.....$33,406

36. ANTI-TERROISM/FORCE PROTECTION

Anti-terrorism/Force
Protection.....$176,851

37. REGULATORY FUNCTIONS PROGRAM

Permit Evaluation.....$2,786,091
Enforcement.....918,577
Administrative Appeals.....2,451
Total Regulatory.....$3,707,119

38. FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

Buffalo District began work in FUSRAP in October 1997 when Congress transferred this Program from the Department of Energy (DOE) to the Corps. Eight sites were assigned at that time. Total FUSRAP expenditures for FY03 were $42,942,642. The FY03 accomplishments for these sites are briefly stated in the following paragraphs:

Niagara Falls Storage Site, Lewiston, NY – The Remedial Investigation (RI) and Feasibility Study (FS) continued and on-going site maintenance, monitoring and surveillance were accomplished. The Gamma Walkover and Geophysical Report and the Technical Project Planning meeting to determine FS alternatives were completed. Total FY 2003 expenditures were $5,328,603.

Ashland 1, Tonawanda, NY – The remedial action at the Ashland 1/Seaway D area was completed (2933 tons in FY03) and 90% of the site backfilling and restoration was completed. Work plans for the Rattlesnake Creek portion of the site were initiated. Total FY 2003 expenditures were $7,130,914.

Ashland 2, Tonawanda, NY – The remediation of this site was completed in 1999 and the only work accomplished in FY03 was assembling of cost recovery records. Total FY 2003 expenditures were $22,527.

Praxair (Linde Air Products, Tonawanda, NY) – The Linde site has three operable units: Soils; Building 14; and Groundwater. The Soils remedial action continued with 43,000 tons removed and disposed of off-site and backfill placement amounted to 73,000 tons. The Record of Decision was executed for building 14 and the real estate interests acquired. Work continued on the Feasibility Study Amendment for the groundwater. Total FY 2003 expenditures were $24,900,341.

Seaway Industrial Park, Tonawanda, NY – Work continued on the Feasibility Study Report, and the land use control requirements were identified. Total FY 2003 expenditures were $414,981.

Luckey Site, Luckey, OH – The Feasibility Study was completed, and the Proposed Plan prepared, released and a Public Meeting held. Total FY 2003 expenditures were $478,960.

Painesville Site, Painesville, OH – The Remedial Investigation/Feasibility Study was completed and the Proposed Plan was coordinated with stakeholders. Total FY 2003 expenditures were $372,128.

Former Harshaw Chemical Co., Cleveland, OH – The Remedial Investigation continued with Phase 1 of the fieldwork completed and Phase 2 initiated.

Scioto Laboratory Complex, Marion, OH– The draft Preliminary Assessment was completed and coordinated internally. FY 2003 expenditures were $35,206.

Dayton Unit 1, Dayton OH – The Preliminary Assessment / Site Inspection was completed and coordinated with stakeholders. FY 2003 expenditures were $70,077.

Old Warehouse, Dayton, OH – Efforts continued to obtain Rights of Entry so that the fieldwork can be conducted here leading toward an SI Report. FY 2003 expenditures were $36,723.

Former Guterl Specialty Steel Corp., Lockport, NY – The coordination continued to determine whether or not to add this site into the Program. Total FY 2003 expenditures were $10,135.

Dayton Unit III, Dayton, OH – The fieldwork and testing were completed and the Draft Site Inspection Reports were prepared. Total FY 2003 expenditures were $68,077.

Dayton Unit IV, Oakwood, OH – The fieldwork and testing were completed and the Draft Site Inspection Reports were prepared. Total FY 2003 expenditures were $68,032.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
NAVIGATION							
	1. Ashtabula Harbor, OH	New Work Approp.					12,805,339 [1]
		New Work Cost					12,805,339 [1]
		Maint. Approp.	654,643	1,643,341	2,637,676	1,804,884	24,423,460
		Maint. Cost	654,441	1,635,336	2,599,191	1,858,631	24,423,463
		Rehab. Approp.					6,077,000
		Rehab. Cost					6,077,000
	(Contributed Funds)	New Work Contrib.			175,000		175,000
		New Work Cost			128,349		128,349
	2. Black Rock Channel Tonawanda Harbor, NY	New Work Approp.					11,135,120 [2]
		New Work Cost					11,135,120 [2]
		Maint. Approp.	1,908,300	1,780,439	3,538,316	1,931,314	73,173,517 [3]
		Maint. Cost	1,906,871	1,783,978	3,534,834	1,950,390	73,168,444 [3]
	(Contributed Funds)	New Work Contrib.					620,000
		New Work Cost					620,000
	3. Buffalo Harbor, NY	New Work Approp.					23,115,187 [4]
		New Work Cost					23,115,187 [4]
		Maint. Approp.	662,363	312,938	111,730	1,048,040	68,414,046 [5]
		Maint. Cost	654,623	320,444	112,451	1,048,058	67,365,989 [5]
		Rehab. Approp.					295,457
		Rehab. Cost.					295,457
	4. Buffalo Harbor, NY, Environmental Dredging	Maint. Approp.	24,375	(170)	22,964	14,209	172,004
		Maint. Cost	26,221	67	22,928	14,244	172,002
	5. Cleveland Harbor, OH	New Work Approp.					36,550,299 [6]
		New Work Cost					36,550,299 [6]
		Maint. Approp.	5,686,707	7,974,969	4,337,409	3,437,174	230,757,499 [7]
		Maint. Cost	5,733,286	7,966,353	4,361,881	3,434,931	230,752,420 [7]
		Rehab. Approp.					16,404,903

[1] Includes $565 for previous projects. Excludes $47,000 contributed funds.
[2] Includes $58,027 for previous projects.
[3] Includes $4,922 emergency relief authority administrative costs transferred for new work to maintenance upon conversion to programming & budgeting system Jul 1, 1953 by direction of Office, Chief of Engineers. Also includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
[4] Includes $4,277,586 for previous projects. Excludes expenditures of $239,305 for work authorized by Sec. 107.
[5] Includes $1,883,647 for previous projects. Excludes $446,805 contributed funds.
[6] Includes $1,564,154 for previous projects. & appropriation & cost of $16,596 for modification authorized for construction under authority of Sec. 107, 1960 R&H Act.
[7] Includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operations of Dams and Other Improvements of Navigable Waters. Excludes $201,960 contributed funds.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Rehab. Cost					16,404,903
	(Contributed Funds)	New Work Contrib.					1,083,178
		New Work Cost					1,083,178
		Maint. Contrib.					7,750,725
		Maint. Cost	23,649	1,414	6,725		7,660,723
	6. Conneaut Harbor, OH	New Work Approp.					8,346,641 [8]
		New Work Cost					8,346,641 [8]
		Maint. Approp.	570,235	25,500	24,563	524,100	16,311,043 [9]
		Maint. Cost	570,177	25,595	24,511	524,152	16,311,045 [9]
		Rehab. Approp.					651,850
		Rehab. Cost					651,850
	7. Dunkirk Harbor, NY	New Work Approp.					3,010,024 [10]
		New Work Cost					3,010,024 [10]
		Maint. Approp.	413,202	257,226	332,493	335,392	6,378,486
		Maint. Cost	412,640	257,788	328,361	339,524	6,378,485
		Rehab. Approp.					1,950,000 [11]
		Rehab. Cost					1,950,000 [11]
	8. Erie Harbor, PA	New Work Approp.					3,597,873 [12]
		New Work Cost					3,597,873 [12]
		Maint. Approp.	110,122	145,377	43,907	131,016	24,068,959 [13]
		Maint. Cost	109,828	146,524	43,965	131,110	24,068,958 [13]
		Rehab. Approp.					1,154
		Rehab. Cost					1,154
	9. Fairport Harbor, NY	New Work Approp.					2,959,611 [14]
		New Work Cost					2,959,611 [14]
		Maint. Approp.	1,619,655	1,651,213	1,685,743	1,477,466	27,756,837
		Maint. Cost	1,616,193	1,659,137	1,685,739	1,478,384	27,756,837
	10. Great Sodus Bay Harbor, NY	New Work Approp.					
		New Work Cost					
		Maint. Approp.	265,964	7,235	32,282	64,704	3,276,292
		Maint. Cost	265,879	7,320	32,251	64,735	3,276,292
		Rehab. Approp.					
		Rehab. Cost					

[8] Includes $805,272 for previous projects.
[9] Includes $39,784 for previous projects.
[10] Includes $811,250 for previous projects. Excludes $11,000 contributed funds.
[11] Includes $176,520 for previous projects.
[12] Includes $736,967 for previous projects.
[13] Includes $104,900 for previous projects. Excludes $154,500 contributed funds.
[14] Includes $368,940 for previous projects.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
11.	**Huron Harbor, OH**	New Work Approp.					5,103,795 [15]
		New Work Cost					5,103,795 [15]
		Maint. Approp.	655,338	57,723	918,922	920,870	25,388,077
		Maint. Cost	650,557	62,804	918,895	920,898	25,388,077
		Rehab. Approp.					247,030
		Rehab. Cost					247,030
	(Contributed Funds)	New Work Approp.					63,079
		New Work Cost					63,079
12.	**Little Sodus Bay Harbor, NY**	New Work Approp.					301,394 [16]
		New Work Cost					301,394 [16]
		Maint. Approp.			35,488	64,080	5,690,011
		Maint. Cost			34,672	64,895	5,690,010
		Rehab. Approp.					742,822
		Rehab. Cost					742,822
13.	**Lorain Harbor, OH**	New Work Approp.					22,240,670 [17]
		New Work Cost					22,240,670 [17]
		Maint. Approp.	1,211,476	1,261,238	1,404,953	3,793,549	46,094,495
		Maint. Cost	1,208,239	1,261,644	1,411,601	3,790,948	46,091,867
	(Contributed Funds)	New Work Contrib.					845,551
		New Work Cost					845,551
31.	**New York State Canal System, NY**	New Work Approp	3,355,000			408,000	7,563,000
		New Work Cost	3,359,703			408,208	7,562,940
14.	**Oak Orchard, NY**	New Work Approp.					1,586,996 [18]
		New Work Cost					1,586,996 [18]
		Maint. Approp.	152,932	60,861	1,000	29,807	825,497
		Maint. Cost	151,782	62,012	1,000	29,807	825,498
15.	**Olcott Harbor, NY**	New Work Approp.					2,025,210 [19]
		New Work Cost					1,754,694 [19]
		Maint. Approp.			5	4,957	691,604 [20]
		Maint. Cost			5	4,957	699,735 [20]
		Rehab. Approp.					14,447 [21]

[15] Includes $269,789 for previous projects.
[16] Includes $232,328 for previous projects.
[17] Includes $292,203 for new work for previous projects. Excludes $3,000 contributed funds. Also excludes appropriation and cost of 29,570 under authority of Sec. 197, 1960 R&H Act.
[18] Excludes $224,702 contributed funds.
[19] Includes $140,210 for previous projects. Excludes $1,500 contributed funds.
[20] Includes $38,959 for previous projects. Excludes $5,000 contributed funds.
[21] Excludes $186,000 Public Works Acceleration Act.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Rehab. Cost					14,477 [21]
	16. Oswego Harbor, NY	New Work Approp.					8,430,016 [22]
		New Work Cost					8,430,016 [22]
		Maint. Approp.	837,377	969,387	33,980	145,910	11,184,770 [23]
		Maint. Cost	892,145	972,172	34,092	145,926	11,184,769 [23]
		Rehab. Approp.					307,590
		Rehab. Cost					307,590
	17. Ottawa River Harbor, MI & OH	New Work Approp.				148,000	490,000
		New Work Cost				116,691	390,648
	18. Port Clinton, OH	New Work Approp					-
		New Work Cost					-
		Maint. Approp.		27,828	84,416	9,878	1,194,076
		Maint. Cost		27,828	84,542	9,899	1,194,223
		Rehab Approp.					-
		Rehab Cost					-
	19. Port Ontario, NY	New Work Approp.					2,369,621 [24]
		New Work Cost					2,368,989 [24]
		Maint. Approp.			1,000	(26)	34,235
		Maint. Cost			1,000	(26)	34,235
	(Contributed Funds)	New Work Contrib.					1,361,335
		New Work Cost					1,361,335
	20. Rochester Harbor, NY	New Work Approp.					2,439,308 [25]
		New Work Cost					2,439,308 [25]
		Maint. Approp.	23,578	698,445	38,847	198,900	25,442,409
		Maint. Cost	23,878	698,436	38,302	199,672	25,442,388
		Rehab. Approp.					-
		Rehab. Cost					-
	21. Rocky River, OH	New Work Approp.					343,494
		New Work Cost					343,494
		Maint. Approp.	201,954	1,250,731	(3,847)	76,207	5,204,960
		Maint. Cost	196,597	1,241,236	11,033	75,540	5,189,413
	22. Sackets Harbor, NY	New Work Approp.					25,010 [26]
		New Work Cost					25,010 [26]

[22] Includes $1,187,977 for previous projects.
[23] Includes $945,684 for previous projects.
[24] Includes $50,000 for previous projects.
[25] Includes $247,794 for previous projects.
[26] Includes $271,380 for previous projects.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Maint. Approp.			10,000	(52)	33,587
		Maint. Cost			10,000	(52)	33,587
	23. Sandusky Harbor, OH	New Work Approp.					6,727,270 [27]
		New Work Cost					6,727,270 [27]
		Maint. Approp.	1,009,650	641,476	102,049	1,040,998	26,284,507
		Maint. Cost	959,348	691,909	101,317	1,041,183	26,283,899
		Rehab. Approp.					675,606
		Rehab. Cost					675,606
	(Contributed Funds)	Maint. Contrib.					15,445
		Maint. Cost					15,445
	24. Sturgeon Point, NY	New Work Approp.					1,718,700 [28]
		New Work Cost					1,718,140 [28]
		Maint. Approp.	21,685	21,284	8,072	14,898	153,418
		Maint. Cost	21,835	21,284	8,072	14,898	153,416
	(Contributed Funds)	New Work Contrib.					1,299,008
		New Work Cost					1,299,008
	25. Toledo Harbor, OH	New Work Approp.					17,191,842 [29]
		New Work Cost					17,191,842 [29]
		Maint. Approp.	2,770,943	2,819,520	3,230,052	2,847,709	134,766,710
		Maint. Cost	2,734,301	2,829,309	3,259,950	2,849,841	131,766,709
	26. Toussaint River, OH	Maint. Approp.	141,957	254,149	14,993	125,549	940,342
		Maint. Cost	142,431	226,245	42,897	125,549	967,340
	(Contributed Funds)	Maint. Contrib.	15,000	49,811			189,811
		Maint. Cost	52,772	59,413			189,810
	27. Vermilion Harbor, OH	New Work Approp.					1,156,118 [30]
		New Work Cost					1,156,118 [30]
		Maint. Approp.	431,875	384,267	22,120	182,440	3,865,941
		Maint. Cost	430,738	385,404	21,723	182,837	3,865,941
		Rehab. Approp.					139,775
		Rehab. Cost					139,775
	28. West Harbor, OH	New Work Approp.					3,303,898
		New Work Cost			(35)		3,303,863
		Maint. Approp.		51,311	5,374	27,422	2,069,984

[27] Includes $477,149 for previous projects. Excludes $325,000 contributed funds.
[28] Excludes $5,000 contributed funds.
[29] Includes $1,624,695 for previous projects
[30] Excludes $740,679 contributed funds.

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Maint. Cost		51,311	5,296	27,500	2,069,984
	(Contributed Funds)	New Work Contrib.					3,795,000
		New Work Cost					3,795,000
	29. Wilson Harbor, NY	New Work Approp.					535,246 [31]
		New Work Cost					535,246 [31]
		Maint. Approp.	195,068	17,593	10,000	8,898	1,193,651
		Maint. Cost	194,378	18,283	10,000	8,898	1,193,651
	SHORE PROTECTION						
	32. Presque Isle Peninsula, Erie, PA	New Work Approp.	357,000	486,000	612,000	717,000	36,059,049
		New Work Cost	379,725	513,790	622,366	681,147	36,020,972
		Maint. Approp.					4,978
		Maint. Cost					4,978
	(Contributed Funds)	New Work Contrib.	520,000	580,000	290,500	830,000	26,910,369
		New Work Cost	303,080	518,659	573,394	670,189	26,079,040
	FLOOD CONTROL						
	33. Mount Morris Lake, Genesee River, NY	New Work Approp.					23,365,559 [32]
		New Work Cost					23,365,559 [32]
		Maint. Approp.	2,577,432	1,776,256	1,943,573	2,452,977	40,699,866
		Maint Cost	2,540,550	1,754,897	2,010,926	2,428,324	40,643,795
	34. Onondaga Storm Water Discharge, NY	New Work Approp.	264,256	4,190,000	801,000	1,903,500	10,305,562
		New Work Cost	1,064,543	560,600	623,108	1,998,932	6,792,039
	(Contributed Funds)	New Work Contrib.	50,000	(54,023)	641,050	725,945	5,054,472
		New Work Cost	1,478,178	129,876	37,437	433,259	4,111,056

[31] Includes $57,342 for previous projects. Excludes $166,998 contributed funds.
[32] Includes study cost of $117,000 under authority Sec 205, 1948 Flood Control Act. Excludes $17,493 in contributed cost.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
1		**ASHTABULA HARBOR, OH**	
	Jun 3, 1896	Construction of breakwater.	Annual Report, 1895, p. 2132
	Mar 3, 1905 Jun 25, 1910	Enlarge outer harbor by extending west breakwater and constructing new east breakwater pier heads on lakeward ends of breakwaters; remove part of old east breakwater.	H. Doc. 654. 61st Cong., 2nd sess.
	Mar 2, 1919	Extend west breakwater to shore; dredge outer harbor to a depth of 20 feet.	H. Doc. 997, 64th Cong., 1st sess.
	Aug 30, 1935	Remove portion of east breakwater to extend breakwaters to present dimensions and dredging restrictions in portion of west basin.	H. Doc. 43, 73rd Cong., 1st sess.
	Aug 26, 1937	Dredge channel through outer harbor, channel of approach to Penn Central Co. slip, channel Ashtabula River, to and in turning basin all to present project dimensions; remove portion of old east inner breakwater and Maintenance to 24-foot depth of portion of outer harbor.	Rivers and Harbors Committee Doc. 78, 74th Cong., 2nd sess.
	Mar 2, 1945	Extend river channel to present project limit.	H. Doc. 321, 77th Cong., 1st sess.
	Sep 3, 1954	Dredging approach channel and turning basin in east outer harbor to 25-foot depth.	H. Doc. 486, 83rd Cong., 2nd sess.
	Jul 14, 1960	A depth of 29 feet in soft and 30 feet in hard material in entrance channel to just inside outer ends of Breakwaters, thence 28 feet in soft and 29 feet in hard material in a channel to inner breakwater, thence 27 feet in soft and 28 feet in hard materials in a channel extending to Penn Central Co. slip and extending 2000 feet up Ashtabula River, 22 feet in hard material in turning area; and 28 feet in soft and 29 feet in hard material in areas adjacent to 250-foot section of inner breakwater when that section is removed as now authorized.	H. Doc. 148, 86th Cong., 1st sess.
	Oct 27, 1965	Dredging approach channel and turning basin in east outer harbor to 28 feet in soft material and 29 feet in hard material.	H. Doc. 269, 89th Cong., 1st sess.[33]
2		**BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY**	
	Aug 11, 1888 Jun 3, 1896	Dredging channel through horseshoe reef at outlet of Lake Erie and Tonawanda Inner Harbor to 16 feet.	H. Ex. Doc. 83, 50th Cong., 1st sess., Annual Report. 1888, p. 206 and Annual Report, 1897., pp.3116-3120
	Jun 13, 1902	Deepening Tonawanda Creek to 16 feet.	H. Doc. 143, 56th Cong., 1st sess. and Annual Report, 1900 p. 4152

[33] Contains latest published map.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jun 13, 1902 Aug 8, 1917	Dredging channel from Buffalo outer harbor to foot of Maryland St., Buffalo, to 21 feet.	H. Doc. 125, 56th Cong., 2nd sess., and Annual Report 1901, p. 3343
	Mar 3, 1905	Dredging channel from foot of Maryland St., Buffalo, to natural deep water pool upstream from Tonawanda Harbor to 21 feet; construction of ship lock and bridge; and repair of Bird Island pier towpath wall.	H. Doc. 428, 58th Cong., 2nd sess.
	Jul 27, 1916	Dredging channel along Tonawanda Island, with turning basin at its downstream end at the foot of the Island, to 21 feet.	H. Doc. 658, 63rd Cong., 2nd sess.
	Mar 2, 1919 Mar 2, 1945	Dredging triangular area at junction with Buffalo north Entrance channel.	H. Doc. 1004, 65th Cong., 2nd sess. & H. Doc. 92, 79th Cong., 1st sess. H. Doc. 981, 66th Cong., 2nd sess.
	Sep 22, 1922	Widening channel at foot of Maryland St., Buffalo.	H. Doc. 289, 68th Cong., 1st sess.
	Mar 3, 1925	Widening canal south of International Bridge and removal of westerly end of Rattlesnake Island shoal.	H. Doc. 981, 66th Cong., 3d sess.
	Jun 26, 1934[34]	Operation and care of improvements provided for with funds from War Department appropriations for rivers and harbors.	H Doc. 28, 73d Cong., 1st sess.
	Aug 30, 1935[35]	Removal of rock shoals in Lake Erie entrance to canal, and in canal south of Ferry Street Bridge, to 22 feet; enlargement of North Tonawanda turning basin; extension of Bird Island Pier; improvement of guide pier at the lock; and elimination of upper 150 feet of Tonawanda Creek channel from the project.[36]	H. Doc. 28, 73rd Cong., 1st sess.
	Mar 2, 1945	Widening Lake Erie entrance to canal.	H. Doc. 92, 79th Cong., 1st sess.[33]
	Sep 3, 1954	Deepen lower 1,500 feet of Tonawanda inner harbor and enlarge turning basin.	H. Doc. 423, 83rd Cong., 2nd sess.[33] [37]
3		**BUFFALO HARBOR, NY**	
	May 20, 1826	Construction of south pier (extended in 1868).[38]	Annual Report, 1868, pp. 222 -232
	Jun 23, 1866	Construction of old breakwater.[38]	Annual Report, 1868, pp. 232 -236
	Jun 23, 1874	Extension of old breakwater.[38]	Annual Report, 1876, pt. 2, pp. 569 and 573
	Jun 3, 1896	Stony Point and south breakwater[38]	Annual Report, 1895, p. 3153. H. Doc. 72, 55th Cong., 1st sess., and Annual Report, 1897, p. 3245

[34] Permanent Appropriations Repeal Act.
[35] Authorized May 28, 1935 by Emergency Relief Administration Act of 1935.
[36] Improvement of guide pier at Black Rock Lock was de-authorized by Congress in Aug 1977.
[37] Classified deferred.
[38] Completed under previous projects.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Mar 3, 1899 Mar 3, 1909	North breakwater.[38]	
	Jun 6, 1900 Jun 18, 1902	Deepening entrance channel to inner harbor and removing rock shoal therein.	Specified in acts.
	Mar 2, 1907[39]	Dredging at entrance to canals at South Buffalo in outer harbor.[38]	Specified in act.
	Mar 2, 1907	South entrance breakwater.[38]	H. Doc. 240, 59th Cong., 1st sess.
	Jun 25, 1910	Extension of Federal project to Commercial St. and removal of Watson elevator site.	H. Doc. 298, Rivers and Harbors Committee Doc. 2, 61st Cong., 2nd sess.
	Jul 25, 1912	Deepening areas A, B, D, in outer harbor to 21 feet, C in north entrance to 23 feet.	H. Doc. 550, 62nd Cong., 2nd sess.
	Mar 2, 1919	Deepening areas F and G in outer harbor to 21 feet.	H. Doc. 1139, 64th Cong., 1st sess.
	Jan 21, 1927	Removal of shoal between entrance channel to Buffalo River and Erie Basin to 21 feet.	H.Doc. 481, 68th Cong., 2nd sess.
	Jul 3, 1930	Deepening areas H, I, and K in outer harbor 21 feet.	Rivers and Harbors Committee Doc. 1, 71st Cong., 1st sess.
	Aug 30, 1935[40]	Extension of south entrance and south breakwaters, deepening outer harbor to present project dimensions, and removal of shoals on approach to south entrance.	H. Doc. 46, 73rd Cong., 1st sess.
	Aug 30, 1935 Mar 2, 1945[40]	Maintenance of channels in Buffalo River and Buffalo ship canal to 21 feet in cooperation with City of Buffalo.	Rivers and Harbors Committee Doc. 54, 74th Cong., 1st sess.
	Jul 14, 1960	Deepening North and Buffalo River entrance channels, and deepening and maintaining Buffalo River and Buffalo ship canal to present project dimensions.	H. Doc. 352, 78th Cong., 1st sess.
	Oct 23, 1962	Deepening approach to south entrance channels, and deepen to 30 feet in outer area and 29 feet in inner area of southerly part of outer harbor.	H. Doc. 151, 86th Cong., 1st sess.
		Deepening portion of outer harbor to 27 feet over a width of 500 feet for 2,500 feet northward from 28-foot project area, widening within 1,700 feet to limits within 150 feet of breakwater axis and 75 feet from harbor line and continuing within these limits for 7,000 feet. Elimination of 25-foot wide strip between presently	H. Doc. 451, 87th Cong., 2nd sess.

[39] Also Sundry Civil Act of Mar 3, 1905
[40] Authorized in part by Public Works Administration, Sep 6, 1933.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
		7,000 feet. Elimination of 25-foot wide strip between presently authorized and proposed easterly dredging limits easterly 50 foot wide undredged strip in existing 23-foot depth project area, extending northerly from 27-foot depth to Buffalo River entrance channel. Previously authorized but uncompleted portions or work authorized by 1935 Act, combined within this act as a single improvement.	
	Jul 14, 1960 As amended	Removal of abandoned abutments of South Michigan Bridge.	Sec. 107, PL 86-645. Authorized Chief of Engineers Dec 15, 1980
4		**BUFFALO HARBOR, NY ENVIRONMENTAL DREDGING**	
	Nov 28, 1990	The Secretary may remove, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel. The Secretary may remove contaminated sediments from the waters of the United States, in general, for the purpose of environmental enhancement and water quality improvement if such removal is requested by a non-Federal sponsor and the sponsor agrees to pay 50% of the cost of the removal.	PL 101-640
	Oct 12, 1996	Amended PL 101-640 to include Buffalo Harbor, NY As priority work.	PL 104-303
5		**CLEVELAND HARBOR, OH**	
	Mar 3, 1875	West breakwater.	Annual Report, 1876, p. 558
	Aug 5, 1886	Part of east breakwater.[38]	H. Ex. Doc. 116, 48th Cong., 2nd Sess., and Annual Report, 1886, p. 1865
	Aug 11, 1888	Extension of east breakwater.	H. Ex. Doc. 189, 50th Cong., 2nd sess., and Annual Report, 1888, p. 2005
	Jun 3, 1896	Reconstruction of piers.[38]	H. Doc. 326, 54th Cong., 1st sess., and Annual Report, 1896, p. 2949
	Mar 3, 1899	Dredging channel between piers and outer harbor to depth of 19 feet; dredging to depth of 23 feet in any portion of harbor is discretion of Secretary of War.	H. Doc. 156, 55th Cong., 2nd sess., and Annual Report, 1899, pp. 3075 and 3078
	Jun 13, 1902	Arrowhead breakwater and extension of east breakwater.	H. Doc 118, 56th Cong., 2nd sess.
	Mar 2, 1907 Jun 25, 1910	Removal of deflecting arm of old east breakwater and closure of gap between old and new east breakwaters.	No printed report.
	Jul 27, 1916	Pierhead at easterly end of east breakwater.	H. Doc 891, 63rd Cong., 2nd sess.
	Aug 8, 1917	Maintenance and improvement of channels in Cuyahoga	H. Doc. 707, 63rd Cong., 2nd sess.,

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Aug 29, 1937	and Old Rivers to a depth of 21 feet to a point 2,000 feet upstream from Clark Ave. viaduct and 18-foot turning basin.	& Rivers and Harbors Committee Doc. 84, 74th Cong., 2nd sess.
	Aug 30, 1935[41]	Deepening outer harbor and channel between piers to present project dimensions, construction of 400-foot spur breakwater at gap in shore arm of west breakwater, removal of easterly 150 feet of west breakwater, elimination from project of a 298-foot southerly extension on west pier, and abandonment of inner 932 feet of shore arm of west breakwater.	H. Doc. 477, 72nd Cong., 2nd sess.
	Aug 30, 1935[40]	Maintenance dredging in Cuyahoga and Old Rivers For 1 year as an emergency measure.	Rivers and Harbors Committee Doc. 39, 74th Cong., 1st sess.
	Mar 2, 1945[42]	Maintenance extension of Cuyahoga River channel. Extension, maintenance, and improvement to a depth of 21 feet of Cuyahoga River channel to present project limit.[43] [44]	Specified in act. H. Doc. 95, 79th Cong., 1st sess.
	Jul 24, 1946	Improvement of Cuyahoga and Old Rivers to a depth of 23 feet and replacement or pier construction of 7 railroad bridges.[45]	H. Doc. 629, 79th Cong., 2nd sess.
	Jul 3, 1958	Deepening channel 25 feet through east basin of outer harbor; replacement of Erie-Lackawanna Railroad bridge over Cuyahoga River at mile 4.1 and widening of channel at that point, with elimination of reconstruction of east pier of bridge as previously authorized; and replacement of Baltimore and Ohio Railroad Bridge over Old River near its mouth and Willow Avenue Highway Bridge about 800 feet above mouth and widening channel at four locations along lower, 2,000 feet of river.[46]	H. Doc. 107, 85th Cong., 1st sess.
	Jul 14, 1960	Depth of 29 feet in lake approach to main entrance; 28 feet in entrance channel to lakeward ends of piers at mouth of Cuyahoga River; 27 feet in river to a point just above its junction with Old River, and in Old River to upstream limit of present 23-foot project; 28 feet in west basin within existing project limits as modified to eliminate a triangular area at west end and to extend limits to a line parallel to and 75 feet from harbor line; and 28 feet in westerly 800 feet of east basin.[47]	H. Doc. 152, 86th Cong., 1st sess.[33]
	Oct 23, 1962	An area in east basin 27 feet deep extending 3,800 feet easterly of 28-foot area with project limits 380 feet from east breakwater and on landward side generally by a line 75 feet lakeward of and parallel to harbor line. A dock channel to Nicholson Cleveland Terminal Co. pier, at	H. Doc. 527, 87th Cong., 2nd sess.

[41] Authorized by Public Works Administration, Sep 6, 1933.
[42] First Deficiency Appropriations Act approved Apr 1, 1944.
[43] Deepening left half of channel extension was eliminated from project by 1962 R&H Act.
[44] Authorized by Defense Plant Corp. May 19, 1942.
[45] Widening Cuyahoga River downstream at end of Cut 4 classified inactive.
[46] Replacement of bridges 19 and 32, widening Cuyahoga and Old River Channels, classified deferred.
[47] Deepening remainder of Cuyahoga River from Bridge 1 to and including Old River, classified deferred.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
		easterly end of east basin, from 25-foot contour to a limit 75 feet north of pierhead line, 400 feet wide at shoreward end and flared toward the lake.	
	Jul 14, 1960 As amended	Deepening upper end of Old River channel from 21 To 27 feet.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Dec 6, 1966
	Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of removal of portions of entrance breakwater; construction of breakwater; construction of breakwater extension of east entrance; deepening approach and entrance channels; construction Of diked disposal area; and installation of recreational fishing facilities on west breakwater.	Sec. 175, PL 94-587
	Aug 15, 1985	Deepening and widening east entrance and approach channels, deepening the east basin channel and disposing of dredge material in an existing disposal site, As described in the Report to the Board of Engineers for Rivers and Harbors Jan 22, 1985, including bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient vessels in the area south of Pier 34 and including such modifications as may be recommended by the Chief of Engineers at a cost not to exceed $36,000,000.	PL 99-88
	Nov 17, 1986	Bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient wells in the area south Of Pier 34.	Sec. 202, PL 99-662. PL 100-202
	Dec 21, 1987	Appropriates and directs the Secretary of the Army to use the sum of $11,000,000 which is to remain available until expended to carry out the provisions for the harbor modifications contained in PL 99-662.	Doc. 653, 61st Cong., 2nd sess.
6		**CONNEAUT HARBOR, OH**	
	Jun 25, 1910	Extension of east breakwater, construction of new west breakwater, removal of portion of old west breakwater, and dredging of outer harbor to 19 feet.	H. Doc. 653, 61st Cong., 2d sess.
	Aug 8, 1917[48]	Realignment of west breakwater, removal of remainder of old west breakwater, and deepening outer harbor to 20 feet. Removal of Bessemer & Lake Erie R.R. Co. of inner 635 feet of west pier.	H. Doc. 983, 64th Cong., 1st sess.
	Aug 30, 1935[40]	Removal of portion of west breakwater, extension of breakwaters to present project dimensions, construction of pierheads on outer	H. Doc. 48, 73rd Cong., 1st sess.

[48] Permit of Secretary of War, Aug 5, 1927.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
		ends of breakwaters, deepening outer harbor to present project dimensions; removal of portions of river pier, and elimination from project of a 255-foot shoreward extension of west breakwater.	
	Oct 23, 1962	Deepening easterly part of outer harbor to 28 feet in soft material and 29 feet in hard material; deepening remaining triangular area of outer harbor to 22 feet in soft material and 23 feet in hard material; deepening inner harbor for 2,450 feet upstream of outer end of west pier to 27 feet in soft material and 28 feet in hard material; removal of east pier, extension of east breakwater to shore; and an access channel 8 feet deep in outer harbor to city dock. Previously authorized, but uncompleted portion of work authorized by 1917 and 1935 Acts combined with this act for accomplishment as a single improvement.	H. Doc. 415, 87th Cong., 2nd sess.
	Oct 12, 1996	De-authorized the most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910.	PL 104-303
7		**DUNKIRK HARBOR, NY**	
	Mar 2, 1827	Construction of west pier.[38,49]	S. Ex. Doc. 42, 35th Cong., 1st sess. and Annual Report 1866 pt. IV, p. 155
	Mar 2, 1867	Breakwater and evacuation of entrance channel to 13 feet.[38]	Annual Report, 1871, p. 214
	Jun 3, 1896	Deepening of entrance channel and harbor basin to a depth of suitable for vessels of 16-foot draft.	H. Doc. 63, 54th Cong., 1st sess.
	Jun 25, 1910	Removal of rock reef bordering the inner entrance channel.	H. Doc. 720, 61st Cong., 2nd sess.
	Jun 30, 1948	Deepening outer entrance channel to present project depths; removal of rock shoal on the west side of the entrance channel to a depth of 17 feet, and changed limits of the inner entrance channel and basin to present project dimensions.	H. Doc. 632, 80th Cong., 2nd sess.[33]
	Dec 15, 1970 (House Public Works Committee) Jun 22, 1971 (Senate Public Works Committee) Sec. 201 of F.C. Act of 1965	Construction of small-boat harbor.	H. Doc. 91-423, 91st Cong., 2nd sess.

[49] Modified 1828 and 1852.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
8		**ERIE HARBOR, PA**	
	May 26, 1824	Breakwaters and piers; dredging entrance channel; and brushwood protection of beach of Presque Isle peninsula.[38]	Annual Report, 1915, p. 1965
	Mar 3, 1899	Deeping channel and harbor basin 18 feet, repair and extension of piers; and plant growth and emergency protection of work on peninsula.	H.Doc.70, 55th Cong., 1st sess. and Annual Report, 1896, p. 3237[50]
	Jun 15, 1910	Deepening channel and part of harbor to 20 feet.	Rivers and Harbors Committee Doc. 26, 61st Cong., 2nd sess.
	Nov 28, 1920[51]	Re-conveyed Presque Isle peninsula to the State of Pennsylvania for park purposes.	
	Aug 30, 1935	Deepening, widening, and straightening entrance channel, dredging channel at easterly end of harbor basin, all to present project dimensions; elimination of north breakwater from project; and limitation of south breakwater to a length of 1,200 feet.	H. Doc. 52, 73rd Cong., 1st sess.
	Mar 2, 1945	Protection of the peninsula south of the waterworks settling basin.	Specified in act.
	Sep 3, 1954	Widen 25-foot deep approach channel to ore dock.	H. Doc. 345, 83rd Cong., 2nd sess.
	Jul 14, 1960	Depth of 29 feet in the entrance channel to a point opposite the inner end of the north pier, thence 28 feet in soft material and 29 feet in hard material in the remainder of the entrance channel, within the general limits of the 25-foot basin and inner channel opposite the ore dock except as modified to eliminate from the project a triangular area along the easterly side; and a depth of 28 feet over 300-foot westward extension of the 25-foot basin.[52]	H. Doc. 199, 86th Cong., 1st sess.
	Oct 23, 1962	Depth of 27 feet in soft material and 28 feet in hard material in approach area to Duquesne Marine Terminal. Previously authorized but uncompleted portion of work authorized by 1935 Act is combined with this act as a single improvement.	H. Doc. 340, 87th Cong., 2nd sess.[33]
9		**FAIRPORT HARBOR, OH**	
	Mar 3, 1825[53]	Construction of piers.	Annual Report, 1889, pp. 2147-2153
	Jun 3, 1896 Mar 3, 1905	Breakwaters and dredging outer harbor to a depth of 18 feet.	H. Doc. 347, 54th Cong., 1st sess. and Annual Reports, 1896, p. 2956; 1903, p. 2084. 1905, p. 2349
	Mar 2, 1919	1,400-foot extension of east breakwater, present project dimension of east pier, and deepening to 19 feet.	H. Doc. 206, 63rd Cong., 1st sess.

[50] Extension of north pier portion of this modification was deauthorized Nov 1981.
[51] Public Law 366.
[52] Deepening strips adjacent to north and south piers was deauthorized Aug 1982.
[53] Modified 1830, 1881, and 1890. New work completed under previous projects.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jan 21, 1927 Jul 3, 1930	4,000-foot extension of east breakwater at limit of cost to the United States of $715,000.	H. Doc. 592, 69th Cong., 2nd sess. Rivers and Harbors Committee Doc 13, 70th Cong., 1st sess.
	Aug 30, 1935[54]	Deepening of outer harbor and entrance channel to present dimensions; extending the west breakwater to present project dimensions with pierhead at its outer end; removal of west pier, and construction of bulkhead on west side of river channel.	H. Doc. 472, 72nd Cong., 2nd sess.
	Aug 26, 1937	Dredging of 21 and 24-foot river channels and turning basin in Grand River to present project dimensions.	Rivers and Harbors Committee Doc. 79, 74th Cong., 2nd sess.
	Jul 24, 1946	Dredging of 8-foot river channel.	H. Doc. 706, 79th Cong., 2nd sess.[33]
10		**GREAT SODUS BAY HARBOR, NY**	
	Mar 2, 1829	Construction of piers and breakwater.[9]	Annual Report, 1876 pt. II p. 589
	Aug 2, 1882	Extension of piers to 15-foot contour in the lake.	Annual Report, 1881, p. 2442
	Mar 3, 1925	Deepening and widening of channel to 180 foot depth and 150 foot width.	H. Doc. 192, 68th Cong., 1st sess.
	Jul 3, 1930	Widening channel lakeward of piers to 250 feet.	Rivers and Harbors Committee Doc. 17, 70th Cong., 1st sess.
	Aug 30, 1935	Dredging channel to present project dimensions.	Rivers and Harbors Committee Doc. 23, 72nd Cong., 1st sess.
11		**HURON HARBOR, OH**	
	Mar 2, 1905	Extension of west pier, construction of east breakwater, removal of part of old east pier; deepening of channel to 19 feet; and dredging of sheltered area.	H. Doc. 122, 58th Cong., 2nd sess.
	Mar 2, 1919	Widening river to 200 feet; removal of remainder of old east pier, construction of new spur pier, enlargement of sheltered area; and closure of beach at shore end of west pier.	H. Doc. 5, 63rd Cong., 1st sess.
	Aug 30, 1935[54]	Extension of west pierhead at its outer end; removal of outer end of east breakwater and construction pierhead on new outer end; widening and deepening channel to present project dimensions; enlargement of turning basin at head of channel; shore protection west of west pier, and elimination from project construction of spur pier and dredging sheltered area outside channel limits.	H. Doc. 478, 72nd Cong., 2nd sess.
	Oct 23, 1962	Depths of 29 feet in approach channel, 28 feet in entrance channel, 27 feet in river channel, 21 feet in turning basin and abandonment of lakeward end of existing approach channel.	H. Doc. 165, 87th Cong., 1st sess.[33]
12		**LITTLE SODUS BAY HARBOR, NY**	
	Aug 30, 1852	West entrance pier.	Annual Report, 1874, p. 256

[54] Partly included in Public Works Administration Program, Nov 15, 1933.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jun 23, 1866	Extension of west pier and construction of west breakwater, and dredging channel to 12 feet deep, 400 feet wide.	Annual Report, 1874, p. 256
	Mar 3, 1871	East pier and east breakwater.	Annual Report, 1871, p. 234
	Mar 3, 1881	Extension of piers lakeward to 15.5-foot contour, and dredging channel to 15.5 feet.	Annual Report, 1881, pp. 2444 and 2446
	Jun 13, 1902	Extension of east pier 300 feet lakeward.	Annual Report, 1901, p. 3364
13		**LORAIN HARBOR, OH**	
	Mar 3, 1899	Breakwaters and extension of piers to present dimensions.	H. Doc. 131, 55th Cong., 2nd sess., and Annual Report 1898, p. 2718.
	Mar 2, 1907	Extend 18-foot channel from inner end of piers to Erie Avenue Bridge.	H. Doc. 560, 60th Cong., 1st sess.
	Jun 25, 1910	Extend breakwaters and dredge to depth of 19 feet in outer harbor.	H. Doc. 644, 61st Cong., 2nd sess.
	Aug 8, 1917	Extend breakwaters to present dimensions.	H. Doc. 980, 64th Cong., 1st sess.
	Aug 8, 1917	Deepen outer harbor and river channel of Erie Avenue Bridge to 20 feet.	H. Doc. 985, 64th Cong., 1st sess.
	Jul 3, 1930	Extend 20-foot channel to American Shipbuilding Co. Drydock.	H. Doc. 587, 69th Cong., 2nd sess.
	Aug 30, 1935	Widen 2 bends in river and enlarge turning basin opposite National Tube Co. dock.[41]	H. Doc. 469, 72nd Cong., 2nd sess.
	Aug 30, 1935	Approach channel to municipal pier.	Senate Committee print, 73rd Cong., 2nd sess.
	Aug 30, 1935	Deepen outer harbor and river channel to American Shipbuilding Co. Drydock 2 present project dimensions and extension of river channel to upper end of National Tube Co. dock with turning basin opposite that dock. Maintenance dredging in Black River from American Shipbuilding Co. Drydock 2. Upper end of National Tube Co. dock was authorized Apr 7, 1934, by Public Works Administration.	Doc. 51, 74th Cong., 1st sess. Rivers and Harbors Committee
	Aug 30, 1935	Enlarging turning basin opposite National Tube Co. Dock to present project dimensions.	Specified in act.
	Mar 2, 1945	Turning basin in bend of Black River immediately upstream from Baltimore & Ohio RR coal dock.	H. Doc. 161, 77th Cong., 1st sess.
	Jul 14, 1960	Replace Norfolk and Western Railway swing bridge with a vertical lift bridge; construct two detached arrowhead	H. Doc. 166, 86th Cong., 1st. sess.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
		breakwaters lakeward of existing breakwaters; construct extension of east breakwater, to shore; remove 300 feet of lakeward end of west breakwater; remove outer 1,100 feet east pier; deepen lake approach to 29 feet, 800-foot wide outer harbor channel to 27 feet; widen river channel at bends; and construct a new turning basin 21 feet deep near upstream limit of existing project.[55]	
	Jul 14, 1960 As amended	Construction of a 225 foot detached rubble mound breakwater and an 800 foot long rubble mound breakwater attached to the east breakwater shore arm I in the east basin of the outer harbor.	Sec. 107, PL 86-645. Authorized Chief of Engineers Mar 12, 1986
	Nov 17, 1986	Two bed cuts on Black River between the Norfolk and Western Railroad Bridge and 21st Street Bridge, excavated to existing channel depth of 27 feet. Widening Upper Turning Basin at existing authorized depth of 21 feet.[37]	H. Doc. 124, 99th Cong., 1st sess.
33		**MT. MORRIS LAKE, GENESEE RIVER, NY**	
	Dec 22, 1944	Construction of a concrete gravity dam and reservoir.	H. Doc. 615, 78th Cong., 2nd sess.
		Construct a visitor center at Mt. Morris Dam to be known as the "William B. Hoyt II Visitor Center."	Sec. 103, PL 102-580
31		**NEW YORK STATE BARGE CANAL, NY**	
	Nov 17 1986	Authorizes the Secretary to reimburse the State of New York for 50% of the cost of operating, maintaining and rehabilitating the New York State Barge Canal. The Federal contribution shall be limited in any fiscal year to $5,000,000, or 50% of the expenditures in that fiscal year, whichever is the lesser.[37]	P.L. 99-662
	Oct 12, 1996	The Secretary may make capital improvements to the New York State Canal System for the purposes of rehabilitation, Renovation, preservation, and maintenance of the New York State Canal System and its related facilities. The Federal share of the cost of capital improvements shall be 50%, up to a limit of $8,000,000.	P.L. 104-303
	Mar 4, 1913	Deepening channel to 12 feet and maintenance of west pier.	H. Doc. 780, 62nd Cong., 2d sess.
	Nov 17, 1986	Construct the project for Navigation, Report of the Chief of Engineers dated Jun 11, 1980.	Sec. 601, PL 99-662
15		**OLCOTT HARBOR, NY**	
	Mar 2, 1867	Dredging a channel 11 feet deep between parallel piers.	Annual Report, 1866, pt. III, p. 15 pt. IV, p. 158
	Mar 4, 1913	Deepening channel to 12 feet and maintenance of west pier.	H. Doc. 780, 62nd Cong., 2d sess.
	Nov 17, 1986	Construct the project for Navigation, Report of the Chief of	Sec. 601, PL 99-662

[55] Deepening and widening remainder of Black River Channel at Cut 1 has been de-authorized.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
34		**ONONDAGA LAKE, NY**	
	Nov 16, 1990	The Assistant Secretary of the Army for Civil Works, The administrator of the Environmental Protection Agency, and the Governor of the State of New York, acting jointly, shall convene a management conference for the restoration and management of Onondaga Lake. The purpose of the conference shall include the development, in the 2-year period beginning on the date of enactment of this fact, for a Reaffirmation of PL 101-596.	PL 101-596
	Nov 28, 1990	The Secretary is authorized to design and construct projects to address water quality problems associated with storm water discharges from large storm events for the watershed areas of	PL 101-640
	Oct 31, 1992	Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal.	PL 102-580
16		**OSWEGO HARBOR, NY**	
	Jul 11, 1870	Construction of outer west breakwater.[38]	Annual Report, 1870, pp. 54, 220 and 221
	Mar 2, 1907	Repair of outer west breakwater under Plan (A).[46]	H. Doc. 55, 58th Cong., 2nd sess.
	Jul 3, 1930	Construction of arrowhead breakwaters; deepening outer harbor between arrowhead breakwaters; west outer harbor east of Erie-Lackawanna coal dock, and Oswego River north of Seneca St., to 21 feet; and deepening west outer harbor, west of Erie-Lackawanna coal dock, to 16 feet.[56]	Rivers and Harbors Committee Doc. 24, 71st Cong., 2nd sess.
	Aug 30, 1935	Widening channel to harbor line in Oswego River north of Seneca Street.	Rivers and Harbors Committee Doc. 7, 74th Cong., 1st sess.
	Oct 17, 1940	Closing gap in west breakwater; deepening west outer harbor, west of east line of Erie-Lackawanna coal dock, to project depth.[57]	H. Doc. 96, 76th Cong., 1st sess.
	Jun 30, 1948	Construction of east outer breakwater; removal of the inner end of east arrowhead breakwater; and dredging channel and basin in east outer harbor.[58]	H. Doc. 722, 80th Cong., 2nd sess.
	Sep 3, 1954	Construction of detached breakwater at harbor entrance and removal of shoals in approach to harbor entrance to 25 feet deep.	H. Doc. 487, 81st Cong., 2nd sess.
	Oct 23, 1962	Depth of 27 feet in lake approach channel; 25 feet deep in outer harbor channel 800 feet wide from entrance gap to a turning basin 25 feet deep about 750 by 1,100 feet, at mouth of Oswego River; depth of 24 feet in earth and 25 feet in hard material in river channel from turning basin to upstream end of Port of Oswego	H. Doc. 471, 87th Cong., 2nd sess.

[56] Deepening a 200-foot strip along harbor line east of mouth of Oswego River is de-authorized.
[57] Deepening to 22 feet a 150-foot wide strip in west outer harbor de-authorized in May 1981.
[58] Modification eliminated by River and Harbor Act of Oct 26, 1962.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
		channel from turning basin to upstream end of Port of Oswego Authority's east side terminal, a distance of about 1,600 feet; relocation of Federal project limits in Oswego River upstream of 24-foot channel to Federal project limit at north line of West Seneca St., on lines parallel to 50 feet channel ward of established harbor lines; elimination of maintenance of inner west breakwater and elimination of modification authorized by River and Harbor Act of 1948.	
	Oct 12, 1996	De-authorized the portion of the Federal Channel authorized by the R&H Act of 1910 as amended by the R&H Act of 1935, from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of the Lake St. Bridge.	PL 104-303
17		**OTTOWA RIVER HARBOR, MI, OH**	
	Dec 17, 1970	6-foot deep,16,500 foot long channel in Ottawa River and 8-foot deep, 15,000-foot channel in Maumee Bay.	H. Doc. 396, 91st Cong., 2d sess.
	Nov. 28, 1990	Continuation of authorization	Sec. 107, PL 101-640.
18		**PORT CLINTON HARBOR, OH**	
	Jun 10, 1872	Parallel stone and pile jetties at mouth of river, east jetty 2,200 feet long and west jetty 1,980 feet long extending to 10-foot contour in lake channel 10 feet deep and 100 feet wide for outer 4,200 foot length and 200 feet wide for inner 800 foot length to Highway Bridge.	Annual Report, 1875, p. 295
19*		**PORT ONTARIO, NY**	
	Mar 2, 1945	Construct harbor of refuge.	H. Doc. 446, 78th Cong., 2d sess.
	Nov 17, 1986	Maintain harbor of refuge.	Sec. 615, PL 99-662
20		**PRESQUE ISLE PENINSULA, ERIE, PA**	
	Sep 3, 1954	Construction of groin system, seawall, bulkhead, placement of beach material at waterworks reservation and along remainder of peninsula; removal of portions of existing structures.	H. Doc. 231, 81st Cong., 1st sess.
	Jul 14, 1960	Periodic nourishment of shores for a 10-year period.	H. Doc. 397, 86th Cong., 2nd sess.
	Mar 7, 1974	Periodic nourishment of shore for a 5-year period.	H. Doc. 796, 93rd Cong., 2nd sess.
	Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of construction of five sections of spaced offshore breakwaters and replenishment of beach area with sand fill.	Sec. 101, PL 94-587
	Nov 17, 1986	Construct offshore breakwaters and restore beaches.	Sec. 501, PL 99-662
21		**ROCHESTER, HARBOR, NY**	
	Mar 2, 1829	Construction of piers.[38]	Annual Report, 1874, p. 247
	Aug 2, 1882	Extension of piers to 15 foot contour in the lake. Concrete superstructure on piers.[38]	Annual Report, 1881, p. 2437; Annual Report, 1905, p. 2383

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jun 25, 1910	Deepening channel to 20 feet.	H. Doc. 342, 61st Cong., 2nd sess.
	Aug 30, 1935[35]	Dredging of the entrance channel and turning basin, and the elimination of the inner ends of the east and west piers, all to present project dimensions.	H.Doc. 484, 72nd Cong., 2nd sess.
	Mar 2, 1945	Maintenance of existing channel upstream of the Penn Central Co. Bridge.	H. Doc. 139, 76th Cong., 1st sess.
	Jul 14, 1960	Depth of 24 feet in the channel from the lake to the west pier, a depth of 23 feet between the piers and in the lower river to the Penn Central Co. Bridge, including the existing turning basin; a depth of 21 feet from the bridge to the upstream project limit, with suitable widening at the bends; and, stream turning basin 21 feet deep and 650 feet wide adjacent to the improved channel, with two mooring dolphins.	H. Doc. 409, 86th Cong., 2nd sess.[33]
	Nov 28, 1990	A navigation project for the mouth of the Genesee River in Rochester, New York, by development and implementation of wave surge control measures. Project to be carried out under Section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577).	PL 101-640
21		**ROCKY RIVER HARBOR, OH**	
	Jun 10, 1872	East pier and dredging of channel.	Annual Report 1871, p. 211
	Aug 26, 1937	Extension of east pier and deepening channel to present project dimensions.	H. Doc. 70, 75th Cong., 1st sess.
	Oct 27, 1965	Realign and extend channel and construct an anchorage basin.	H. Doc. 352, 88th Cong., 2nd sess.
22		**SACKETS HARBOR, NY**	
	Aug 2 1882	Deepening harbor area to 12 feet.	Sen. Ex. Doc. 29, 47th Cong., 1st sess.
	Aug 13, 1888	Construct timber crib mooring place, and brush and stone jetty.	Annual Report, 1888 pt. III, p. 2086
		Build 2 stone groins (OCE-June 8, 1896)	Annual Report, 1896, pt. III, p. 3160
	Mar 2, 1945	Deepening to project dimensions.	H. Doc. 732, 79th Cong., 2d sess.
23		**SANDUSKY HARBOR, OH**	
	Mar 3, 1899	Construction of channel protection works.	H. Doc. 362, 55th Cong., 2nd sess. and Annual Report 1898, p. 2708
	Jun 13, 1902	Widening of Straight and Dock channels and deepening to 19 feet.	H. Doc. 120, 56th Cong., 2nd sess.
	Mar 2, 1919	Extension of east jetty to total length of 6,000 feet, with pierhead on outer end; deepening of the outer, straight, and easterly portion of dock channel to 20 feet.	H. Doc. 982, 64th Cong., 1st sess.

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jan 21, 1927	Deepening of dock channel to 22 feet.	H. Doc. 584, 69th Cong., 2nd sess.
	Aug 30, 1935	Enlargement of turning basin and construction rock dike.	Rivers and Harbors Committee Doc. 2, 73rd Cong., 1st sess.
	Oct 2, 1945	Maintenance of bay channel to 22 feet; and elimination from project of portion of turning basin and rock dike.	H. Doc. 328, 76th Cong., 1st sess.
	Jul 14, 1960	Extending Moseley channel and deepening that channel and the outer end of Straight channel to 26 feet, from deep water in the lake to the vicinity of Cedar Point dock; widening the bend at the junction of the Moseley and Straight channels to 25 feet from the vicinity of Cedar Point dock to Junction Bay channel; deepening the Bay channel from the junction with the Straight channel to the outer end of the Pennsylvania Coal dock no. 3 to 24 feet, thence from outer end of the coal dock to the turning basin to 24 feet in removal of approximately 300 feet of the rock dike, and deepening to 24 feet in soft material and 25 feet in hard.	H. Doc. 144, 85th Cong., 1st Sess.
24		**STURGEON POINT, EVANS, NY**	
	Jul 14, 1960	Rehabilitate existing breakwater, construct rubble mound, west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.
25		**TOLEDO HARBOR, OH**	
	Mar 3, 1899	A channel 400 feet wide and 21 feet deep from 25-foot contour in Maumee Bay to Fassett Street Bridge, 200 feet wide and 19 feet deep above that point and a 500-foot turning basin at upper end. A stone re-vetted earth dike in Maumee Bay channel.	H. Doc. 198, 55th Cong., 2nd sess. and Annual Report 1898, p. 2693
	Jun 25, 1910	Act 1899 modified to insure a navigable channel to 21 feet from Fassett Street Bridge to lake.	H. Doc. 865, 60th Cong., 1st sess.
	Aug 30, 1935	Channel 25 feet deep and 500 feet wide from 25-foot contour to mouth of Maumee River (300 feet wide on each side of center dike in bay channel), thence 400 feet wide to Fassett Street Bridge, 200 feet wide above that point and a turning basin at upper end 18 feet deep.	River and Harbors Committee Doc. 21, 72nd Cong., 1st sess.
	May 17, 1950	Widening at bend of mouth of River opposite Chesapeake and Ohio Railway Dock.	H. Doc. 189, 81st Cong., 1st sess.
	Sep 3, 1954	Removal of center dike in Maumee Bay channel.	H. Doc. 620, 81st Cong., 2nd sess.
	Jul 3, 1958	Enlarge widening at bend opposite Chesapeake and Ohio dock and turning basin opposite American Shipbuilding Co. dock.	H. Doc. 436, 84th Cong., 2nd sess.
	Jul 14, 1960	Deepening Bay channel including widening to 28 feet, deepen river channels to NY Central Railroad bridge to 27 feet and construct new turning basin below Anthony Wayne Bridge.	H. Doc. 153, 86th Cong., 1st sess.[33]
26		**TOUSSAINT RIVER, CARROLL TWSP., OH**	

Table 20-B AUTHORIZING LEGISLATION

See Section	Acts	Work Authorized	Documents
	Jul 14, 1960	Dredged channel from the mouth of the Toussaint River, 2,100 feet into Lake Erie, 4 feet below LWD, 150 feet wide in Lake Erie and tapered to 100 feet at the river mouth.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Sep 29, 1990.
27		**VERMILION HARBOR, OH**	
	Jul 4, 1836	Parallel piers and dredging channel to 8 feet deep.	Annual Report, 1880
	Mar 3, 1875	Deepening of channel to 12 feet.	Annual Report, 1874, p. 219
	Mar 3, 1905	Reconstruction of piers.	H. Doc. 252, 58th Cong., 2nd sess.
	Jul 3, 1958	New entrance formed by two overlapping arrowhead breakwaters and extension of existing river channel upstream to Liberty St. Bridge.	H. Doc. 231, 85th Cong., 1st sess.
28		**WEST HARBOR, OH**	
	Oct 27, 1965	Construction of arrowhead breakwaters, entrance channel and access channel.	H. Doc. 245, 88th Cong., 2nd sess.
29		**WILSON HARBOR, NY**	
	Mar 2, 1945	Entrance channel 80 feet wide and 8 feet deep; and restore east and west piers.	H. Doc. 679, 76th Cong., 2nd sess.
	Aug 13, 1968	Extend existing channel 300 feet; and construct new channel 3,800 feet long through Tuscarora Bay.	H. Doc. 112, 90th Cong., 1st sess.
		Rehabilitate existing breakwater, construct rubble mound west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.

TABLE 20-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See annual Report For	Construction	Cost to Sep 30, 2003 Operations & Maintenance
Barcelona Harbor, NY	Completed	2001	$1,185,853	$2,462,775
Big (Cunningham) Creek, OH	Completed	-[1]	19,763 [2]	-
Black River Harbor, NY	-	-[1]	42,401	-
Buffalo Small Boat Harbor, NY	Completed	1994	602,016 [3]	-
Cattaraugus Harbor, NY	Completed	2000	4,804,060 [4]	373,578
Cattaruagus Creek, NY	-	-[2]	57,410	-
Geneva-on-the Lake, OH	Completed	1990	3,145,176 [5]	10,168
Grasse River Massena, NY	-	1891	9,000 [2]	-
Kelleys Island, OH	Active	1974[5]	129,874	-
Little River at Cayuga Island, NY	Completed	1969	46,804 [6]	6,580
Morristown Harbor, NY	Completed	1949	6,221	13,218
Niagara Remedial Works, NY[7]	Completed	1966	6,069,395	510,819
Niagara River, NY[8]	Completed	1964	559,457 [9]	311,840
Ogdensburg Harbor, NY	Completed	1987	1,720,466 [10]	1,436,688 [11]
Pultneyville Harbor, NY[13]	-	1934	68,219	20,087
Rochester Harbor Wave Surge, NY	Completed	2001	1,800,769	1,713,189
Sandusky River, OH[14]	-	1894	58,000 [2]	557

[1] Only information available is in index to reports of Chief of Engineers.
[2] Amount includes maintenance; not separable.
[3] Excludes $593,216 contributed funds.
[4] Excludes $2,566,529 contributed funds.
[6] Annual Report for Detroit District.
[7] Includes local interests contribution of $25,742.
[8] Cost of operation and maintenance of this project will be settled directly by concerned power agencies. No further appropriations will be made to this project.
[9] Construction of compensating works as authorized by 1930 R&H Act was authorized by Congress in Aug 1977.
[10] Includes local interest contribution of $27,563.
[11] Includes $271,380 for previous projects. Excludes $57,000 contributed funds.
[12] Includes $130,512 for previous projects.
[13] Abandonment recommended in H. Doc. 275, 64th Cong., 1st sess.
[14] Abandonment recommended in Ex. Doc. 16, 35th Cong., 1st sess.

Table 20-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep 30, 2003 Operations & Maintenance
Hamlin Beach State Park, NY	Completed	1976	$1,769,600	-
Lakeview Park, Lorain, OH	Completed	1987	1,741,125 [1]	-
Maumee Bay State Park, OH	Completed	1995	2,780,975 [2]	-
Selkirk Shore State Park, Lake Ontario, NY[3]	Completed	1963	58,978	$307

[1] Federal participation was limited to one-third of first cost when project was authorized by 1954 River and Harbor Act. Federal participation was changed from one-third to 70 percent of remaining work under Public Law 87-874.
[2] Does not include $739,700 contributed funds.
[3] Does not include $199,845 contributed funds.

Table 20-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost To Sep 30, 2003 Operations & Maintenance
Auburn, NY, Owasco Outlet	Completed	1962	$ 371,985 [1]	-
Batavia and Vicinity, Tonawanda Creek, NY	Completed	1957	335,385	-
Camp Perry, OH	Completed	1967[2]	275,000 [3]	
Cayuga Creek, Cheektowaga, NY[4]	Completed	1984	1,404,500	-
Cuyahoga River Basin, OH	Active	1985	1,117,000	-
Dansville and Vicinity, Canaserga Creek, NY	Active	1985	490,300	-
Fremont, OH, Sandusky River	Completed	1976	8,589,824 [5]	-
Ithaca, Cayuga Inlet, NY	Completed	1978	3,929,300 [6]	-
Lackawanna, NY, Smokes Creek	Completed	1971	3,542,068 [7]	-
Lancaster, Cayuga Creek, NY	Completed	1954	79,730	-
Marsh Creek, Geneva, NY	Completed	-	226,429	-
Montour Falls, Oswego River Basin, NY	Completed	1954	1,681,785	-
Onondaga Creek, Nedrow, NY[4]	Completed	1964	330,231	-
Ottawa, OH	Deferred	1989	374,000	-
Owasco Inlet and Outlet, Montiville	Inactive			-
And Dry Creek, State Ditch and Crane Brook, NY[8]	Deferred	1950	281,559	-
Point Place, Toledo, OH	Completed	1990	9,885,733 [9]	-
Reno Beach-Howard Farms, OH	Completed	1997	5,483,192 [10]	-
Scajaquada Creek, NY	Completed	1985	4,944,852	-
Syracuse Oswego River Basin, NY	Completed	1954	3,349,248	-
Warsaw, NY Oatka Creek[4]	Completed	1969	558,317 [11]	-
Wellsville, NY, Genesee River	Completed	1978	3,145,303 [12]	

[1] Excludes cost of $188,732 under Public Law 88-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[2] Annual Report for Detroit District.
[3] Includes local interest contribution of $125,000.
[4] Project authorized by Chief of Engineers.
[5] Includes local interest contribution of $6,944. Excludes cost of $383,786 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, for emergency restoration of levees damaged during 1973.
[6] Includes local interest contribution of $99,999. Excludes cost of $104,005 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[7] Includes local interest contribution of $50,000.
[8] In-active portion of work for State Ditch has been done by local interest and work on Crane Brooks has been deferred at the request of local interests.
[9] Excludes $1,871,631 in contributed funds.
[10] Excludes $475,994 in contributed funds.
[11] Excludes cost of $26, 807 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[12] Includes local interest contribution of $50,000. Excludes cost of $374,042 under Public Law 84-99, Flood Control and Coastal Emergency Appropriation, incurred for project rehabilitation as a result of damages due to storms.

TABLE 20-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Black Rock Channel and Tonawanda Harbor, NY 1935 R&H Act[1]	1962	Aug-77	-	-
Black Rock Channel and Tonawanda Harbor, NY 1954 R&H Act	1962	May-81	-	
Buffalo Harbor Drift Removal, NY	-	Dec-92	-	-
Buffalo Ship Canal, Buffalo, NY	-	Dec-92	-	-
Caledonia, Genesee River, NY 1950 FC Act	1950	Jan-90	-	-
Cape Vincent Harbor, NY 1945 R&H Act	1962	Nov-86	-	
Chittenango Creek and Tributaries, NY 1944 FC Act	1948	Jan-90	12,464	-
Conneaut Harbor, OH R&H Act, 1910 (southerly 300 feet of shorearm)	1997	Oct-96	-	-
Conneaut Harbor, OH 1966 R&H Act, 1990 WRDA	1995	Nov-95	-	-
Crane Creek State Park, OH 1962 R&H Act	1968[2]	Nov-79	-	-
Cuyahoga River Basin 1970 FC Act	-	Apr-99	-	-
Dansville & Vicinity 1948 FC Act	-	Apr 98	-	
Dunkirk Harbor, NY WRDA 1986	-	Dec-92	-	-
Eastlake, Chagrin River, OH 1965 FC Act	1976	Jan-90	506,344	-
Edgewater Park, OH 1954 R&H Act	-	Jan-90	-	-
Elk Creek Harbor, PA 1966 R&H Act	1978	Dec-92	101,500	-
Erie Harbor, PA 1899 R&H Act	1963	Nov-81	-	-
Erie Harbor, PA 1945 R&H Act	1963	Aug-77	-	-
Erie Harbor, PA 1960 R&H Act	1963	Aug-82	-	-
Fairhaven Beach State Park, NY 1958 R&H Act	-	Jan-90	-	-
Fairport Harbor, OH 1960 R&H Act	1995	Nov-95	67,000	-
Fairport Harbor, OH Sec. 201 1965 FC Act	1995	Nov-95	-	-
Fort Niagara State Park, NY Sec. 201 1965 FC Act	-	Jan-90	-	-
Grandview Bay Harbor, NY 1945 R&H Act	1948	Aug-77	1,524	-
Great Sodus Bay Harbor, NY 1941 R&H Act	1963	Aug-77	-	-
Hamlin Beach Harbor, NY 1968 R&H Act	1973	Jan-90	72,052	-
Hammondsport, Oswego River Basin, NY 1941 FC Act	1951	Nov-83	29,000	-
Huron Harbor, NY 1962 R&H Act[3]	1963	Jan-90	-	-
Ithaca, NY – Cascadilla Creek 1941 FC Act	1950	Aug-77	8,159	-
Ithaca, NY – Fall Creek 1941 FC Act	1950	Aug-77	12,300	
Lorain Harbor, OH – Sec. 107, R&H Act 1960 (Portion of small boat basin)	1998	Oct-96	-	-
Lorain Harbor, OH 1960 R&H Act, modified by 1965 R&H Act[4]	1966	Jan-90	-	
Maumee River, above Toledo, OH 1872 Act	1971[2]	Nov-77	12,000	-
Ottawa River, OH (Blanchard)	-	Apr -02		

[1] Extension of guide pier only: other improvements completed.
[2] Annual Report For Detroit District.
[3] Breakwater.
[4] Uncompleted portion.

TABLE 20-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Morristown Harbor, NY 1927 R&H Act (Portion north of northern boundary of Morris St. extended.	1949	Oct-96	-	-
Niagara River, Compensating Works, 1930 R&H Act	1964	Aug-77	-	-
Ogdensburg Harbor, NY 1935 R&H Act	1986	Nov-86	-	
Ogdensburg Harbor, NY R&H Acts 1910, 1935 (Portion from southernmost alignment of Rte 68 Bridge upstream to northern alignment of Lake St. Bridge)	1987	Oct-96	-	-
Oswego Harbor, NY 1930 R&H Act	1963	Jan-90	-	-
Oswego Harbor, NY 1940 R&H Act[5]	1963	May-81	-	
Port Bay, NY 1950 R&H Act	-	Jan-90	-	
Red Creek, NY 1966 FC Act	1975	Nov-86	361,241	
Sackets Harbor, NY 1945 R&H Act	1948	May-81	19,010	
Selkirk Shores State Park, OH 1954 R&H Act[3]	1963	Jan-90	-	-
Sheffield Lake Community Park, Oh 1962 R&H Act	-	Aug-77	-	-
Watkins Glenn, NY 1941 FC Act	1958	Aug-77	43,182	-
White City Park, OH 1954 R&H Act	-	Jan-90	-	-

[5] Deepening of west outer harbor, other improvements completed.

TABLE 20 - H FLOOD CONTROL AND COASTAL EMERGENCIES

ACTIVITY	FEDERAL COST	CONTRIBUTED COST
Disaster Preparedness	$ 187,782	
Emergency Operations	4,132	
Rehabilitation	120	
Advance Measures	145,294	$20,540

TABLE 20-I GENERAL INVESTIGATIONS

STUDY	GENERAL INVESTIGATIONS	OPERATIONS & MAINTENANCE	NON-FEDERAL
COLLECTION AND STUDY OF BASIC DATA			
Surveillance of Northern Boundary Waters	$98,201	$650,290	
Flood Plain Mgmt Services	38,698		
Technical Services	11,815		
Quick Responses	1,968		
SS - Smokes Creek, Lackawanna, NY	6,308		
SS - Village of Eden, OH	1,484		
SS - NYS Barge Canal Failure	1,055		
PRE-CONSTRUCTION ENGINEERING AND DESIGN			
Onondaga Lake NY PL 101-596	978		(485)
Ashtabula River Environmental Dredging	584,933		172,489
SURVEYS			
FLOOD DAMAGE PREVENTION STUDIES			
Gulley Brook, OH	37,928		
Oneida Lake, NY	450		
SHORELINE PROTECTION STUDIES			
Hamlin & Lakeside Beach, NY	883		
Western Lake Erie Basin, OH	99,075		
SPECIAL STUDIES			
Onondaga Lake NY PL 101-596	477,665		
Buffalo River Environmental Dredging, NY	30,904		
Woodtick Peninsula and Toledo Harbor, OH	13,706		
Arcola Creek	59,988		
MISCELLANEOUS ACTIVITIES			
Special Investigations	31,610		
Review of FERC Licenses	3,940		
Interagency Water Resource	10,040		
Natural Estuary Studies	3,684		
N. American Waterfowl Mgmt Plan	2,174		

TABLE 20-I GENERAL INVESTIGATIONS (Cont'd)

COORDINATION WITH OTHER GOVERNMENT AGENCIES AND NON-FEDERAL INTERESTS

	GENERAL INVESTIGATIONS	OPERATIONS & MAINTENANCE	NON-FEDERAL
COOP with Other Water Agencies	1,920		
Great Lakes Remedial Action	430,956		
Great Lakes Remedial Action Program (Sec. 104)	36,646		
PAS Negotiation Funds	37,509		15,075
PAS - NY - Amherst Soil Study	27,913		3,212
PAS - NY - Barge Canal Embank Analysis	6,876		6,522
PAS - NY- Union Ship Canal Struc. Analysis	4,328		5,341

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES

Navigation Work Pursuant to Sec. 107, PL 86-645, as amended

Study Identification	Federal Cost	Non-Federal Cost
Buffalo Inner Harbor, NY	$ 31,310	
Erie Basin Marina, Buffalo, NY	(311)	
Fairport Harbor, Lake County, OH	1,898	
Lake Erie Sturgeon Point, Evans, NY	14,839	
Lake Ontario Commercial Truck Port, NY	4,033	
Mentor-on-the-Lake, OH	25,678	
Put-In-Bay Harbor, Put-In-Bay, OH	3,358	
Rochester Harbor, Rochester, NY	78	94
Walnut Creek Access Area – Erie Co., PA	23,732	
West Side Rowing Club, Buffalo, NY	103	
Section 107 Coordination Account	16,454	
Syracuse Inner Harbor and Onondaga Creek, NY	15,959	

Navigation Work Pursuant to Sec. 111, PL 86-645 as amended of the 1968 River & Harbor Act, as amended

Study Identification	Federal Cost	Non-Federal Cost
Lorain Harbor, OH	2,406	

Shore Protection Activities Pursuant to Sec. 103 of the 1962 River and Harbor Act, as amended

Study Identification	Federal Cost	Non-Federal Cost
Krull Park, NY	5,972	
Lake Erie, Athol Springs, Hamburg, NY	22,714	2,164
Lake Erie, Old Lakeshore Road, Hamburg, NY	5,402	
Lake Erie, Painesville, OH	8,955	3,648
Lake Ontario, NYS Rt. 425, Wilson, NY	(2,267)	
Section 103 Coordination Account	5,086	
Sylvan Beach Breakwater, Oneida Lake, NY	86,556	70,749

Flood Control Projects Pursuant to Sec. 205 of the 1954 Flood Control Act, as amended

Study Identification	Federal Cost	Non-Federal Cost
Butternut Creek, Onondaga County, NY	27,463	
Cazenovia Creek, NY	47,162	
Cross Lake, NY	(351)	351
Ellicott Creek, Lancaster, NY	32,297	
Ellicott Creek, Lehn Spring, NY	42,523	
Irondequoit Creek, Penfield, NY	96,966	41,741
Scajaquada Creek, Depew, NY	102	
Swan Creek, Toledo, OH	15,136	

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES (Cont'd)

Flood Control Work Pursuant to Sec. 14 of the 1946 Flood Control Act, as amended

Study Identification	Federal Cost	Non-Federal Cost
Cayuga Creek, Depew, NY	211	
Conneaut Creek, I-90 Bridge, Kingsville, OH	13,212	
Cuyahoga River, Bath Road, Akron, OH	5,738	
Grand River, SR 84 Bridge, Painesville, OH	(2,292)	
Hospice of Western Reserve, OH	96,492	
Lake Ontario, Albion Water, NY	44,446	
Middle Bass Island, Deist Road, OH	(106)	
Minnick Road, Tonawanda Creek, NY	29,264	
Niagara River, Tonawanda, NY	725,244	1,285,972
Ottawa River, Shoreland Drive, Toledo, OH	24,607	
Ransom Creek, Hopkins Rd., Amherst, NY	88,668	
Section 14 Coordination Account	14,916	
Sewerline, Canadaway Creek, Fredonia, NY	16,568	
Sodus Point Lighthouse, NY		1,347
Tonawanda Creek, Niagara Co, NY	31,264	63,000
Tonawanda Creek, Riddle Road, NY	(2,292)	
Lake Erie, Camp Pioneer, Angola, NY	14,966	

Project Modification to Improve Environment Pursuant to Sec. 1135, PL 99-662

Study Identification	Federal Cost	Non-Federal Cost
Buffalo River Habitat	20,787	
Conneaut Creek, Sea Lamprey, OH	1,340	
Conneaut Harbor, East State Park, OH	6,933	
Coordination Account Funds	14,798	
East Harbor State Park, OH	33,245	
Gull Point, Presque Isle, Erie, PA	834	
Lake Neatahwanta, Fulton, NY	3,948	
Preliminary Restoration Plan	725	
Rochester Navigation Channel, NY	102,199	
Sheldon's Marsh, Lake Erie	12,647	
Smokes Creek, Erie County, NY	1,428	
Times Beach Environmental Improvement, NY	89,563	

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES (Cont'd)

Aquatic Ecosystem Restoration Pursuant to Sec. 206, PL 104-303

Study Identification	Federal Cost	Non-Federal Cost
Buffalo State College Wetlands, NY	6,301	
Conewango Valley, NY	21,996	
Jamestown Reservoir, NY	8,904	
Johnson Pond, Lyndonville, NY	971	
Little Beaver Island Wetlands, NY	1,997	
Middle Cuyohoga River, Monroe Falls, Cuyahoga, OH	2,777	
Middle Cuyohoga River, Portage County	2,419	
Oak Orchard Creek, Orleans County, NY	1,047	
Preliminary Restoration Plans	811	
Sec 206 Coordination Account Funds	10,156	
South Park Lane	41,916	
Springville Dam, NY	9,955	
Syracuse Lakefront, Onondaga Lake, NY	5,796	

Shoreline Erosion Control Development and Demo Pursuant to PL 104-303 – Federal Cost $49,098

TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

NAME OF PROJECT	DATE INSPECTED
NEW YORK	
Bird Island Pier, Rehabilitation Project, Buffalo, NY	Aug 2003
Blasdell Creek, Advance Measures Program, Local Flood Protection Project, Hamburg, NY	Aug 2003
Canadaway Creek, Streambank Erosion Project, Dunkirk, NY	May 2003
Canadea Sewage Treatment Plant, Beach Protection Project, Houghton, NY	Aug 2003
Catherine Creek, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Cattaraugus Creek, Flood Protection Project, Arcade, NY	Aug 2003
Cattaraugus Creek Harbor, Flood Protection Project, Irving, NY	Sep 2003
Cayuga Inlet, Flood Protection Project, Ithaca, NY	Jun 2003
Cazenovia Creek, Flood Protection Project, West Seneca, NY	Aug 2003
Conesus Lake, Flood Protection Project, Livonia, NY	Jul 2003
Dry Creek, Flood Protection Project, Moravia, NY	Jun 2003
Ellicott Creek, Clearing and Snagging, Amherst, NY	Jun 2003
Ellicott Creek, Flood Control Project, Tonawanda, NY	Jun 2003
Fredonia Sewage Treatment Plant, Shoreline Protection Project, NY	May 2003
Genesee River, Local Flood Protection Project, Wellsville, NY	Aug 2003
Genesee River, Rogers Cemetery, Emergency Bank Protection Project, Amity, NY	Aug 2003
Genesee River, Rogers Cemetery, Flood Protection Project, Amity, NY	Aug 2003
Hammondsport, Glenn Brook, Clearing and Snagging, Hammondsport, NY	Jul 2003
Kashong Creek, Emergency Bank Protection Project, Geneva, NY	Mar 2003
Keshequa Creek, Emergency Bank Protection and Clearing and Snagging Projects, Nunda, NY	Jul 2003
Keuka Lake Outlet, Flood Control Project, Penn-Yan, NY	Jul 2003
Lake Erie Shoreline, Emergency Shore Protection Project, St. Columbans On-the-Lake, Silver Creek, NY	May 2003
Marsh Creek, Flood Protection Project, Geneva, NY	Mar 2003
Mill Creek, Flood Protection Project, Moravia, NY	Jun 2003
Nine Mile Creek, Local Flood Protection Project, Camillus, NY	Jun 2003
North Branch of Van Campen Creek, Flood Protection Project, Friendship, NY	Aug 2003
Oak Orchard Beach, Shore Protection, Lake Ontario, Kendall, NY	Sep 2003
Oatka Creek, Flood Protection Project, NY	Jun 2003
Onondaga Creek, Flood Control, Nedrow, NY	Jul 2003
Onondaga Creek, Flood Control, Syracuse, NY	Jul 2003
Onondaga Dam, Flood Control, Syracuse, NY	Jul 2003
Owasco Inlet, Flood Protection Project, Moravia, NY	Jun 2003
Owasco Outlet, Clearing and Snagging Project, Auburn, NY	Jul 2003
Owasco Outlet, Flood Protection Project, Port Byron, NY	Jun 2003
Rochester Harbor, Wave Surge Reduction, Rochester, NY	May 2003
Route 20A Bridge, Emergency Bank Protection Project, Geneseo, NY	Nov 2002
Salmon River, Flood Protection Project, Malone, NY	Nov 2002
Scajaquada Creek, Flood Protection Project, Cheektowaga, NY	Aug 2003
Seneca and Cayuga Canal Village, Stream Bank Erosion Control Project, Seneca Falls, NY	Mar 2003
Seneca Lake, Beach Protection, Wakins Glenn, NY	Jun 2003
Shequaga Creek, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Shequaga Falls, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Smokes Creek, Flood Control Project, Lackawanna, NY	Aug 2003
Tonawanda Creek, Local Flood Protection Project, Batavia, NY	May 2003
Trinity Church, Stream Bank Erosion Control Project, Village of Seneca Falls, NY	Mar 2003
Van Buren Point, Advanced Measures Project, Portland, NY	May 2003
Wendt Beach Park, Emergency Shore Protection Project, Evans, NY	May 2003

TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

NAME OF PROJECT	DATE INSPECTED
OHIO	
Baldwin Road, Streambank Erosion Control Project, Kirtland Hills, OH	Nov 2002
Blanchard River, Emergency Streambank Protection, State Route 15, Ottawa, OH	Dec 2002
Chillicothe Road, Flood Control Project, Kirtland, OH	Nov 2002
Confined Disposal Facility #12, Cleveland, OH	Dec 2002
Cuyahoga River, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Eastlake, Emergency Flood Protection Advance Project, Eastlake, OH	Dec 2002
Euclid Creek, Emergency Stream Bank Rehabilitation, Cleveland, OH	Nov 2002
Euclid General Hospital, Emergency Shoreline Protection, Euclid, OH	Jan 2003
Hospice of the Western Reserve, Emergency Shoreline Protection, Cleveland, OH	Jan 2003
Lake Erie Shore Protection, Oregon, OH	Nov 2002
Lakeshore Park, Lake Erie, Shore Protection Project, Ashtabula, OH	Nov 2002
Lakeshore Protection Oregon, Flood Control Project, Oregon, OH	Nov 2002
Lorain Small Boat Harbor, Navigation and Recreation, Lorain, OH	Nov 2002
Main Sanitary Sewer Line, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Maumee Bay State Park, Cooperative Beach Erosion Control, Lucas County, OH	Dec 2002
Mayfield Road, Streambank Protection, Village of Gates Mills, OH	Nov 2002
Municipal Water Supply, Emergency Protection Project, Oregon, OH	Nov 2002
North Coast Harbor/Pier 34 Harbor-of-Refuge Project, Cleveland, OH	Dec 2002
North Portage Path Road, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Oak Harbor, Flood Protection Project, OH	Dec 2002
Sand Road, Emergency Shore Protection, Catawba Island Township, Ottawa County, OH	Dec 2002
State Route 163, Lake Erie, Shore Protection, Marblehead, OH	Dec 2002
PENNSYLVANIA	
Flagship Niagara, Navigation and Recreation Project, Lake Erie, Erie, PA	Sep 2003
Little Elk Creek, Beach Protection Project, Girard, PA	Sep 2003
Presque Isle, Flood Protection Project, Presque Isle, PA	Aug 2003

Inspections of completed flood control works for compliance with Federal requirements were made during the period at a cost of $303,351. This includes updating the hydraulics and hydrology of various local flood control projects. Total cost to Sep. 30, 2003 is $4,455,086.

DETROIT, MI DISTRICT

The District is composed of the upper and lower peninsulas of Michigan and portions of Indiana, Wisconsin and Minnesota, which border the lakes. It includes U.S. waters of Lakes Superior, Michigan, Huron, St. Clair and western Lake Erie. Unless otherwise indicated, all depths stated in this report are referred to low water datum as follows: Lake Superior, 601.1 feet; Lake Michigan-Huron, 577.5 feet; Lake Erie, 569.2 feet; and Lake St. Clair, 572.3 feet. These elevations are in feet above the mean water level at Rimouski, Quebec -- International Great Lakes Datum, 1985 (IGLD 1985).

The IGLD 1985 is a datum or reference system used to define water levels within the Great Lakes - St. Lawrence River system. This datum was implemented in January 1992, officially replacing IGLD 1955. At the time IGLD 1955 was established, it was recognized that this datum would have to be periodically revised due to isostatic rebound. Isostatic rebound is the gradual rising or bouncing back of the earth's crust from the weight of the glaciers that covered the Great Lakes region during the last ice age.

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NAVIGATION

1. ALPENA HARBOR, MI

Location. At mouth of Thunder Bay River which empties into Thunder Bay, Lake Huron. Harbor is 100 miles southeast of Cheboygan Harbor, MI. River has its source in Montmorency and Alpena Counties, MI. (See NOAA Nautical Chart 14864.)

Previous Project. For details see page 1957 of Annual Report for 1915 and page 1548 of Annual Report for 1938.

Existing Project. Provides for a bay channel 200 feet wide and 25 feet deep from deep water in Thunder Bay to a point 300 feet lakeward of the Alpena Light; thence an entrance channel 24 feet deep, narrowing to a width of 100 feet at a point 700 feet upstream from the light; a river channel 100 feet wide, 23 feet deep to Second Avenue Bridge; thence 18.5 feet deep and 75 feet wide for 1,600 feet to upper limit of Federal project; a turning basin at upstream end of project, basin at river mouth 19 feet deep, trapezoidal in shape, with a maximum width of 700 feet including the channel width and a maximum length of 900 feet along the channel line, including removal of existing rubble breakwater; and a breakwater about 550 feet long paralleling lakeward side of new turning basin. Work authorized by the 1965 River and Harbor Act, which consists of the proposed turning basin and breakwater reconfiguration, was deauthorized by the Water Resources Development Act (WRDA) OF 1986; Public Law (PL) 99-662, November 17, 1986, 99th Congress, Title X.

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial docks along Thunder Bay River used primarily for receipt of coal and petroleum products. Also a municipal marina basin about 0.25 mile southwest of river mouth. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $3,149.

Existing project was completed in 1939. The modification of existing project at Alpena Harbor, as authorized by the 1965 River and Harbor Act, was reclassified into an inactive status May 22, 1969 based on an unfavorable benefit-cost ratio. In 1975 the modification was recommended and reviewed for deauthorization, which was withdrawn by Congressional Resolution the same year. Subsequently, the work authorized by the 1965 Act was deauthorized by the WRDA of 1986. Project features are in excellent condition. Total cost of the existing project to end of FY was $2,385,111, of which $337,394 was for new work and $2,047,717 for maintenance.

2. ARCADIA HARBOR, MI

Location. On east shore of Lake Michigan, 193 miles northeasterly from Chicago, IL, and 15 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provided for maintenance dredging of the existing harbor built by private interests, for a period of five years. The five years covered by this project were the calendar years 1905 to 1909, inclusive. Funds were also appropriated and maintenance was performed in calendar years 1911, 1912, 1913 and 1915, inclusive. There is at present no approved project for the improvement of this harbor. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Dock facilities are considered adequate for existing recreational traffic.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $34,533. Safety maintenance performed by hired labor cost $3,893. An adjustment of $1,397 in contract costs and –392 in cubic yards for removal of shoal material was made in maintenance dredging completed last FY. A contract for maintenance dredging was awarded and completed this FY, removing 3,762 cubic yards of shoal material at a cost of $33,246. Engineering, design, surveys, and supervision and administration cost $56,960.

Existing project was completed in 1909. Varying depths of 5-12 feet exist in the channel at present. Maintenance of the harbor is based on providing a 9-foot depth. Piers and revetments are in good condition. Total cost of the existing project to end of FY was $5,645,667.

3. ASHLAND HARBOR, WI

Location. At head of Chequamegon Bay, on south shore of Lake Superior, about 65 miles east of Duluth, MN. (See NOAA Nautical Chart 14974.)

Existing Project. A west channel 20 and 21 feet deep and an east basin 25 and 27 feet deep, both all protected by an 8,000-foot breakwater. For additional details see page 1008 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. City of Ashland owns 4,150 feet of waterfront for future public needs. Wharves for handling coal, ore, limestone, logs and pulpwood are served by railroads. Facilities are considered adequate for existing commerce. Handling of ore and logs has been discontinued for the present.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $7,017. Repairs to the Breakwater, Sections B & C1, were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $164,778. Real estate and supervision and administration cost $12,913.

Work authorized prior to 1960 Act was completed in 1950. Work authorized by 1960 Act was completed in November 1962. Navigation structures are in fair condition. Total cost of the existing project to end of FY was $6,279,081, of which $1,695,645 was for new work and $4,583,436 was for maintenance.

4. BAY PORT HARBOR, MI

Location. On Wild Fowl Bay on east shore of Saginaw Bay about 10 miles south of Caseville, MI. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for a channel 6 feet deep and 50 feet wide extending 5,750 feet from 6-foot contour in Saginaw Bay to intersection of private service channels to be dredged by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small wharves used primarily by commercial fisherman. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $59,216. Engineering, design, and real estate for maintenance contract to be awarded next FY cost $51,924.

Existing project was completed in 1967. Total cost of the existing project to end of FY was $917,292, of which $93,597 was for new work and $823,695 for maintenance (which includes $137,399 contributed funds).

5. BIG SUAMICO RIVER, WI

Location. A small stream which flows easterly into Green Bay, an arm of Lake Michigan. Mouth of the river is about 8 miles north of Green Bay Harbor, and about 44 miles southwesterly from Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14910.)

Existing Project. An entrance channel 8 feet deep which extends from that depth in Green Bay to 1,800 feet above the river mouth, with widths of 100 feet in bay and 60 feet in river; total length of channel is about 3,700 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal facilities. Small private wharves along lower 1.5 miles of river, used by local fishing interests. Ample space is available for additional fishing wharves when required. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $18,242. Supervision and administration to closeout maintenance dredging contract completed last FY cost $5,028.

Existing project was completed in 1938. Dredging channel was started in September 1938 and completed in November 1938. Total cost of the existing project to end of FY was $1,942,168, of which $20,243 was for new work and $1,921,925 for maintenance.

6. BLACK RIVER (PORT HURON), MI

Location. This river has its source in the northern part of Sanilac County, MI, is about 60 miles long, and flows in a southeasterly direction into the St. Clair River. (See NOAA Nautical Chart 14852.)

Previous Project. For details see page 1441 of Annual Report for 1916, and page 1554 of Annual Report for 1938.

Existing Project. Provides for a channel 20 feet deep from deep water in St. Clair River to the Grand Trunk Western Railroad Bridge, 160 feet wide at the mouth, decreasing to 100 feet, about 800 feet from the mouth, thence 100 feet wide for 2,600 feet, decreasing to 75 feet for a distance of 4,800 feet; widening two bends to 100 feet, one at the foot of 12th Street, and the other below the Grand Trunk Western Railroad Bridge; for a settling basin 75 feet wide and 20 feet deep, beginning at the Grand Trunk Western Railroad Bridge in Port Huron and extending upstream a distance of about 2,300 feet; and then for a distance of 2.6 miles as a 100-foot wide river channel, 8 feet deep to the I-94 bridge where it decreases to 6 feet deep and continues to the vicinity of the Black River Drainage Canal with suitable widening where required at bends in the channel. The project modification authorized by the Act of August 30, 1935, is considered to be inactive and is excluded from the foregoing cost for new work. The cost of this modification was last revised in 1954 and was estimated to be $194,000 exclusive of $194,000 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are docks on both sides of Black River near its mouth, and between these docks and the upper limit of improvement there are 5 other docks varying in length from 100 to 500 feet. All docks are privately owned and are restricted to the use of the owners. The facilities are considered adequate for existing commerce. Public recreational boating facilities constructed by the State and local agencies are available, as are privately owned and operated marinas.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $36,784. A contract was awarded this FY in the amount of $502,720 for maintenance dredging. The contract was 40% complete at the end of the FY, removing approximately 16,000 cubic yards of shoal material at a cost of $200,000. Engineering, design, surveys, and supervision and administration cost of $91,930.

All work, except that authorized by Act of August 30, 1935, and the latest modification, has been completed. Total cost of the existing project to end of FY was $2,785,047, of which $830,165 was for new work (includes $349,921 contributed funds) and $1,954,882 for maintenance.

7. BLACK RIVER HARBOR (UPPER PENINSULA), MI

Location. At mouth of Black River on south shore of Lake Superior 39 miles westerly from Ontonagon, MI, and 47 miles easterly from Ashland, WI. (See NOAA Nautical Chart 14965.)

Existing Project. Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. For additional details see page 1092 of Annual Report for 1966. Project depths are 12 feet in the approach channel and 8 feet in the river channel and basin. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests furnished easements on 0.85 acre of land.

Terminal Facilities. Wharves constructed on both sides of river. Wharf on east bank has frontage of 400 feet, on west bank, a frontage of 750 feet.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost $2,997. Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $16,170. Real estate activities cost $9,978.

Project was completed in June 1958. Navigation structures are in good condition. Total cost of the existing project to end of FY was $1,544,550, of which $383,350 was for new work and $1,161,200 was for maintenance. The new work cost does not include $30,000 contributed funds.

8. BOLLES HARBOR, MI

Location. On west shore of Lake Erie at mouth of La Plaisance Creek 7 miles southwest of Monroe, MI. (See NOAA Nautical Chart 14846.)

Existing project. Provides for an entrance channel in Lake Erie, 8 feet deep and 80 feet wide from deep water to a point opposite the outer end of existing jetty, thence widening to 100 feet at creek mouth; an access channel in La Plaisance Creek, 6 feet deep and 100 feet wide at the mouth widening to 120 feet and extending to the first bend, thence narrowing to 50 feet wide and continuing at that width to the La Plaisance Road bridge; a steel sheet pile revetment, about 200 feet long, located along Michigan State Conservation Department property on west side of channel at creek mouth. Project also provides for inclusion of existing 400-foot long steel sheet pile jetty constructed by Michigan State Waterways Commission at the mouth of La Plaisance Creek. (See Table 21-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. The Monroe Boat Club and three marinas provide facilities adequate for existing recreational boat traffic. There is also a public launching ramp and parking area at the Conservation Department fishing site at creek mouth.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $16,694.

The existing project was completed in 1970. (Adequate depths exist over the project length except for the upstream 800 feet.) Facilities are in good condition. Total cost of the existing project to end of FY was $4,424,025, of which $472,916 was for new work (includes $255,000 contributed funds) and $3,951,109 for maintenance.

9. CHARLEVOIX HARBOR, MI

Location. On east shore of Lake Michigan, 276 miles northeasterly from Chicago, IL, and 75 miles northerly from Frankfort, MI. (See NOAA Nautical Chart 14942.)

Existing Project. A channel 24 feet deep in Lake Michigan and a river channel 23 feet deep in the lower and upper channels connecting Lake Michigan with Lake Charlevoix via Round Lake. The channels are protected where needed by piers and revetments. For additional details see page 1476 of Annual Report for 1962. (See Table 21-B for authorizing legislation.) Section 25 of the WRDA of 1988 provides authorization pertaining to the South Pier to Charlevoix Harbor. It states, "The Secretary shall take such action as may be necessary to restore recreational uses established prior to May 1, 1988, or provide comparable recreation uses at the South Pier to Charlevoix Harbor project, Charlevoix, Michigan in

order to mitigate any adverse impact on recreational uses resulting from reconstruction of the South Pier..."

Local Cooperation. None required except the latest project modification is subject to the following: Provide without cost to the United States, all lands, easements, and rights-of-ways required for construction and subsequent maintenance of the modified project upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of excavated materials and any necessary retaining dikes, bulkheads, and embankments, therefore, or the cost of such retaining works; hold and save the United States free from damages due to the constructing and maintenance of the modified project, except for damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminal commensurate with the depths provided in the related project areas; accomplish, without cost to the United States, such alterations of submarine utility crossing as are required by the modified project; establish regulations prohibiting discharge of pollutants into the waters of the harbor by users thereof which regulations shall be in accordance with applicable laws or regulations of Federal, State and local authorities responsible for pollution prevention and control; if acquiring lands, easements and rights-of-ways for construction of the project, local interests will comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1971; PL 91-646, approved January 2, 1971; contribute all costs in excess of $1,000,000 should the total cost of construction of the general navigation facilities exceed that amount, in accordance with provisions of Section 107 of the 1960 River and Harbor Act, as amended. The total first cost of construction (1975) is estimated at $625,000.

Terminal Facilities. Several small landing places in Round Lake at Charlevoix for handling fish and miscellaneous commodities, a wharf for petroleum products at west end of Lake Charlevoix, and coal wharves at Advance and Boyne City. Charlevoix, Boyne City, and East Jordan provide public docks for small craft. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $45,741. Real estate and minor safety repairs performed by hired labor cost $17,768.

Existing project was completed in 1939 except for the latest modification. Navigation structures are in good to fair condition with miscellaneous repairs scheduled in future years. Total cost of the existing project to end of FY was $12,197,171, of which $180,623 was for new work, $10,887,152 for maintenance (Bank Stabilization $46,352), and $1,129,396 for rehabilitation.

10. CLINTON RIVER, MI

Location. Has its sources in Oakland County, MI, flows easterly about 60 miles and empties into Anchor Bay in northwestern part of Lake St. Clair. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1556 of Annual Report for 1938.

Existing Project. An entrance channel in Anchor Bay 8 feet deep, 300 feet wide at 8-foot depth contour in the bay, gradually decreasing to 50 feet wide at about 1,000 feet upstream from mouth of Clinton River, a length of about 4,600 feet; a channel 8 feet deep and 50 feet wide in the river about 38,700 feet long from entrance channel upstream to Mt. Clemens at Cass Avenue; closing old channel and making a cutoff at Shoemakers Bend; closing Catfish Channel; construction of revetments as needed in the river; and a harbor basin, 5 feet deep and 11 acres in area at entrance along bay channel, protected by breakwaters on north and south sides. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. River is used exclusively by recreational craft. There are numerous public and private wharves along the river below the city. They are considered adequate.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $5,777. Maintenance of confined disposal facility performed by hired labor cost $3,532.

Existing project was completed in 1966. Total cost of the existing project to end of FY was $8,855,234, of which $549,798 was for new work (includes $289,752 contributed funds), $4,509,256 for maintenance and $3,796,180 for diked disposal.

11. DETROIT RIVER, MI

Location. One of the Great Lakes connecting channels, 31 miles long, flows south from Lake St. Clair to Lake Erie. (See NOAA Nautical Chart 14848.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1541 of Annual Report for 1938.

Existing Project. Improving Detroit River main channels to provide 25.5-foot draft navigation; improving certain auxiliary and side channels; and construction of various water level and crosscurrent control structures. Details are in accompanying Table 21-H. Project depths are referred to local low water datum planes which correspond to low water datums for Lakes St. Clair and Erie, 572.3 and 569.2 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. No local cooperation is required for modifications authorized by Acts of July 1946 and March 1956. The uncompleted portion of the project authorized by the 1946 and the 1956 R & H Acts, construction of the Compensating Works, with the uncompleted portion of the Trenton Channel modification approved Aug. 13, 1968, were deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Terminal Facilities. Numerous commercial installations used for handling coal, iron ore, limestone, steel products, petroleum products, and other items such as overseas general cargo. Detail on actual port and harbor facilities is in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost $1,054,507. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and the U.S. Survey Vessel WHEELER at a cost of $2,025,676. Maintenance of disposal area performed by hired labor cost $64,247. Engineering and design for closure of dikes at Cell #3 at Pointe Mouillee was initiated at a cost of $66,883. The contract awarded last FY for maintenance dredging the East Outer Lower Livingstone was completed this FY, removing approximately 16,030 cubic yards of shoal material at a cost of $421,710. Engineering, design, surveys, real estate, and supervision and administration cost $189,416.

Latest modification of connecting channels project in the Detroit River is complete except for compensating works. Pertinent data concerning channels covered by project at end of FY are set forth in Table 21-H. Total cost of the existing project to end of FY was $258,138,550, of which $76,877,357 was for new work ($75,346,669 regular funds and $1,530,688 Public Works Funds), $138,790,608 (includes $361,235 Section 150 contributed funds) for maintenance and $42,470,585 for diked disposal.

12. DULUTH-SUPERIOR HARBOR, MN AND WI

Location. At extreme western end of Lake Superior. Cities of Duluth, MN, and Superior, WI, are on north and south sides, respectively. (See NOAA Nautical Chart 14975.)

Previous Projects. See page 1246 of Annual Report for 1962.

Existing Project. Provides for rebuilding canal piers at Duluth entry, replacement or construction of piers and breakwater at Superior entry and dredging approaches and channels within harbor, St. Louis Bay, and St. Louis River. Channels vary in depth from 32 to 28 feet in entrances, are 27 feet deep in iron-ore route channels, and are from 20 to 23 feet deep in inner channels. (See Table 21-B for authorizing legislation.)

For details of authorized channel dimensions and dimensions of structures, see pages 1246 and 1247 of Annual Report for 1962 and page 1011 of Annual Report for 1965. Portion of project for deepening Twenty-first Avenue West channel was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

The WRDA of 1986 authorized modifications to the project to deepen the western portions of North and South Channels, the entire Upper Channel and the Minnesota Channel to 27 feet LWD; widen the Cross Channel to provide a minimum turning basin of 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet; and construct an upland confined disposal facility. The current recommended plan involves only the mechanical dredging of the Cross Channel Turning Basin with disposal at the Erie Pier CDF. The remainder of the project is now unscheduled.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 150, 86th Congress, 1st Session and also includes, as a result of PL 99-662, construction cost sharing.

Terminal Facilities. There are 113 docks or terminals including some 54 major ones; all but one privately owned. Facilities for handling iron ore, coal, limestone, petroleum, steel and scrap iron, cement, general cargo, and grain are believed adequate for most existing commerce.

Operations During Fiscal Year. Maintenance: Operation and maintenance of the museum performed by Government forces and contract cost $523,988. Operation and maintenance of service facilities and park pier performed by hired labor cost $186,205. Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost $493,726. Safety repairs performed by hired labor cost $58,688. Duluth and Superior Entry Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $401,670. Maintenance of the disposal area performed by hired labor cost $70,922. Engineering and design for repair of the Superior Entry, South Pier (Phase II) continued at a cost of $29,446. An adjustment of -$8,912 was made in contract costs and –19,033 in cubic yards for FY01 maintenance dredging completed last FY. The contract awarded last FY for maintenance dredging was completed this FY, removing 9,628 cubic yards of shoal material at a cost of $172,453. Engineering and design for maintenance dredging contract to be awarded next FY began at a cost of $41,113. Surveys, real estate, and supervision and administration cost $327,506. Real estate disposal activities for Wisconsin & Left Hand Points continued at a cost of $14,862.

Work authorized prior to 1960 Act was completed in June 1956. Under the 1960 Act, work on the outer harbor, included in House Document 150, was completed in June 1965. Work in the inner harbor, included in House Document 196, started in May 1963, was completed in November 1968 except for 21st Avenue West channel portion which was deauthorized December 31, 1989. Of the work authorized in WRDA 1986, only the Cross Channel dredging has been completed (September 1994). All other authorized improvements are unscheduled.

The United States owns 34.90 acres of land in fee in Minnesota and Wisconsin of which 2.15 acres are used for a vessel yard. Navigation structures are in poor to excellent condition; repairs are scheduled in the near future. Total cost of the existing project to end of FY was $116,269,117, of which $17,226,343 was for new work (includes $331,685 contributed funds), $85,931,115 for maintenance, $1,556,249 for diked disposal and $11,555,410 for rehabilitation.

13. FOX RIVER, WI

Location. Rises in Columbia County, WI, and flows about 176 miles northerly into Green Bay. Wolf River, physically a main river but by designation a tributary of Fox River, rises in central part of Fort County, WI and flows southerly. (See NOAA Nautical Chart 14916 for Lake Winnebago and lower Fox River.)

Previous Projects. See page 1368 of Annual Report for 1962.

Existing Project. Deepening and widening channel of Fox River from DePere 7 miles above mouth to confluence of Wolf River, a total length of 59 miles, to 6 feet, with 9.6 feet in rock cut below DePere lock and 7 feet in other rock cuts on lower river below Menasha lock; construction and reconstruction of 19 locks and 9 dams; a concrete retaining wall at Kaukauna; construction and maintenance of harbors having depths of 6 feet on Lake Winnebago; widening Neenah Channel to 100 feet, with a 6-foot depth for about 1 mile; and dredging, snagging, and otherwise improving Wolf River 47 miles from its mouth to New London, depth to be 4 feet.

Cost of completed portion of project is $513, 424 for the lower river exclusive of previous projects. The uncompleted portion of the project authorized by the River and Harbor Act of 1925, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Section 332 of the WRDA of 1992 authorized the transfer of the navigation system to the State of WI subject to agreement; however, water regulation and dam operation will be continued by the Federal government. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Wharf and landing facilities are, in general, adequate for existing needs. (See Table 21-I on locks and dams, Fox River, WI.)

Operations During Fiscal Year. Maintenance: Condition surveys, environmental activities, safety training, miscellaneous inspections and reports, and

plans for flood emergencies were performed at a cost of $434,869. Water control studies, monitoring and regulation of water levels were performed at a cost of $327,693. Real Estate activities cost $42,002. The operation and maintenance of nine (9) dams and ten (10) overflow weirs and caretaker status maintenance of seventeen (17) locks and two (2) guard locks totaled $482,996. Federal canal banks at various locations were repaired at a cost of $379,490. Supervision and administration costs were $93,363. Work for Phase II site assessment to support the transfer of the locks to the state of Wisconsin continued at a cost of $182,709. (CORRECTION to Gate Hoist contract costs: The FY00 basic contract (erroneously cited as FY99 basic contract in the FY 2001 annual report) was completed in FY02 in the amount of $92,879. Option one was 93% complete at the end of FY01 at a cost of $1,645,121.) Option one of the FY00 contract to renovate the gate hoist and electrical mechanism at the remaining seven (7) dams was completed this FY at a cost of $219,704. Work began on option two of this contract to renovate machinery at the Little Kaukauna and Rapid Croche Dams in the amount of $1,797,232. Engineering and design during construction for this work cost $17,650. Supervision and administration of the contract cost $169,162. Option three of this contract to renovate machinery at the De Pere Dam was awarded in the amount of $1,857,156. Renovation will begin next FY. An adjustment of -$209 was made in supervision and administration costs to closeout the FY01 repair of the Little Kaukauna Dam retaining wall. Engineering and design for repair of the right abutment at Upper Appleton Dam continued at a cost of $26,696. Engineering and design continued for concrete (crack) repairs at dams in the amount of $19,186.

Existing project is complete except for the inactive portion. Nineteen original locks and nine original dams were rebuilt. (See Table 21-I for year of completion of each). Structures and dredging in pools have increased original depths generally about 2 feet. Work remaining to complete project consists of dredging in upper portion of Wolf River, and rock removal and deepening of Neenah Channel on lower Fox River, which are no longer considered necessary. The dams tainter gates are receiving new hoist mechanisms. Existing dams repairs are underway or programmed in the near future; but many of the locks are in extremely poor condition. Only the most critical lock repairs are being made to maintain the pool for industry and hydropower users. Total cost of the existing project to end of FY was $80,687,787, of which $3,753,334 was for new work and $76,934,453 for operation and maintenance. Between July 5, 1884 and June 30, 1935, funds in the amount of $3,706,187 were expended on operation and care of works of improvement under provisions of permanent indefinite appropriation for such purposes.

14. FRANKFORT HARBOR, MI

Location. On east shore of Lake Michigan, 204 miles northeasterly from Chicago, IL, and 28 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for constructing an exterior basin in Lake Michigan formed by two breakwaters, 450 feet apart at the outer ends, diverging at an angle of about 90 degrees, the main arm and shore connection on north breakwater are 972 and 1,000 feet long, respectively, and the main arm and shore connection of south breakwater 1,188 and 1,400 feet long, respectively; for removing 801 feet of north pier and 1,172 feet of south pier; dredging basin 20 feet deep and 800 feet wide at entrance, decreasing toward new pier heads to 600 feet wide, dredging approach and entrance channel through outer basin to a depth of 24 feet from deep water in Lake Michigan to a point 500 feet landward of opening between breakwaters, over the entire width outside the breakwaters; thence to maximum width of 500 feet inside the breakwaters and to 23 feet deep through inner portion of outer basin to outer end of north pier, over widths decreasing from 500 to 160 feet; and thence to 22 feet deep between the piers to the inner basin in Lake Betsie; dredging an 18-foot deep interior basin in Lake Betsie from within 50 feet of existing structures on the west and extending eastward about 1,550 feet to easterly boundary and from within 50 feet of existing structures on the north and extending southward 800 feet to the southerly boundary; dredging a recreational craft anchorage area 10 feet deep and 300 feet wide, extending 600 feet eastward of the east limit of the interior basin, with its north side in line with the north limit of the basin. Breakwaters and shore connections are built of concrete caissons and piling capped with concrete. Inner piers and revetments are built of stonefilled timber cribs and piling, all capped with concrete, except for 476 feet of south revetment which consists of steel sheet piling. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car ferry slips on south shore and several docks along north shore of Lake Betsie. The City and State provide a recreational docking facility on north side of Lake Betsie which is open to all on equal terms. There is also a marine

railway capable of handling small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $100,338. Minor structure repairs and safety maintenance performed by hired labor cost $13,567. Real estate activities cost $4,911. Engineering and design for repairs to the North Breakwater, Sections C and D, continued at a cost of $49,641. Engineering and design for future maintenance dredging cost $16,842.

Existing project was completed in 1939, with exception of the latest modification that was completed in 1969. For additional details on completion of existing project see page 1474 of Annual Report for 1962. Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was $14,264,973, of which $1,955,159 (includes $31,709 contributed funds) was for new work, $10,830,538 for maintenance, $1,204,500 for diked disposal and $274,776 for rehabilitation.

15. GRAND HAVEN HARBOR AND GRAND RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 108 miles northeasterly from Chicago, IL, and 23 miles northerly from Holland, MI. River rises in Jackson County, MI, and flows 260 miles westerly into Lake Michigan. (See NOAA Nautical Chart 14933, and Geological Survey Grand Rapids quadrangle.)

Previous Project. For details see page 1949 of Annual Report for 1915, and page 1481 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Grand River, a deep draft channel in river extending to Spring Lake, a turning basin, and a shallow draft channel in river extending 14.5 miles upstream to Bass River. Project depths are 23 feet in entrance channel, 21 feet in river to turning basin, 18 feet in turning basin and channel to Spring Lake, and 8 feet in upper Grand River channel. For additional details see page 1461 of Annual Report for 1962. Dredging on northerly side of inner channel is considered inactive. Estimated cost of this portion (1954) is $38,600. The WRDA of 1986 authorized modifications to deepen the harbor entrance and river channels to 29 and 27 feet, respectively; and provides for a new and larger turning basin. Estimated cost (Oct 90) is $20,400,000, which includes $11,754,000 Federal and $8,646,000 non-Federal. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 661, 76th Congress, 3d Session, and also includes, as a result of PL 99-662, construction cost sharing requirements as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $4,246,000. The estimated cash contribution of $4,246,000 to be paid in lump sum, prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined; and

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at $2,040,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution of lands, easements, rights-of-ways, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost.

Terminal Facilities. Several wharves exist for handling coal, limestone, sand and gravel, petroleum products, fish, and miscellaneous commodities. There is also a car-ferry slip, which is inactive. The State and local agencies provide recreational boating facilities, which are open to all on equal terms. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, confined disposal facility monitoring, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $294,882. Development of dredged material management plans continued at a cost of $74,741. Safety maintenance performed by hired labor cost $10,676. Engineering and design for repair of the North Pier, Section B, continued at a cost of $50,885. An adjustment of $27,618 was made in contract costs for the basic requirement of the multi-year contract completed last FY for maintenance

dredging the outer harbor. Option year one of this contract began this FY, removing approximately 11,943 cubic yards of shoal material at a cost of $54,227. This contract was also for Section 111 beach nourishment. Engineering, design, surveys, real estate, and supervision and administration cost $64,458. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of $52,547. Beach nourishment in conjunction with above maintenance dredging outer harbor contract cost $21,756. Supervision and administration under Section 111 cost $6,917.

Existing project was substantially completed in 1949. For additional details on completion of existing project see page 1463 of Annual Report for 1982. Condition of navigation structures range from good to poor with portions in a general state of deterioration and are scheduled for repairs. Total cost of the existing project to end of FY was $40,975,749; of which $1,458,469 was for new work, $37,923,267 for maintenance (includes $15,585 contributed funds), $780,400 diked disposal and $813,613 for rehabilitation.

16. GRAND MARAIS HARBOR, MI

Location. On south shore of Lake Superior, 93 miles west of Sault Ste. Marie, MI (See NOAA Nautical Chart 14962.)

Existing Project. Provides for a channel protected by parallel piers and for closing natural entrance channel with a pile dike. Project depths are 18 feet between piers and 20 feet in lake approach. For additional details see page 1449 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Several small piers, a Coast Guard Station, and a small boat pier and launching ramp built by the State of Michigan provide facilities adequate for present traffic.

Operations During Fiscal Year. Maintenance: Condition surveys performed by Government forces and contract cost $2,544. A major rehabilitation evaluation report was continued at a cost of $159,502. The report will update previous cost estimates and determine if reconstruction of the pile breakwater is warranted.

Existing project is complete except for widening a portion of channel from 250 to 300 feet. Project now being maintained to 19 and 15 feet below I.G.L.D., in lieu of 20 and 18 feet, which is adequate for current usage. The Pile Dike Breakwater is severely deteriorated and no longer maintained, major repair is required to make the Breakwater functional. Total cost of the existing project to end of FY was $3,987,313, of which $1,055,871 was for new work and $2,931,442 for maintenance.

17. GRAND TRAVERSE BAY HARBOR, MI

Location. At mouth of Traverse River on eastern shore of Keweenaw Peninsula about 20 miles northeasterly from Portage entry to Keweenaw Waterway. (See NOAA Nautical Chart 14964.)

Existing Project. Provides two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between piers and 10 feet in basin. Project area extended 200 feet upstream in 1966. For additional details see page 1015 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests furnished easements on 5.1 acres of land.

Terminal Facilities. Several privately owned fishing wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost $53,559. A contract for maintenance dredging was awarded and completed this FY, removing 15,298 cubic yards of shoal material at a cost of $122,991. Engineering, design, surveys and supervision and administration cost $39,292.

Existing project was completed in 1950 except for extension of north pier completed in 1964. Steel cells and piers are in good condition. Total cost of existing project to end of FY was $3,011,677, of which $329,565 was for new work and $2,682,112 for maintenance.

18. GREEN BAY HARBOR, WI

Location. At mouth of Fox River, at head of Green Bay, about 180 miles from Milwaukee, WI, via Sturgeon Bay Canal, and about 49 miles southwest of

Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14918.)

Previous Projects. See page 1366 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-30.

For more detailed description of project see page 1216 of Annual Report for 1963.

Cost of completed portion of project is $9,335,000 Federal, and non-Federal cost is $490,000 including $100,000 contributed funds. Local interests requested that the inactive portion of the 1962 River and Harbor Act, consisting of dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge, be reactivated and the authorization modified to include deepening the adjacent turning basin and modifying the Chicago & Northwestern Railway Bridge to provide increased horizontal clearance. Estimated cost of this portion (1990) is $6,130,000; $4,030,000 Federal and $2,100,000 non-Federal which includes $1,970,000 local contribution. Section 601c of the WRDA of 1986 authorized deepening the Fox River Channel, Green Bay, WI, to 27 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for existing project.

Terminal Facilities. There are 16 wharves for handling coal, petroleum products, cement, limestone, general overseas cargo and miscellaneous commodities. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces cost $413,711. FY02 contract for maintenance dredging the outer harbor was completed this FY, removing 104,431 cubic yards of shoal material at a cost of $1,590,514. A contract was awarded this FY for maintenance dredging in the amount of $1,769,300. The contract was 30% complete at the end of the FY, removing approximately 35,500 cubic yards of shoal material at a cost of $524,000. Engineering, design, surveys, real estate, and supervision and administration cost $174,148.

Existing project is complete. The 1962 modification was started in November 1966 and completed in September 1973, except for dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge. Dredging of the turning basin above C & N.W. Railway Bridge was commenced in August 1938. The turning basin was enlarged under authority of Section 5 of the Rivers and Harbors Act of March 4, 1915, in order to provide sufficient area for the large ships that use it. The work was performed as part of a maintenance dredging contract in September and October 1973. East revetment at Grassy Island was entirely removed in July 1935. Dredging Fox River and entrance channel to Tail Point Light was completed in September 1967. Total cost of the existing project to end of FY was $68,979,956 ($68,039,156 regular funds and $940,800 Public Works Funds), $9,946,395 for new work, $51,129,250 for maintenance and $7,904,311 for diked disposal. The new work cost does not include $100,000 contributed funds.

19. HOLLAND HARBOR, MI

Location. On east shore of Lake Michigan 95 miles northeasterly from Chicago, IL, and 23 miles southerly from Grand Haven, MI. (See NOAA Nautical Chart 14932.)

Previous Project. For details see page 1948 of Annual Report for 1915, and page 1478 of Annual Report for 1938.

Existing Project. An outer breakwater protected approach channel in Lake Michigan, an entrance channel to Lake Macatawa protected by piers and revetments, a channel through Lake Macatawa into Black River, and a turning basin. Project depths are 23 feet in outer portion of approach channel decreasing to 21 feet at outer end of inner piers, 21 feet to upper end of project, and 18 feet in turning basin. For additional details see page 1458 of Annual Report for 1962.

The uncompleted portion of the project, widening bend of entrance channel into Lake Macatawa, was deauthorized Dec, 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project.

Terminal Facilities. Wharves are at inner end of Lake Macatawa and used for handling coal, building materials, petroleum products, and miscellaneous commodities. Two shipbuilding yards are on south

shore of the lake. Holland provides a public wharf for small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost $186,627. Safety and confined disposal facility maintenance performed by hired labor cost $8,423. An adjustment of $25,470 was made in contract costs for the basic requirement of the multi-year contract completed last FY for maintenance dredging the outer harbor. Option year one of this contract began this FY, removing approximately 21,500 cubic yards of shoal material at a cost of $75,470. This contract was also for beach nourishment. Placement area discharge cost $22,378. Engineering, design, real estate, surveys, and supervision and administration cost $54,318. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of $51,650. Beach nourishment in conjunction with above maintenance dredging outer harbor contract cost $25,560. Supervision and administration under Section 111 cost $5,179.

Existing project, with exception of widening bend in revetted entrance channel authorized by Act of September 3, 1954, was completed in 1957. For additional details on completion of existing project, see page 1460 of Annual Report for 1962. Navigation structures are in good to fair condition with repairs anticipated within the next 5 years. Total cost of the existing project to end of FY was $33,971,194, of which $1,392,827 was for new work ($1,180,502 regular funds, $176,620 for previous project and $35,705 contributed funds), $30,412,615 for maintenance, $1,663,300 for diked disposal and $502,452 for rehabilitation.

20. THE INLAND ROUTE, MI

Location. A series of interconnected lakes and streams stretching across northern tip of Lower Peninsula of Michigan, and extends from Conway near Lake Michigan to Cheboygan on Lake Huron; a distance of 35 miles. Crooked and Indian Rivers are connecting channels in the waterway. (See NOAA Nautical Chart 14886.)

Existing Project. Provides for a channel 30 feet wide and 5 feet deep, with necessary widening at bends, through Crooked and Indian Rivers, and Crooked, Burt, and Mullett Lakes, and from Conway (west end of Crooked Lake) to navigation lock at Cheboygan; in Pickerel Channel from Pickerel Lake to Crooked Lake. It also provides for suitable jetties at head of Indian River. The addition of a lock and dam was approved by the Chief of Engineers on Sep. 2, 1964, to correct a design deficiency. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. None exist for commercial cargo-handling along the Crooked and Indian Rivers. Numerous small privately owned timber piers and wharves, some equipped with covered boat wells for serving and storing recreational craft, have been constructed. Landings maintained by hotel and resort operators are open to the public for transfer of passengers. Public docks are at Conway and Oden on Crooked Lake; the village of Indian River, Topinabee, and Mullett Lake Village on Mullett Lake; and at Cheboygan. About 30 highways dead end at water's edge, permitting public access for various marine activities. Dock facilities are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: The navigation lock was operated and maintained by the State of Michigan at no cost to the Government. In FY 03, the lock was operated from 9:00 a.m. to 5:00 p.m. April 26-27, May 3, 4, 10, 11, 17, 18, September 15-30. The lock was operated 8:00 a.m. to 9:00 p.m. May 24–June 30, and 8:00 a.m. to 8:00 p.m. September 2-14. The lock was operated from 8:00 a.m. to 10:00 p.m. July 1–September 1. The lock was operated from 9:00 a.m. to 11:00 a.m. and 3:00 p.m. to 5:00 p.m. October 4, 5, 11, 12. The lock closed for the season on October 12 at 5:00 p.m. Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $27,606.

The existing project was completed in 1958. The lock and dam was completed in FY 1968. For additional details see page 1382 of Annual Report for 1960. Total cost of the existing project to end of FY was $4,971,192, of which $918,222 was for new work (includes $148,000 contributed funds), $3,648,670 for maintenance, and $404,300 for diked disposal.

21. KENOSHA HARBOR, WI

Location. On west shore of Lake Michigan about 35 miles south of Milwaukee and about 54 miles north of Chicago. (See NOAA Nautical Chart 14904.)

Previous Project. See page 1390 of Annual Report for 1962.

Existing Project. For detailed description see page 1237, Annual Report for 1963. Estimated (1986) Federal cost is $455,000 exclusive of amounts expended on previous projects, and $195,000 non-Federal which includes $155,000 local contribution. (See Table 21-B for authorization legislation.)

The uncompleted portion of the project authorized by the 1962 River and Harbor Act, dredging of 25-foot wide strips adjacent to the north and south piers, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves used for miscellaneous foreign overseas commodities and autos, and also several fish wharves. While these facilities are considered generally adequate for existing commerce, more efficient use of existing terminals and utilization of available frontage for development of additional terminals should be made.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $3,366.

Existing project is complete except for dredging 25-foot strips adjacent to the north and south piers which was deauthorized December 31, 1989. The north and south piers were completed in 1900 and the breakwater in 1909. Navigation structures range from fair to good condition; Detached North Breakwater needs repair. Total cost of the existing project to end of FY was $14,527,419 ($14,499,761 were regular funds and $27,658 Emergency Relief Funds), of which $988,969 was for new work, $7,889,575 for maintenance, $4,378,600 for diked disposal and $1,270,275 for rehabilitation. The new work cost does not include $3,000 contributed funds.

22. KEWAUNEE HARBOR, WI

Location. On west shore of Lake Michigan, about 105 miles north of Milwaukee, WI, and about 78 miles from Green Bay, via Sturgeon Bay Canal. Harbor is at mouth of Kewaunee River. (See NOAA Nautical Chart 14908.)

Previous Projects. See page 1375 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-31.

Costs of completed project are $603,021 Federal, and $9,000 non-Federal, exclusive of amount expended on previous projects. Uncompleted portion (estimated $200,000, July 1965) of 1935 River and Harbor Act is considered inactive, and excluded from present cost estimate. The portion authorized by the 1960 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car-ferry slips, a petroleum tank farm, a Corps of Engineers project office, and several fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $70,291. Safety repairs, and supervision and administration cost $8,737.

Active portion of existing project is complete. The north pier was completed in 1897 and the remaining portion is in generally good condition. Rehabilitation of the south pier was completed in June 1967. Construction of north breakwater and shore connection, except for a gap of 150 feet about 830 feet from shoreward end, and removal of outer 706.5 linear feet of north pier was commenced in September 1935 and completed in June 1937. Removed 500 linear feet of north pier in April/May 1963 and widened and deepened the adjacent channel in 1965. Outer end of the north pier was struck and severely damaged by car ferry vessel in October 1973 and a 24-foot section at outlet end was subsequently removed, thus reducing the structure to a length of 626 feet. Dredging entrance channel in interior basin to the existing project depth was commenced in April and completed in October 1938. Kewaunee River is navigable to about 6.5 miles above mouth for craft drawing not more than 4 feet. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was $13,086,829, of which $758,333 was for new work ($338,333 regular and $420,000 Emergency Relief Funds) $8,749,735 for maintenance, $2,961,461 for diked disposal and $617,300 for rehabilitation.

23. KEWEENAW WATERWAY, MI

Location. In Lake Superior across Keweenaw Peninsula in upper peninsula of Michigan. The west

entrance is 169 miles east of Duluth, MN. (See NOAA Nautical Chart 14972.)

Existing Project. A navigable channel, minimum width 300 feet, 25 miles long, partially natural and partially artificial, across Keweenaw Peninsula via Portage Lake. For details see page 1121 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

The uncompleted portion of the project for navigation at Keweenaw Waterway, Houghton County, MI, authorized by the River and Harbor Act of Aug. 30, 1935, PL 409, 73rd Congress, which consists of extending the lower entrance breakwater by 2,000 feet, including the necessary alteration or replacement of structures due to channel deepening, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. Six coal docks, a petroleum dock, and several general merchandise and miscellaneous wharves, all privately owned. Facilities are considered adequate for existing commerce. Also present is a government constructed recreational area with facilities to include a picnic area and small boat landing range.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $71,924. Safety repairs performed by hired labor cost $1,759.

Active portion of the project is complete. Lower entry piers are in fair condition. It is anticipated repairs will be required within the next ten years. Upper entry breakwaters are in good condition, but require annual stone maintenance due to severity of the wave climate. Total cost of the existing project to end of FY was $36,217,276, of which $5,974,141 was for new work, $28,719,635 for maintenance and $1,523,500 for diked disposal.

24. KNIFE RIVER HARBOR, MN

Location. Near mouth of Knife River on north shore of Lake Superior, 19 miles northeasterly from Duluth, MN, and 7 miles southwest of Two Harbors, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Provides for an entrance channel with a system of overlapping breakwaters, using the existing breakwater and a new breakwater constructed of 731 feet of rock rubblemound. The entrance channel is 9 feet deep and an inner straight channel is 8 feet deep, 50 feet wide, and 600 feet long with a public marina and side channel at its inner end. For additional details see page 1110 of Annual Report for 1963. A modification to correct a design deficiency was authorized in 1974. (See Table 21-B for authorizing legislation.)

Local Cooperation. Local interests are to furnish easements on 15.08 acres of land.

Terminal Facilities. Local interests have installed pile-and-timber docks on both sides of straight channel. Lake County has completed construction by contract of a marina along the east wing of the inner harbor.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $26,002.

Project was completed in June 1958. Breakwater is in fair condition. The existing breakwater does not effectively prevent waves caused by northeasterly winds from entering the entrance channel. This results in unsatisfactory and unsafe harbor entrance conditions during storms. Mooring conditions in the main channel and Y-branches of the inner harbor are also adversely affected. Plans and specifications for the construction of a breakwater to correct a design deficiency to reduce wave damage and improve navigation conditions were completed and approved by NCD in 1982. Total project costs to end of FY were $875,873, of which $528,945 was for new work and $346,928 for maintenance.

25. LAC LA BELLE HARBOR, MI

Location. On the south shore of Lake Superior on the eastern shore of Keweenaw Peninsula, 41 miles northeasterly from Portage entry to Keweenaw Waterway. Lack La Belle, Bete Grise Bay, and Mendota Ship Canal combine to form the harbor. (See NOAA Nautical Chart 14964.)

Existing Project. Provides for construction of two parallel piers at the entrance having lengths of 584 and 682 feet for north and south piers, respectively; for an entrance channel between the piers 50 feet wide and 12 feet deep, about 820 feet long with a flared approach; and for an inner canal 50 feet wide and 10 feet deep,

about 730 feet long. For additional details see page 1039, Annual Report for 1964. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small, privately owned wharves are available in the harbor for use of small craft engaged in fishing and recreational activities. A State owned dock for small craft is located at the northwest corner of Lac La Belle Bay.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $2,621.

The existing project was completed in 1960. Controlling depths are about 11 feet in the approach channel and 10 feet in the inner channel. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was $1,125,679, of which $269,270 was for new work and $856,409 for maintenance. The new work does not include $38,190 contributed funds.

26. LAKE ST. CLAIR, MI, CHANNELS IN

Location. Lake St. Clair, a section of Great Lakes connecting channels, is an expansive shallow basin having a vessel track length of about 15 miles from mouth of St. Clair River to head of Detroit River. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 2882, Annual Report for 1896; pages 1957-58, Annual Report for 1915; and page 1539, Annual Report for 1938.

Existing Project. An improved channel through Lake St. Clair 800 feet wide, 27.5 feet deep, and about 14.5 miles long; extending from mouth of Southeast Bend cutoff channel at lower end of St. Clair River to head of Detroit River Channel. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. None.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of the water control center, and miscellaneous inspections and reports performed by Government forces cost $67,551. Maintenance of the confined disposal facility performed by contract at a cost of $10,100. Startup of disposal actions for Gull Island, MI cost $30,009.

Total cost of the existing project to end of FY was $22,028,017, of which $7,675,357 was for new work ($6,666,762 regular funds and $1,008,595 Public Works Funds), $9,232,860 for maintenance, and $5,119,800 for diked disposal.

27. LELAND HARBOR, MI

Location. A light-draft harbor on eastern shore of Lake Michigan at mouth of Carp River, about 40 miles north of Frankfort, MI, and 40 miles southwest of Charlevoix, MI. (See NOAA Nautical Chart 14912.)

Existing Project. Provides for a harbor of refuge consisting of a breakwater about 1,200 feet long, a protected anchorage and maneuver area about 3 acres in extent and 10 feet deep, a 12-foot deep flared approach channel decreasing in width to 90 feet, an existing south pier 440 feet long, a 35-foot long cellular extension to south pier, an entrance channel 6 feet deep and 40 feet wide extending to mouth of Carp River, and for elimination of existing north pier. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Privately owned wharves on each side of river below the dam which is 400 feet above the river mouth. These wharves serve the local fishing interests and recreational craft. Public facilities are operated by the State and local agencies. All available dockage space is utilized.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $29,224. Safety maintenance performed by hired labor cost $4,125. A contract for maintenance dredging was awarded and completed this FY, removing 17,479 cubic yards of shoal material at a cost of $80,546. Engineering, design, surveys, and supervision and administration cost $70,948.

The existing project was completed in 1932 except for the 1962 authorization, which was completed in 1967. Navigation structures are in good condition. Total cost of the existing project to end of FY was $5,335,001, of which $1,027,089 was for new work (includes $354,139 contributed funds), $4,237,234 for maintenance and $70,678 for rehabilitation.

28. LEXINGTON HARBOR, MI

Location. On southwest shore of Lake Huron, 20 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for two offshore breakwaters opening to the southeast and totaling about 2,400 feet long with provisions for recreational fishing on the main breakwater; an anchorage and maneuver area of about 5 acres, 8 feet deep; and a flared approach channel 10 feet deep, decreasing to 160 feet in width through the breakwaters. Project also provides for recreational fishing facilities. Estimated (1979) Federal cost of new work is $1,647,306 excluding $1,088,888 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Assurances of local cooperation were furnished by the Michigan Department of Natural Resources to the Secretary of the Army. The cash contribution was $1,088,888.

Terminal Facilities. An existing public fishing pier of open pile construction is not adequate for existing and prospective commerce. Complete boating facilities are planned by State and local agencies in connection with the harbor construction.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $40,810. A contract for maintenance dredging was awarded in the amount of $69,925. The contract was 91% complete at the end of the FY, removing approximately 17,500 cubic yards of shoal materials at a cost of $63,925. Engineering, design, real estate, and supervision and administration cost $31,804. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of $29,723. Engineering, design, and sediment sampling for beach nourishment (trucking) contract was completed at a cost of $66,012.

The existing project was completed during FY 1977. Navigation structures are in fair condition. Total cost of the existing project to end of FY was $6,513,032, of which $3,107,192 (includes $1,088,888 contributed funds) was for new work and $3,405,840 for maintenance.

29. LITTLE LAKE HARBOR, MI

Location. On south shore of Lake Superior 21 miles west of Whitefish Point and 30 miles east of Grand Marais, MI. (See NOAA Nautical Chart 14962.)

Existing Project. Provides for a small-craft harbor of refuge by dredging an entrance channel 12 feet deep from Lake Superior into Little Lake, suitably protected by breakwaters and revetments. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Only terminal facility at project consists of a public dock built by the State of Michigan for light-draft craft.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $20,701. A contract for maintenance dredging was awarded and completed this FY, removing 31,000 cubic yards of shoal material at a cost of $238,573. Engineering, design, surveys, and supervision and administration cost $58,451.

This project is considered complete; however, because of shifting sand, the harbor entrance shoals rapidly with the result that full project depth is not usually available. Navigation structures are in good condition. Total cost of the existing project to end of FY was $6,060,593, of which $600,478 was for new work (includes $57,670 contributed funds) and $5,460,115 for maintenance.

30. LUDINGTON HARBOR, MI

Location. On east shore of Lake Michigan, 156 miles northeasterly from Chicago, IL, and 67 miles northerly from Grand Haven, MI. (See NOAA Nautical Chart 14937.)

Previous Project. For details see page 1951 of Annual Report for 1915, page 1491 of Annual Report for 1938, and page 1307 of Annual Report for 1963.

Existing Project. Provides for an exterior basin in Lake Michigan protected by north and south breakwaters, north breakwater is 1,800 feet long and south breakwater 1,700 feet long, 550 feet apart at outer ends, diverging at an angle of 90 degrees, with shore connections, 1,103 and 2,004 feet long, respectively; for dredging exterior basin to 18 feet deep with a maximum width of 1,500 feet; for a channel with a depth of 29 feet from deep water in Lake Michigan decreasing to 27 feet at the west end of the north pier, over a maximum width of 600 feet; thence a channel with a depth of 27 feet, over a minimum width

of 230 feet with necessary widening at Pere Marquette Lake; and for inner piers and revetments, 1,649 feet long on north and sufficiently long on the south for turn at Pere Marquette Lake. The estimated (1977) Federal cost for new work is $8,250,000. Estimated total cost for local interests is $147,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. In addition to main terminal of Chesapeake & Ohio Railway Company consisting of three car ferry slips, a wharf, and warehouses, there are several wharves which handle coal, limestone, and miscellaneous commodities. Facilities are adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $113,320. Safety maintenance performed by hired labor cost $8,574. Engineering and design for future maintenance dredging was initiated at a cost of $15,944. Supervision and administration to closeout option one of the FY01 maintenance dredging contract cost $9,003.

Existing project was completed in 1918. For additional details on completion of existing project see page 1469 of Annual Report for 1962. Structures are in good condition except for the south breakwater head that needs repair. Total cost of the existing project to end of FY was $31,478,050, of which $8,532,202 was for new work, $22,587,935 for maintenance, and $357,913 for rehabilitation. The maintenance cost does not include $136,286 contributed funds.

31. MANISTEE HARBOR, MI

Location. On east shore of Lake Michigan, 179 miles northeasterly from Chicago, IL, and 26 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14938.)

Previous Project. For details see page 1952 of Annual Report for 1915, and page 1493 of Annual Report for 1938.

Existing Project. An entrance channel in Lake Michigan protected by a breakwater, piers, and revetment; a channel in Manistee River to Manistee Lake; and Federal participation in cost of replacing Maple Street Bridge. Project depths are 25 feet in entrance channel and 23 feet in river channel. For additional details see page 1470 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Installations are on both sides of river and on Manistee Lake. Commerce handled includes coal, sand, salt, and general cargo. In addition, there is a Government wharf and a State and City owned recreational craft pier which is open to the public. These facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $51,690. Safety repairs performed by hired labor cost $17,587. Engineering and design for maintenance dredging contract to be awarded next FY cost $12,725.

Existing project was completed in August 1967. For additional details on completion of existing project see page 1470 of Annual Report for 1962. Navigation structures range from generally fair to good condition. Total cost for existing project to end of FY was $16,835,159, of which $2,696,522 was for new work, $12,764,473 for maintenance, and $1,374,164 for rehabilitation.

32. MANISTIQUE HARBOR, MI

Location. On the north shore of Lake Michigan, 135 miles northeasterly from Green Bay Harbor, WI, and 220 miles northerly from Milwaukee, WI. (See NOAA Nautical Chart 14908.)

Previous Projects. For details see page 1933 of Annual Report for 1915, and page 1422 of Annual Report for 1938.

Existing Project. A breakwater protected entrance channel in Lake Michigan, a channel in Manistique River, and a pier at river mouth. Project depths are 19 feet in outer portion of entrance channel, 18 feet in inner portion of entrance channel, and 18 feet in river channel. For additional details see page 1452 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A car ferry slip, two coal and building material wharves, two fishing wharves, and numerous lumberyard slips. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost $3,189.

Navigation structures are in generally excellent condition. Total cost of the existing project to end of FY was $8,608,935, of which $1,299,355 was for new work, $6,993,247 for maintenance and $316,333 for rehabilitation.

33. MANITOWOC HARBOR, WI

Location. On west shore of Lake Michigan about 79 miles north of Milwaukee, WI, and about 106 miles from Green Bay Canal. (See NOAA Nautical Chart 14922.)

Previous Projects. See page 1379 of Annual Report for 1962.

Existing Project. The total estimated (Oct. 1981) project cost is $3,080,000; the Federal cost is $1,085,000 and non-Federal cost is $1,995,000, which is a cash contribution. See Chicago District Annual Report for 1979, Table 30-C.

For detailed description see page 1228 of Annual Report for 1963. Estimated costs (1970) of new work for 1968 modification are $81,000 Federal and $30,000 non-Federal which includes a cash contribution of $18,000. Work on the 1968 modification was postponed until 1982. The portion authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 26, 1979, and 720-foot channel extension affirmed in July 1982, under authority of Section 107, 1960 River and Harbor Act, as amended.

Local Cooperation. Fully complied with for completed modifications. For 1968 modification local interests must make an annual cash contribution equivalent to 50% of the annual costs associated with construction and maintenance of the channel extension until such time that a second user utilizes the channel extension. Such a contribution is presently estimated at $9,206; additional assurances require that the sponsor provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of dredged materials, and the necessary retaining dikes, bulkheads and embankments therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and subsequent use, operation, and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States adequate berthing areas at the docks adjacent to the improvement; accomplish at no cost to the United States all relocations and alterations of utilities necessary for the project; assume full responsibility for all project first costs in excess of the Federal cost limitation of $2,000,000; and comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Terminal Facilities. Three car-ferry slips, a grain elevator, one shipbuilding yard, and three other wharves used for handling coal, building materials, cement, and miscellaneous commodities. While these facilities are considered adequate for existing commerce, it is believed the city should provide a suitable wharf with warehouse and railway connection open to the general public.

Operations During fiscal year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $78,436. Safety repairs performed by hired labor cost $26,995.

Existing project is complete except for the 1962 and 1968 modifications. The 1962 modification was deauthorized December 31, 1990. Work on the 1968 modification was essentially completed in FY 83. The Federal modification, adopted July 15, 1985, included the expansion of the new entrance channel to the Section 107 project and extension of the rubblemound breakwater. Dredging a channel through the outer basin to existing project depth and removal of a portion of old north stub pier at the river entrance were completed in December 1937. Dredging river channel was completed in July 1942. South Breakwater, Section E, is in fair condition and is programmed for repair. Total cost of the existing project to end of FY was $17,161,737, of which $3,960,044 was for new work (includes $1,911,130 contributed funds), $10,119,937 for maintenance (includes $66,735 contributed funds), and $3,081,756 for diked disposal.

34. MARQUETTE HARBOR, MI

Location. In Marquette Bay on south shore of Lake

Superior, 160 miles west of Sault Ste. Marie, MI, and 265 miles east from Duluth, MN. (See NOAA Nautical Chart 14970.)

Existing Project. Provides for a breakwater, and a harbor basin 26.5 feet deep, giving a protected area of 350 acres. Project was modified in 1960 to provide a 27-foot depth in harbor area. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required for earlier authorizations. Fully complied with for the 1960 Act.

Terminal Facilities. One ore dock, unused at present; two coal docks; one petroleum dock; and three other unused docks. There are also several small fish wharves without railroad connections. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $8,995. Breakwater, Sections E & F, repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $294,798. Real estate, and supervision and administration cost $29,373.

Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was $5,651,771, of which $1,282,893 was for new work, $3,903,121 for maintenance and $465,757 for rehabilitation.

35. MENOMINEE HARBOR AND RIVER, MI AND WI

Location. On Lake Michigan at the mouth of Menominee River on the western shore of Green Bay, 16 miles northwest of the mouth of Sturgeon Bay, and 49 miles northeast of Green Bay Harbor, about 155 miles from Milwaukee via Sturgeon Bay Canal. The river forms the boundary between the commercial harbors at Marinette, WI, and Menominee, MI. (See NOAA Nautical Chart 14917.)

Previous Projects. See page 1361 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26.

For detailed description see page 1214, Annual Report for 1963. The portion authorized by 1960 River and Harbor Act is inactive and estimated (1964) at $442,000 Federal, and $105,000 non-Federal. Costs of completed new work, exclusive of inactive work and amount expended on previous projects, are $221,053 Federal and $40,762 non-Federal, which includes a cash contribution of $36,762. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed work.

Terminal Facilities. There are 9 wharves for handling coal, limestone, pulp and miscellaneous commodities. City of Marinette, WI, provided a public wharf. Facilities are considered fairly adequate for existing commerce, except that there is need for a public wharf owned by city of Menominee, with warehouse and railway connection.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $44,758. Obstruction removal using the U.S. Cranebarge MANITOWOC cost $109,407. Real estate and supervision and administration cost $25,570.

The project in effect prior to the modification of March 2, 1945, was completed in 1938. No additional work was necessary under the modification of March 2, 1945, to provide a depth of 12 feet in the extension of the channel to the vicinity of the Marinette Yacht Club, as project depth or more was available. The entrance piers were completed in 1884, were rehabilitated (1954-1964) and are in excellent condition. Dredging of the channel below the Marinette municipal wharf, together with enlarging the turning basin to existing project depth, was commenced in May 1938. Modification of the project authorized by the 1960 River and Harbor Act is inactive. Construction for the 1967 modifications was started August 17, 1968, and completed in October 1968. Navigation structures are in good condition. Total cost of the existing project to end of FY was $6,159,043, of which $570,238 was for new work (includes $36,762 contributed funds), $3,643,293 for maintenance, $593,660 for diked disposal and $1,351,852 for rehabilitation.

36. MILWAUKEE HARBOR, WI

Location. On west shore of Lake Michigan about 85 miles north of Chicago, IL, and about 83 miles west of Grand Haven, MI. (See NOAA Nautical Chart 14924.)

Previous Projects. See page 1385 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26. For detailed description see page 1232 of Annual Report for 1963.

Completed new work costs are $6,934,804 Federal and $478,000 non-Federal, exclusive of amount expended on previous projects. The uncompleted portion authorized by the 1935 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Uncompleted portion of 1945 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with for Acts of March 2, 1945, October 23, 1962, and July 14, 1960, except deauthorized portion of 1945 Act. Act of Aug. 30, 1935, provided that original dredging of outer harbor area be done by city of Milwaukee and city of Milwaukee be reimbursed at actual cost but not to exceed 10 cents per cubic yard, place measurement, for original dredging done subsequent to authorization of work by Congress. Agreement covering dredging was executed by Secretary of War, Feb. 23, 1934, after this work was originally authorized as part of public works program. City was reimbursed for 10 percent of dredging.

Terminal Facilities. There are 4 car-ferry slips, and 57 other wharves, private and municipal, used for handling coal, grain, building materials, cement, petroleum products, and miscellaneous commodities. As facilities in inner harbor were inadequate for existing commerce, Milwaukee Harbor Commission has constructed nine docks in the outer harbor for handling general cargo.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost $351,201. Breakwater repairs were performed using the U.S. Cranebarge MANITOWOC at a cost of $125,535. Real estate and supervision and administration cost $72,554.

Existing project is complete except for inactive portions. The 1962 modification was completed in July 1967. North breakwater and shore connection, 9,954 feet long, was completed in August 1925. North pier was completed in 1905 and construction of south pier was completed in November 1910. Construction of south breakwater and shore connection was completed in October 1929. Before modification of August 30, 1935, City of Milwaukee also dredged most of the area in the outer harbor south of inner entrance piers and lakeward of pierhead line to more than 21 feet below datum without cost to the United States. City of Milwaukee also dredged a portion of the area of the outer harbor north of inner entrance piers to provide an approach channel to the passenger and auto pier opposite East Claybourn Street. Work on the 1945 modification was completed in August 1957, except for the uncompleted portion, which consists of dredging the Milwaukee River from Buffalo Street to upper limit of the project at Humboldt Avenue. The uncompleted portion of the project authorized by the 1945 Rivers and Harbors Act was deauthorized in 1977. Navigation structures range from fair to excellent condition. Total cost of the existing project to end of FY was $76,443,460, of which $8,231,024 was for new work, $49,115,951 for maintenance (includes $322,471 contributed funds), $6,380,925 for diked disposal and $12,715,560 for rehabilitation.

37. MONROE HARBOR, MI

Location. On lower reach of River Raisin, which empties into Lake Erie and is 36 miles south of Detroit, MI. (See NOAA Nautical Chart 14830.)

Existing Project. Provides for a channel in Lake Erie and River Raisin to city of Monroe, for a turning basin, and for riprapping protecting dikes at river mouth. Project depths are 21 feet to turning basin, 18 feet in turning basin, and 9 feet to upstream end of project. For additional details see page 1490 of Annual Report for 1962. Project feature for riprapping protecting dikes is considered inactive. Estimated cost of this feature (1954) is $90,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized modifications to deepen the River Raisin portion of the existing 200-foot navigation channel from 21 to 27 feet between existing turning basin and the river's mouth; deepen the lake channel from 21 to 28 feet, and widen the channel from 200 to 500 feet, for a distance of approximately 47,000 feet from the river's mouth to the Maumee Bay Entrance Channel; dredge a new turning basin 24 feet deep, with a diameter of at least 1,600 feet, at the river's mouth; and construct a 190 acre confined disposal area in Plum Creek Bay behind which would enable the creation of a 700 acre marsh. Estimated total cost (Oct. 88) is $150,200,000; $59,000,000 Federal and $91,200,000 non-Federal, which includes a cash contribution of $19,650,000.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986

(PL 99-662), are as described in the Rivers and Harbors Committee Document 22, 71st Congress, 1st Session; R & H Comm. Doc. 12, 72d Congress, 1st Session, and 45, 75th Congress, 1st Session, and also includes, as a result of PL 99-662, construction cost sharing as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $19,650,000. The estimated cash contribution of $19,650,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at $7,860,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

c. The confined dike area construction is a non-Federal responsibility and is estimated to cost $70,156,000.

Terminal Facilities. Several privately owned docks and a municipal terminal. Port of Monroe Authority built a steel and concrete wharf on southeast side of turning basin for commercial use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $81,718. Maintenance of the confined disposal facility performed by hired labor cost $5,927. A contract was awarded this FY for maintenance dredging in the amount of $391,879. The contract was 67% complete at the end of the FY, removing approximately 103,563 cubic yards of shoal material at a cost of $262,737. Engineering, design, real estate, surveys, and supervision and administration cost $81,183.

Total cost of the existing project to end of FY was $62,440,697, of which $987,340 was for new work (includes $300,000 contributed by the Port Commission of Monroe) $22,763,775 for maintenance (includes $166,667 contributed funds: $125,000 by Consolidated Paper Company and $41,667 by River Raisin Company) and $38,689,582 for diked disposal (includes $83,182 contributed funds).

38. MUSKEGON HARBOR, MI

Location. On east shore of Lake Michigan, 114 miles northeasterly from Chicago, IL, and 80 miles easterly from Milwaukee, WI. (See NOAA Nautical chart 19434.)

Previous Project. For details see page 1950 of Annual Report for 1915; page 1399, Annual Report for 1924; and page 1484, Annual Report for 1938.

Existing Project. A breakwater protected outer basin in Lake Michigan and an entrance channel from Lake Michigan to Muskegon Lake protected by piers and revetments. Project depths vary from 29 feet in the lakeward portion of the outer basin to 27 feet in the channel between the inner piers to Muskegon Lake. For additional details see page 1303 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several privately owned wharves primarily for commercial use. Details on actual port and harbor facilities are in Port Series, No. 48 (revised 1981) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $50,838. Safety maintenance performed by hired labor cost $12,111. Engineering and design for future maintenance dredging was initiated at a cost of $27,504. Supervision and administration to closeout maintenance dredging contract completed last FY cost $7,888.

Existing project, including latest project modification, was completed in 1965. For additional details on completion of existing project see page 1465 of Annual Report for 1962. Navigation structures are in good condition. Total cost of the existing project to end of FY was $31,569,031, of which $3,017,110 was for new

work, $14,727,621 for maintenance, and $13,824,300 for rehabilitation.

39. NEW BUFFALO HARBOR, MI

Location. At mouth of Galien River on southeast shore of Lake Michigan in Berrien County, about 45 miles easterly from Chicago, IL. (See NOAA Nautical Chart 14905.)

Existing Project. Provides for an entrance channel 10 feet deep by 80 feet wide and 850 feet long, to mouth of Galien River; new north and south breakwaters 1,305 and 740 feet long, respectively, and deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One village owned boat ramp and three privately operated marinas, and a private boat club facility.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $38,769. Safety maintenance performed by hired labor cost $5,116. A contract was awarded and completed this FY for maintenance dredging, removing 11,781 cubic yards of shoal material at a cost of $67,124. Engineering, design, surveys and supervision and administration cost $67,162.

Existing project is complete. The North and South Breakwaters are in fair condition. It is anticipated repairs will be required within the next five years. Total cost of the existing project to end of FY was $8,250,300, of which $2,472,183 was for new work (includes $1,186,467 contributed funds), $5,596,617 for maintenance, and $181,500 for diked disposal.

40. OCONTO HARBOR, WI

Location. On the west shore of Green Bay, about 31 miles northeasterly from Green Bay Harbor, WI and about 25 miles southwesterly from Menominee Harbor, MI and WI, at mouth of Oconto River. (See NOAA Nautical Chart 14910.)

Previous Project. For details see page 1187 of Annual Report for 1958.

Existing Project. See Chicago District Annual Report 1979, Table 30-C, page 30-27. For detailed description see page 1187, Annual Report for 1958. (See Table 31-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two municipally owned wharves of 400 and 100 foot frontage, respectively, for miscellaneous freight, open to general public use. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $2,409.

Navigation structures are in good condition. Total cost of the existing project to end of FY was $2,606,585, of which $130,754 was for new work and $2,475,831 for maintenance.

41. ONTONAGON HARBOR, MI

Location. About 140 miles east of Duluth, MN, on south shore of Lake Superior, at mouth of Ontonagon River; provides the only refuge for small craft between the Keweenaw Waterway upper entrance and Black River Harbor. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1931 of Annual Report for 1915, and page 1406 of Annual Report for 1938.

Existing Project. Provides for approach channel 16 feet deep, a channel between piers with 17- and 15-foot depths, an inner basin 12 feet deep, and maintenance of channels, basin, and entrance piers. Completed project cost $19,619. See page 1100 of Annual Report for 1966 for details. A modification authorized by 1962 River and Harbor Act provides for increasing depths of channels, construction of an inner basin and a sedimentation basin. (See Table 21-B for authorized legislation.)

The turning basin feature of the project for navigation at Ontonagon Harbor, Ontonagon County, MI, authorized by the River and Harbor Act of 1962, was deauthorized by the WRDA of 1986; PL 99-662 (Section 1002) Nov. 17, 1986, 99th Congress, Title X. The channel modification project authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. None required.

Terminal Facilities. There are no publicly owned wharves. There are three coal wharves, an oil receiving facility, and a few small fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost $101,661. Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $66,175. The contract awarded last FY for repair of the East and West Piers, Section A, failed tie rods, was completed this FY at a cost of $218,171. (This does not include Coast Guard funds expended in the amount of $26,145.) A multi-year contract was awarded this FY for maintenance dredging. The basic requirement for this work was awarded in the amount of $355,509. The basic requirement was exercised and completed this FY, removing 71,755 cubic yards of shoal material at a cost of $431,121. Engineering, design, surveys, and supervision and administration cost $107,558. Disposal actions continued for transfer of the lighthouse to the Ontonagon County Historical Commission at a cost of $14,879.

All work authorized under previous Acts was completed in 1938. Navigation structures range from fair to excellent condition. Several areas along the piers have had tie rod failures and repairs are underway. Total cost of the existing project to end of FY was $27,673,236, of which $953,903 was for new work, $26,698,333 for maintenance and $21,000 for diked disposal.

42. PENTWATER HARBOR, MI

Location. On east shore of Lake Michigan, 146 miles northeasterly from Chicago, IL, and 14 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for widening old entrance channel to 150 feet between parallel piers and revetments, channel to extend from Lake Michigan to Pentwater Lake, with a depth of 16 feet. Piers and revetments are built of stone filled timber cribs and piling and capped with concrete. The 200-foot extension to south pier portion of project is considered inactive. Estimated cost (1954) of this portion is $65,100. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Several small privately owned wharves on west end of Pentwater Lake. The City and Michigan Waterways Commission jointly constructed a dock on northwest side of Pentwater Lake for public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $31,124. Safety maintenance performed by hired labor cost $5,473. Acquisition of real estate easement cost $22. A contract for maintenance dredging was awarded and completed this FY, removing 4,216 cubic yards of shoal material at a cost of $37,389. Engineering, design, surveys, and supervision and administration cost $5,081.

Existing project was completed in 1959 except for a 200-foot extension to the south pier, which is not considered necessary under present conditions. For additional details see page 1468 of Annual Report for 1962. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was $15,401,716, of which $179,899 was for new work, and $15,221,817 for maintenance.

43. POINT LOOKOUT HARBOR (AU GRES RIVER), MI

Location. At Au Gres River on westerly shore of Lake Huron at entrance to Saginaw Bay, about 17 miles northeast of mouth of Saginaw River. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for construction of a small boat harbor having a 12-foot deep, 100-foot wide, 2,800-foot long outer entrance channel; a 5,600-foot long, 100-foot wide inner entrance channel having a 10-foot depth; an 8,270-foot long, 6-foot deep river channel ending just downstream from U.S. 23 highway bridge and having a width of 60 feet; a 4,000-foot long north breakwater and a 3,800-foot long south breakwater. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Small boat marina facilities are under construction by the State of Michigan.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $11,104.

Existing project was completed in 1974. Navigation structures are in good condition. Total cost of the existing project to end of FY was $7,330,428 of which $2,642,584 was for new work, $4,566,244 for maintenance (includes $9,257 contributed funds) and $121,600 for diked disposal.

44. PORT AUSTIN HARBOR, MI

Location. On west shore of Lake Huron at extreme southeastern limit of Saginaw Bay, and 29 miles south of AuSable River (Oscoda). (See NOAA Nautical Chart 14863.)

Existing Project. A harbor of refuge at the mouth of Bird Creek, consisting of a harbor basin dredged to a depth of 10 feet protected by a breakwater structure, and for dredging an entrance channel to the harbor basin to a depth of 12 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A number of docks near mouth of Bird Creek and a State-owned dock inside breakwater. Facilities accommodate recreational craft and are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $12,347. Safety maintenance performed by hired labor cost $7,368. Engineering and design for future maintenance dredging continued at a cost of $4,953.

Navigation structures are in good condition. Total cost for existing project to end of FY was $5,572,398; of which $3,363,334 was for new work (includes $172,100 contributed funds), $2,050,064 for maintenance and $159,000 for diked disposal.

45. PORT SANILAC HARBOR, MI

Location. On southwest shore of Lake Huron, 30 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for a harbor of refuge protected by breakwater structures extending to 12-foot depth contour in lake; for dredging a harbor basin 10 feet deep; for dredging an entrance channel 12 feet deep; a 70-foot extension of the south breakwater; a 300-foot arm added to the north breakwater; and riprap placed at the lakeward side of the breakwater addition. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There is one privately owned dock used principally as a fishing terminal by owner and a municipally owned pier for recreational craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $17,362. A contract for maintenance dredging was awarded this FY in the amount of $70,850. The contract was 84% complete at the end of FY, removing approximately 15,460 cubic yards of shoal material at a cost of $59,825. Engineering, design, surveys, and supervision and administration cost $41,052. Monitoring in connection with Section 111 of P.L. 90-483 cost $29,863. Engineering and design for Section 111 mitigation of shore damage contract continued at a cost of $27,630. Sediment sampling cost $9,844.

The project was completed in 1951 except for latest modification that was completed in FY 76. The breakwaters are in good condition, with miscellaneous repairs programmed in the next 5 years. Total cost of the existing project to end of FY was $5,919,415, of which $1,733,071 was for new work (includes $487,108 contributed funds), $4,177,186 for maintenance (includes $115,000 contributed funds) and $9,158 for diked disposal.

46. PORT WASHINGTON HARBOR,WI

Location. On the west shore of Lake Michigan, about 53 miles south of Manitowoc and about 29 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14904.)

Previous Project. For details, see page 1938 of Annual Report for 1915, page 1459 of Annual Report for 1938, and page 30-14 of Chicago District Annual Report for 1975.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 12, 1975, under authority of Section 107, 1960 River and Harbor Act, as amended.

Local Cooperation. Fully complied with.

Terminal Facilities. There is one coal wharf, a petroleum tank farm and several fishing wharves. City provided a wharf which is open to public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $26,792. Safety maintenance performed by hired labor cost $4,200. A contract for maintenance dredging was awarded this FY in the amount of $226,920. The contract was 82% complete at the end of FY, removing approximately 11,480 cubic yards of shoal material at a cost of $185,595. Engineering, design, surveys, and supervision and administration cost $84,364.

The existing project was completed in 1936. The 1958 modification was deauthorized in 1977. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was $8,031,474, of which $4,206,204 was for new work (includes $1,624,000 contributed funds), $3,814,649 for maintenance and $10,621 for diked disposal.

47. PORT WING HARBOR, WI

Location. On south shore of Lake Superior, 34 miles easterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Provides for two parallel piers at entrance, 835 and 1,017 feet long, respectively, 200 feet apart; an entrance channel between piers 150 feet wide with 15-foot depth; an irregular-shaped turning basin 15 feet deep at inner end of piers from which two inner channels with 8-foot depth extend. One of these is 60 feet wide extending southerly for 340 feet and one 70 feet wide extending easterly 1,170 feet.

Portion of dredging entrance channel to complete project width and depth is considered unnecessary to meet present navigation requirements. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are four privately owned fishing wharves which are considered adequate for existing conditions.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost $5,027. The contract awarded last FY for maintenance dredging was completed this FY, removing 11,398 cubic yards of shoal material at a cost of $60,441. Supervision and administration to closeout the contract cost $9,079.

Existing project is complete, except channel between piers, and has been dredged to only a 100-foot width. Widening the channel an additional 50 feet was considered unnecessary to meet present navigation requirements. That work was classified inactive and deauthorized on August 5, 1977, under Section 12 of Public Law 93-251. Land owned by the United States totals 7.80 acres. Navigation structures are in fair condition. Total cost of the existing project to end of FY was $1,885,279, of which $63,393 was for new work and $1,821,886 for maintenance.

48. PORTAGE LAKE HARBOR, MI

Location. On east shore of Lake Michigan about 186 miles northeasterly from Chicago, IL, and about 37 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14939.)

Existing Project. Provides for a harbor of refuge with an entrance channel from Lake Michigan to Portage Lake protected by piers and revetments. Project depth is 18 feet. For additional details see page 1297 of Annual Report for 1958. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. There are landing places and marinas at inner end of Portage Lake. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $46,639. The FY01 contract for repair of the North and South Piers, Sections A&B, (Phase I) was completed this FY at a cost of $678,607. Engineering and design during construction cost $59,303. Engineering and design for repair of the North and South Revetment (Phase II) continued at a cost of $9,434. An adjustment of $182 was made in contract costs for maintenance dredging completed last FY. Engineering, design, surveys, and supervision and administration cost $129,456.

Existing project was substantially completed in 1912. For additional details on completion of existing project see page 1298 of Annual Report for 1958. Navigation structures are in generally poor condition and major repairs are underway. Total cost of the existing project to end of FY was $8,996,846 of which $256,129 was for new work and $8,740,717 for maintenance.

49. PRESQUE ISLE HARBOR, MI

Location. On south shore of Lake Superior at Marquette, MI. It is an indentation about 1.5 miles long and one-half mile wide in shore behind Presque Isle Point. (See NOAA Nautical Chart 14970.)

Existing Project. A breakwater off Presque Isle Point and dredging harbor to depth of 28 feet at inner portion with 30 feet at entrance. For details see page 1021 of 1965 Annual Report. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One merchandise and petroleum receiving wharf and one ore dock. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $2,789. Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $77,978. Supervision and administration cost $8,008.

Navigation structures are in good condition. Total cost of the existing project to end of FY was $3,280,040, of which $1,252,192 was for new work, $1,934,848 for maintenance, $16,500 for diked disposal and $76,500 for rehabilitation.

50. ROUGE RIVER, MI

Location. Rises in Oakland and Washtenaw Counties, MI, 30 miles long, flows southeasterly through Wayne County, and joins Detroit River at westerly limit of city of Detroit. (See NOAA Nautical Chart 14854.)

Previous Project. For details see page 1530 of Annual Report for 1932, and page 1558 of Annual Report for 1938.

Existing Project. Provides for: (a) Main channel from Detroit River through Short Cut Canal extending to upstream limit of the project, a distance of 3.5 miles. Project depths are 25 and 21 feet in navigation channel, 21 feet in turning basin, and 13 feet in upper reach of project. (b) Old Channel from Detroit River extending to junction of Old Channel with Short Cut Canal. Project depths are 25, 18, 17, and 21 feet. For additional details see page 1324 of Annual Report for 1963. In 1973, work authorized by the 1962 River and Harbor Act was reclassified from the active to inactive category. Estimated cost (1972) of this work is $880,000. Except for dredging 25-foot channel 1,150 feet upstream from mouth of Old Channel, work authorized in Act of Aug. 30, 1935, is considered inactive. Estimated cost (1958) of inactive portion is $255,000. Work authorized by Act of July 3, 1958, is considered inactive. Estimated cost (1960) of this work is $210,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Act of Oct. 23, 1962, requires local interests to provide lands and rights-of-way for construction upon request of the Chief of Engineers; hold the United States free from damages; provide terminal facilities to accommodate prospective commerce considered in report of District Engineer; dredge and maintain areas between the Federal improvement and terminal facilities to depths commensurate with improved Federal channel; make alterations in docks, bulkheads and other structures, and take such other measures as may be necessary to assure stability of banks adjacent to channel; and provide bridge protection. The assurances of local cooperation for the River and Harbor Act of 1962 were furnished by the Michigan State Waterways Commission and accepted on Jan. 7, 1965. Fulfillment of all items of local cooperation has not been accomplished.

Terminal Facilities. Numerous large commercial docks for handling various type cargo. Details on actual port and harbor facilities are contained in the Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost $211,074. The contract for maintenance dredging awarded last FY was completed this FY, removing 65,531 cubic yards of shoal material at a cost of $583,248. Engineering, design, surveys, and supervision and administration cost $80,287.

Work authorized before 1962 modification is complete or deauthorized. For additional details on completion of existing project see Annual Report for 1962. Total cost of the existing project to end of FY was $40,071,726, of which $675,251 was for new work ($29,563 was expended from Emergency Relief Act Funds), $24,489,157 for maintenance and $14,907,318 for diked disposal.

51. SAGINAW RIVER, MI

Location. Formed by union of Tittabawassee and Shiawassee Rivers, 22 miles long, and flows northerly into extreme inner end of Saginaw Bay, Lake Huron. Cities of Saginaw and Bay City are on the river. (See NOAA Nautical Chart 14867.)

Previous Project. For details, see page 1957 of Annual Report for 1915; and page 1550 of Annual Report for 1938.

Existing Project. Provides for an entrance channel 27 feet deep and 350 feet wide from 27-foot contour in Saginaw Bay to river mouth; thence a channel 26 feet deep and 200 feet wide to New York Central Railroad Bridge at Bay City; thence 22 feet deep and 200 feet wide to C&O Railroad Bridge in Saginaw; thence 16.5 feet deep and 200 feet wide to upstream limit at Green Point. Project also provides for five turning basins; one 25 feet deep at Essexville, 600 feet wide with a maximum length of 1,850 feet; one 22 feet deep on east side of channel about 1 mile upstream from Cass Avenue in Bay City, 650 feet wide and 1,000 feet long; one 20 feet deep at Carrollton, 100 to 300 feet wide and 900 feet long; one 20 feet deep downstream from C&O Bridge in Saginaw, 650 feet wide and 1,000 feet long; and one 15 feet deep between Bristol Street Bridge and New York Central Railroad Bridge in Saginaw. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Numerous large commercial docks for handling a great variety of cargo. Details on actual port and harbor facilities are in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center and miscellaneous inspections and reports performed by Government forces and contract cost $404,099. Dredged material management plans study for the Upper Saginaw River continued at a cost of $185,228. Maintenance of confined disposal facility performed by hired labor cost $107,792. The FY02 contract for maintenance of the confined disposal facility and maintenance dredging of the bay and river was completed this FY, removing 261,992 cubic yards of shoal material at a cost of $1,405,722. Engineering and design for maintenance dredging contract of the bay and river to be awarded next FY was initiated at a cost of $67,816. Surveys, and supervision and administration cost $131,248.

Existing project is complete except for small part of the work authorized by the Act of October 23, 1962. Section D (Sixth Street Turning Basin) of the 1962 Act is complete except for the channel portion, which is pending modification. Total cost of the existing project to end of FY was $101,339,902, of which $14,930,727 was for new work (includes $13,600 for contributed funds), $65,457,287 for maintenance, and $20,951,888 for diked disposal.

52. ST. CLAIR RIVER, MI

Location. A 40 mile long section of Great Lakes connecting channels which flows southerly from Lake Huron and discharges into Lake St. Clair. (See NOAA Nautical Chart 14852.)

Existing Project. Provides for channels through St. Clair River, which, at low water datum, are suitable for vessels drawing 25.5 feet. Project also provides for improvement of North Channel outlet, 100 feet wide and 10 feet deep, for recreational craft. Project depths are referred to low water datums for Lakes Huron and St. Clair; 577.5 and 572.3 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Tables 21-B and 21-H for authorizing legislation and features of existing project.) Act of July 24, 1946, provides for widening and deepening of southeast bend and improvement of outlet of north channel at an estimated cost (1986) of $870,000; $435,000 Federal and $435,000 non-Federal. On June 16, 1969, the Director of Civil Works approved substitution of the middle channel of the St. Clair River for the authorized north channel. Subsequently, however, the work authorized by the River and Harbor Act of July 24, 1946, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. This improvement serves through commerce, between the upper and lower Great Lakes, and has not materially influenced terminal facilities along its route. A number of privately owned

piers and wharves are at Port Huron, Marysville, St. Clair, and Marine City, MI, which handle coal, limestone, petroleum products, wood-pulp, salt and general cargo. These installations satisfy present commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of water control center, and miscellaneous inspections and reports performed by Government forces cost $134,933. Dredged material management plan studies was continued at a cost of $58,558. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and Survey Vessel WHEELER at a cost of $183,692. An equitable adjustment of $61,896 was made in contract cost and an adjustment of 2,883 in cubic yards for FY00 maintenance dredging completed in FY01. Surveys, real estate, and supervision and administration cost $104,057.

Existing project is complete. Total cost of the existing project to end of FY was $51,090,223, of which $19,213,246 was for new work and $31,876,977 for maintenance.

53. ST. JOSEPH HARBOR, MI

Location. On east shore of Lake Michigan, 60 miles easterly from Chicago, IL, and 24 miles southerly from South Haven, MI. (See NOAA Nautical Chart 14930.)

Previous Project. For details see page 1945 of Annual Report for 1915, and page 1470 of Annual Report for 1938.

Existing Project. Provides for protecting mouth of St. Joseph River by two piers, 250 to 325 feet apart at their inner and outer ends, respectively, having lengths of 2,758 feet on north side and 2,603 feet on south side; for a channel 21 feet deep from Lake Michigan to mouth of Benton Harbor Canal, a length of about 6,900 feet with widths of 265 feet at outer end of piers, 190 feet at inner end of piers and revetments, thence generally 215 feet to lower end of turning basin, increasing to 250 feet above the turning basin to mouth of Paw Paw River, thence generally 110 feet in Paw Paw River to mouth of Benton Harbor Canal; for dredging channel in Benton Harbor Canal up to west line of Riverview Drive extended northerly, to 18 feet deep and 80 feet wide; and a turning basin 18 feet deep on north side of channel above mouth of Morrison Channel and a turning basin 18 feet deep near mouth of Paw Paw River. Public Law 88-88 declared a portion of Benton Harbor Canal a non-navigable stream. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial wharves for handling coal, building materials, petroleum products, and miscellaneous commodities. A package freight terminal and a public docking facility is also available. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $239,208. Environmental activities for a disposal area and polluted dredged material continued at a cost of $80,976. Safety maintenance performed by hired labor cost $6,946. An adjustment of $47,163 was made in contract costs to the basic requirement of the multi-year contract for maintenance dredging the outer channel completed last FY. Option year one was exercised this FY in the amount of $300,698. Option one was 25% complete at the end of the FY, removing approximately 6,000 cubic yards of shoal material at a cost of $64,061. This contract was also for beach nourishment. Engineering, design, real estate, surveys, and supervision and administration cost $63,439. Monitoring in connection with Section 111 of P.L. 90-483 cost $53,072. Beach nourishment in conjunction with the above maintenance dredging of the outer channel contract cost $15,662. Supervision and administration under Section 111 cost $3,638.

Existing project was completed in 1956. For additional details on completion of existing project see page 1454 of Annual Report for 1962. Navigation structures are in generally good condition. Total cost of the existing project to end of FY was $34,890,396, of which $1,804,485 was for new work, $31,485,619 for maintenance, $638,076 for diked disposal and $962,216 for rehabilitation.

54. SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 90 miles northeasterly from Chicago, IL, and 22 miles northerly from South Haven, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1475 of Annual Report for 1938.

Existing Project. Entrance channel protected by parallel piers at mouth of Kalamazoo River and a river

channel to village of Saugatuck, MI. Project depths: 16 feet in entrance channel, 14 feet in river channel. Additional details on page 1456 of 1962 Annual Report. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. At city of Saugatuck, MI, there are several landing places for recreational craft and one for small commercial vessels. At village of Douglas, MI, there is a landing pier. Facilities are considered adequate for present traffic.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $19,889. Safety maintenance performed by hired labor cost $2,985. Engineering and design for repair of the North and South Pier, Sections C-F, (Phase II), continued at a cost of $1,968.

Existing project was completed in 1903. Navigation structures are in excellent to poor condition and are programmed for major repair. Total cost of the existing project to end of FY was $10,571,239, of which $364,527 was for new work and $10,206,712 for maintenance.

55. SAXON HARBOR, WI

Location. On the south shore of Lake Superior in Wisconsin at the mouth of Oronto Creek, 27 miles southeast of the harbor at Bayfield, WI, and 21 miles westerly of the harbor at Black river, MI; 99 miles east of Duluth-Superior Harbor and 60 miles west of Ontonagon Harbor, MI. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1254 of Annual Report for 1962.

Existing Project. Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and diversion of Oronto Creek to Parkers Creek by three short reaches of channel excavation and a levee. For detailed dimensions of features see page 1025 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One wharf 300 feet long on the east side of present harbor basin constructed by local interests.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $2,294.

The project was completed in March 1968. A reconnaissance report was completed in August 1971 concerning erosion of the shoreline west of the harbor. Navigation structures are in good condition. Total cost of the existing project to end of FY was $1,927,205, of which $711,777 was for new work and $1,215,428 for maintenance. The new work cost does not include $50,193 contributed funds.

56. SEBEWAING RIVER, MI

Location. At mouth of Sebewaing River on south shore of Saginaw Bay about 10 miles south of Bay Port, MI. (NOAA Nautical Chart 14863.)

Previous Project. For details see page 1007 of Annual Report for 1912.

Existing Project. Provides for an entrance channel 8 feet deep, 100 feet wide, and about 15,000 feet long in Saginaw Bay. (See Table 21-B for authorizing legislation.)

Terminal Facilities. A number of small wharves used by fishing vessels and other light-draft craft are along the river. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Limited dredged material management plans study continued at a cost of $24,142.

Existing project was completed in 1903. Total cost of the existing project to end of FY was $4,373,823, of which $35,573 was for new work and $4,338,250 for maintenance.

57. SHEBOYGAN HARBOR, WI

Location. On west shore of Lake Michigan about 26 miles south of Manitowoc and about 55 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14922.)

Previous Project. See page 1381 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

For detailed description see page 1230 of Annual Report for 1963. New work for project as completed cost $648,271, exclusive of amounts expended on previous projects. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves for handling coal, petroleum products and miscellaneous commodities. City provided a public wharf. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost $58,666. North Breakwater stone and South Pier Piling repairs were performed using the U.S. Cranebarge MANITOWOC at a cost of $154,422. Engineering and design for repair of the South Pier, Sections I, J, K, continued at a cost of $75,553. Real estate and supervision and administration cost $52,810.

Existing project was completed in 1904. Construction of north breakwater was commenced in October 1913 and completed in October 1915. Dredging entrance channel to existing project depth was commenced in June and completed in July 1938. Work on 1954 modification was completed in December 1956. Inner 260 feet of south pier was replaced with a revetment by private interests under permit granted July 16, 1931, by the Secretary of War. Piers, therefore, are maintained only for a length of about 2,490 feet. Sheboygan River is navigable about 2.4 miles above its mouth for craft drawing not more than 2 feet. Navigation structures range from fair to good condition. It is anticipated repairs will be required in the next 5 to 7 years. Total cost of the existing project to end of FY was $11,981,950, of which $1,136,088 was for new work, $9,329,042 for maintenance, $907,792 for diked disposal and $609,028 for rehabilitation.

58. SOUTH HAVEN HARBOR, MI

Location. On east shore of Lake Michigan, 77 miles northeasterly from Chicago, IL, and 24 miles northerly from St. Joseph, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1473 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Black River, a river channel and a turning basin. Project depths are 21 feet in entrance channel and 19 feet in river channel and turning basin. For additional details see page 1455 of Annual Report for 1962. The turning basin feature was subsequently deauthorized by Section 116 of the WRDA of 1992 (PL 102-580). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several wharves for handling coal, building materials, wood-pulp, fish, and miscellaneous commodities; two have warehouses. Facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost $38,166. Safety maintenance performed by hired labor cost $4,058. (CORRECTION: The structure repair contract awarded last FY was for North Revetment, Sections D1, E, F1, F and G; not the North Pier, Sections A-C, (Concrete Caps)). The contract was completed this FY at a cost of $636,195. Engineering and design during construction cost $7,055. An adjustment of $15,657 was made in contract cost and 1,011 in cubic yards to maintenance dredging completed last FY. Engineering, design, surveys, and supervision and administration cost $135,561. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of $21,225.

Existing project was completed in 1960. Project now being maintained to 14-foot and 12-foot depths, respectively (in lieu of the 21 feet and 19 feet authorized), which is adequate for current usage. For additional details on completion of existing project see page 1456 of Annual Report for 1962. Navigation structures are in good to fair condition and are under repair. Total cost of the existing project to end of FY was $13,632,128, of which $984,426 was for new work, $10,973,245 for maintenance, $42,381 for diked disposal and $1,632,076 for rehabilitation.

59. STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI

Location. On west shore of Lake Michigan about 52 miles northeast of Green Bay and about 128 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14919.)

Previous Project. See page 1373 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 31-C, page 30-27. For detailed description, see page 1223, Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. As the canal and connecting channel is a through waterway, only terminal facilities are in city of Sturgeon Bay, 4 miles from west end of revetted portion of canal. These facilities consist of two wharves for handling coal, petroleum products and miscellaneous commodities, and four shipbuilding yards. City of Sturgeon Bay provided a public wharf about 5 miles northwesterly from city of Sturgeon Bay. Two major shipyards are located in Sturgeon Bay where repair facilities are available including dry docks, marine railways and hoists. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, miscellaneous inspections and reports performed by Government forces cost $81,880. Safety repairs performed by hired labor cost $15,671. Engineering and design for repair of the South Revetment, Section N, continued at a cost of $11,885.

Navigation structures are in good to fair condition, the South Revetment, Section N, is in poor condition and is programmed for major repair. Total cost of the existing project to end of FY was $13,643,486, of which $1,059,722 was for new work, $11,387,746 for maintenance, $311,119 for diked disposal and $884,899 for rehabilitation. In addition, between April 25, 1893, and June 30, 1917, $235,940 was expended for operating and care of works of improvements under provision of permanent indefinite appropriations for such purposes.

60. TWO HARBORS, MN

Location. Harbor is on north shore of Lake Superior, 27 miles northeasterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Narrowing natural entrance by construction of two breakwaters, 1,628 and 900 feet long, from eastern and western points of bay, respectively; and dredging a maneuvering area on north side of harbor to 28 and 30 feet deep. A walkway on east breakwater is provided for public recreational use. For details see page 1026 of Annual Report for 1965. Dredging to deepen areas along easterly and northerly edges of channel was completed in 1980. This portion of project was reclassified from the "inactive" to "active" category in 1973. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. A section 221 local cooperation agreement was entered into with the City of Two Harbors on August 14, 1978.\

Terminal facilities. No publicly owned wharves. Three ore docks, tug wharf, an unused coal dock, and merchandise wharf are privately owned. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost $18,002.

The existing project is complete. Navigation structures are in good condition. Total cost of the existing project to end of FY was $9,444,159, of which $4,170,710 was for new work and $5,273,449 for maintenance.

61. TWO RIVERS HARBOR, WI

Location. On west shore of Lake Michigan about 82 miles north of Milwaukee and about 101 miles from Green Bay, WI, via Sturgeon Bay Canal. (See NOAA Nautical Chart 14903.)

Previous Project. See page 1377, Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-28.

For detailed description see page 1226 of Annual Report for 1963. Completed project cost $147,463, exclusive of the amount expended on previous projects. The 1935 River and Harbor Act portion of project is essentially complete, except for dredging a 10-foot width along each side of the entrance channel between the piers. The uncompleted portion of the project authorized by the 1935 R & H Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A coal wharf and several fishing wharves. City provided a wharf for receipt of petroleum products and public use. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $34,000. Safety maintenance by hired labor cost $1,212. The contract awarded last FY for repair of the South Entrance Pier was completed this FY at a cost of $2,438,107. Engineering and design during construction cost $12,507. Supervision and administration cost $185,164.

Existing project is complete except for portion deauthorized in December 1989. Present width of channel is considered adequate for present and reasonably prospective commerce. North Pier was completed in 1908. North Revetment, completed in 1917, was rebuilt in May to August 1962. Dredging entrance channel and inner basin to existing project depth was commenced in March and substantially completed in May 1937. Navigation structures range from fair to good condition and are under repair. Total cost of the existing project to end of FY was $12,937,997, of which $360,320 was for new work, $11,332,148 for maintenance, $1,187,472 for diked disposal and $58,057 for minor rehabilitation.

62. WHITE LAKE HARBOR, MI

Location. On the east shore of Lake Michigan 120 miles northeasterly from Chicago, IL, and 45 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14935.)

Existing Project. Parallel piers, revetments, and a channel 16 feet deep, 200 feet wide, 1,950 feet long, extending from Lake Michigan to White Lake. For additional details see page 1465 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. A privately owned chemical shipping dock on the north side of the lake about 3 miles from the inner end of revetted entrance channel. Across the lake, at village of Whitehall, there are several installations serving light draft vessels. These terminals satisfy present recreational and commercial traffic requirements.

Operations During Fiscal Year. Environmental activities, and miscellaneous inspections and reports performed by Government forces cost $11,080. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of $28,023.

Existing project was completed in 1908. Stone was placed on the north and south revetments in FY 1972. Project now being maintained to 14-foot depth authorized, which is adequate for current usage. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was $12,844,985, of which $457,562 was for new work and $12,387,423 for maintenance.

63. RECONNAISSANCE AND CONDITION SURVEYS

See Table 21-J.

64. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 21-C.

65. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-K.

BEACH EROSION CONTROL

66. AUTHORIZED BEACH EROSION CONTROL PROJECTS

River and Harbor Act of 1962, as amended, Beach Erosion Control. None.

67. EMERGENCY SHORE PROTECTION

See Table 21-L.

68. BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-M.

69. MITIGATION OF SHORE DAMAGES

See Table 21-N.

70. PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

See Table 21-O.

FLOOD CONTROL

71. FORT WAYNE METRO AREA, IN

Location. Fort Wayne, which is located in northeastern Indiana in Allen County, is in the Maumee River drainage basin. In all, the Maumee basin covers an area of 6,586 square miles. Of this area, 4,856 square miles are in northwest Ohio, 1,260 are in northeast Indiana and 470 are in southeast Michigan. This basin is one of the largest and most important tributaries in the Great Lakes-St. Lawrence River system. There are four main tributary streams to the Maumee River: the Auglaize, Tiffin, St. Joseph and St. Marys Rivers. The St. Joseph and Tiffin Rivers originate in the hills of southern Michigan and flows southerly to the Maumee. The St. Marys and Auglaize originate in Ohio and flow northward. In the City of Fort Wayne, the St. Joseph and St. Marys Rivers join to form the headwaters of the Maumee River. From this point, the Maumee flows northeasterly and empties into Lake Erie at Toledo, Ohio. The central business district is located on the south side of the Maumee and the St. Marys Rivers. The St. Joseph River bisects primarily residential areas on the north side of the central business district. While some portions of the central business district are prone to flooding in the immediate vicinity of the St. Marys River, the majority of the business district is sufficiently elevated to avoid flood damages. The residential areas, however, are generally low lying and are prone to frequent flooding.

Existing Project. The Fort Wayne and Vicinity, Indiana, Flood Control Study was authorized by resolution of the Committee on Public Works, House of Representatives on October 12, 1972. The authorization requested that the Corps determine the advisability of providing improvements for flood control and allied purposes at and in the vicinity of Fort Wayne, Indiana. The study authorization resulted in completion of a Final Feasibility Report entitled "Fort Wayne and Vicinity, Indiana Flood Control Study," dated September 1987, and revised in April 1988, which identified and evaluated a number of different alternatives to flood control in the Fort Wayne area. The Final Feasibility Report also contained the "Final Environmental Impact Statement" for this project. Preparation of the General Design Memorandum began in August 1989 and was approved in December 1993. Construction was authorized in Section 101 of the Water Resources Development Act of 1990 (Title 1 Public Law 101-640). This project was a Congressionally added new construction start in FY 1994. The Project Cooperative Agreement (PCA) was executed in August 1994 and construction was initiated in September 1995. The project will provide a 100-year level of flood protection to a large part of the central area of the City of Fort Wayne, Indiana that has experienced numerous flooding events in the past. The project is located along the north side of the St. Marys River, the east and west banks of the St. Joseph River, and the north bank of the Maumee River. Junk Ditch and Spy Run Creek which are tributary to the St. Marys River will also have protection installed or improved along their north and east banks respectively. The project area has been broken into four (4) segments that provide flood protection to various areas within the project limits. The West Segment is located along the St. Marys River and the Junk Ditch Tributary. The Central Segment is located along the Spy Run Tributary to the St. Marys River, a short section of the St. Marys River itself (at the confluence with the St. Joseph River), and along the west bank of the St. Joseph River. The East-North Segment is located along the east bank of the St. Joseph River and the East-South Segment is located along the north bank of the Maumee River. The total project length is approximately 54,000 feet. The project consists of several types of flood protection improvements. The most common type of flood protection improvements proposed are earth levees. The levees proposed are to have turf or rock protected slopes depending on the available space for their construction. Levees account for approximately 63 percent of the total project length. Concrete floodwalls are proposed in those areas where insufficient space exists to construct levees due to site constraints. Concrete flood walls account for 20 percent of the project length. An additional eight percent of the project length consists of a combination of a ½ Reduced levee and concrete L-Wall. The remaining length is composed of various types of road closures (stoplogs, clay dikes and high curbs), and 3,000 feet in several areas that do not require improvements due to adequate existing surface grades. The fully funded total project cost estimate is $50,104,000. The Federal cost is $37,222,000 and the non-Federal cost is $12,882,000.

Local Cooperation. The non-Federal sponsors for the project are the City of Fort Wayne and Allen

County. A Project Cooperation Agreement (PCA) was executed with the Mayor of Fort Wayne and the Allen County Board of Commissioners on 22 August 1994. Under the terms of the PCA, the non-federal sponsors shall contribute a minimum of 25 percent, but not to exceed 50 percent, of the total project costs attributed to flood control purposes. This shall consist of all required lands, easements, rights-of-way and relocations for the project; and a cash contribution equal to a minimum of five percent of the total project flood control cost. The Assistant Secretary of the Army (CW) has approved a credit in the amount of $1,123,500 under Section 104 of the Water Resources Development Act of 1986. This will be applied to the non-Federal share of the project flood control cost. In addition to the above, the non-federal sponsor shall provide 50 percent of the total project recreation costs, 100 percent of all betterment costs, and shall operate and maintain all works after completion. Cash contributions totaling $8,022,221 have been provided through the end of FY 03. Real estate requirements for the East-South Segment were completed on July 27, 1995, East-North Segment on July 19, 1996, Central Segment on November 11, 1997 and the West Segment on April 8, 1999.

Operations During Fiscal Year. FY03 expenditures of $7,773 were made to finalize contract closeout and for the West (final) Segment. Of the funds expended, $0 was contributed by the City of Fort Wayne and Allen County. Total cost to end of FY was $45,276,984.

72. SAGINAW (FLINT) RIVER, MI

Location. Saginaw River Basin including its tributaries, Tittabawassee, Shiawassee, Flint and Cass Rivers, drains an area of 6,260 square miles in the east central part of Michigan and empties into Saginaw Bay, an arm of Lake Huron. Bay City, near mouth of river, and Saginaw, 22 miles upstream from mouth, are on Federally improved deep-draft Saginaw River navigation channel (See Saginaw and Flint Geological quadrangles and NOAA Nautical Chart 14867).

Existing Project. Provides for improvements in Saginaw River Basin for flood control and other purposes: (a) at Sanilac Flats, MI, Middle Branch and South Branch, Cass River, to provide for major drainage improvements by channel improvements on Middle and South Branches, including a short reach of East Branch. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986; PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (b) at Vassar on Cass River, to provide for flood protection of areas on north and south sides of river by channel improvement, levee construction floodwalls, modifications of Moore Drain, and related work at an estimated U.S. cost (Oct. 1984) of $8,620,000 and non-Federal cost of $579,000 for construction; (c) at Frankenmuth on Cass River, to provide for flood protection of areas on north side of river by channel improvement, levee construction, and related work, at an estimated U.S. cost (July 1974) of $410,900 for construction; (d) at Flint on Flint River, to provide for flood protection of areas on both sides of main stem of Flint River and its tributaries, Swartz and Thread Creeks by channel improvement, bridge alterations, floodwall and levee construction, and related work, at an estimated U.S. cost (Oct. 1984) of $18,251,600 and non-Federal cost of $2,580,000 for construction; provided local interests contribute in cash 1 percent of first cost of project, exclusive of cost of rights-of-ways; (e) at Corunna on Shiawassee River, to provide for flood protection by channel improvement, levee construction, and related work. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986; PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (f) at Owosso on Shiawassee River, to provide for flood protection by channel improvement. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986, PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (g) at Midland on Tittabawassee River, to provide for flood protection through non-structural (permanent evacuation) measures at an estimated U.S. cost (Apr. 1982) of $5,125,000 and non-Federal cost of $1,611,500 for implementation; however, project was reclassified to the "inactive" category on Dec.15, 1982; (h) at Shiawassee Flats along lower reaches of the four principal tributaries of Saginaw River, to provide for flood protection, including fish and wildlife areas; by channel improvement, levees, lateral reservoirs with control structures and related work at an estimated U.S. cost (Oct. 1984) of $23,417,500 Federal and non-Federal cost of $2,705,000 which includes a cash contribution of $1,237,000; provided local interests contribute in cash 5 percent of cost of rights-of-way for flood control and other work required as local cooperation, and furnish one-half of land required for fish and wildlife areas; provided that the Federal allocation for conservation does not exceed amount obtained by taking 28 percent of project cost for Shiawassee Flats unit and subtracting this from one-half cost of lands for conservation; and provided further that before starting work for flood control to Shiawassee Flats,

Chief of Engineers and Director, Fish and Wildlife Service, prepare a plan mutually acceptable to Secretary of the Army and Secretary of the Interior for operation of fish and wildlife areas to required degree of controlled storage of flood waters while preserving the maximum fish and wildlife benefits. Total estimated cost for new work, for active portion (1984) is $50,700,000 Federal and $1,421,000 to be contributed by local interests. Total estimated cost (1984) to local interests is $5,870,000.

Local Cooperation. Responsible local interests must make cash contributions as called for above; furnish lands, and rights-of-way, including removal of buildings, for construction; hold the United States free from damage; maintain and operate all works after completion; establish and enforce regulations designed to prevent encroachments in improved channels; and bear expense of constructing highway relocations and highway bridges, alter bridge approaches and existing highway bridge approaches and existing highway bridges (except underpinning and bridge raising), and alter utilities. Required assurances for Flint River at Flint were furnished by city of Flint and accepted by the United States on Nov. 23, 1962. Estimated required cash contribution for Flint ($56,000) was furnished Feb. 20, 1963. An additional $117,000 was furnished by the City to cover increased construction costs. Required assurances for Cass River at Frankenmuth were accepted on Sep. 8, 1964. All necessary lands, easements, and rights-of-way have been provided. The Midland City Council adopted a resolution on Jun. 7, 1982, declaring its intent not to sponsor the Flood Control project on the Tittabawassee River at Midland. The Vassar City Council, in a letter dated Jan. 26, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Vassar Flood Control Project. Saginaw County, in a resolution dated Aug. 11, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Shiawassee Flats Flood Control Project.

Operations During Fiscal Year. Maintenance: No funds were expended in FY03. Construction on the FY99 inflatable dam replacement was substantially complete on 24 September 2001. The operation and maintenance responsibility was transferred to the City of Flint in FY02.

The Water Resources Development Act of 1996 (Public Law 104-303), Section 329, Saginaw River, Michigan @ modified Section 203 of the Flood Control Act of 1958 (PL 85-500) to include as part of the Project the design and construction of an inflatable dam. The Energy and Water Development Act of 1998 (Public Law 105-62) provided $875,000 under the Operation & Maintenance, General appropriation for the preservation, operation, maintenance, and care of the Project, to replace the inflatable dam.

Total cost of the existing project to the end of the FY was $31,382,190, of which $24,928,359 was for new work (includes $173,000 contributed funds) and $6,453,831 for maintenance.

73. SEBEWAING RIVER, MI

Location. Sebewaing River drains an area of 105 square miles in Huron and Tuscola Counties on the westerly side of Thumb area of Lower Peninsula of Michigan and discharges into Saginaw Bay, an arm of Lake Huron, 20 miles northeast from mouth of Saginaw River. Village of Sebewaing is near mouth of River. (See NOAA Nautical Chart 14863.)

Existing Project. Enlarging present channel of Sebewaing River through village of Sebewaing, MI, to a capacity of 7,500 cubic feet per second from junction of Columbia and State drains to a point 4,500 feet lakeward from railroad bridge near mouth; altering railroad bridge and three highway bridges to permit free passage of ice; and removal of present dike on south side of channel lakeward from railroad bridge. Project is designed to provide protection for village of Sebewaing from floods with a frequency of once in 15 years and with a magnitude greater than the maximum flood of record. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with except for furnishing easements and rights-of-way for removal of remaining portion of dike on south side of channel lakeward from railroad bridge.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost $7,950. Total costs to the end of FY were $844,167 of which $365,642 was for new work and $478,525 for maintenance.

74. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

NAME OF PROJECT	DATE OF INSPECTION
Flint River, MI	Apr 2003
Clinton River Spillway & Cutoff, MI	Jul 2003
Red Run, Clinton River, MI	Jul 2003

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces and contract cost $113,473.

Total cost to the end of FY was $3,969,520.

75. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 21-E.

76. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency Flood Control Activities, Flood Fighting (Public Law 84-99 and PL 93-288 and Antecedent Legislation).

Project and Location	FY Cost for Sep 30, 2003
Disaster Preparedness	$228,814
Emergency Operations	$20,281
Rehabilitation	$36,574
Hazard Mitigation	$4,744

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.

See Table 21-P.

Flood control activities pursuant to Section 208 of the 1954 Flood Control Act. Snagging and clearing activities pursuant to Section 208 of the Flood Control Act of 1954, as amended. None.

77. SURVEILLANCE OF NORTHERN BOUNDARY WATERS AND INTERNATIONAL WATER STUDIES

International Activities. The Detroit District has successfully supported the International Joint Commission (IJC) for many years. This has included numerous engineering and scientific assignments supporting the Commission's boards of control, working committees, and study boards.

The Detroit District conducted the following activities, specifically for the IJC Boards and Committees:

a. Semi-Annual Meetings. Members of the Detroit District staff attended the semi-annual meetings of the three Great Lakes Boards of Control. They also attended the spring and fall appearances of the Boards before the IJC, in Washington, D.C. in April 2003, and the fall appearances, in Ottawa, Ontario in October 2003.

b. International Lake Superior Board of Control. The Detroit District Engineer is the United States Regulation Representative of this Board. In support of the U.S. Section of the Board, the District provided monthly Lake Superior outflow recommendations based upon a review of the hydrologic factors that influence the monthly regulation decisions for Lake Superior. These recommendations were based upon the use of probability forecasts of water supplies routed through the lakes using the approved operating plan, Plan 1977-A. Plan 1977-A has been in operational use since June 1990. The District's program to evaluate the hydraulic rating of the Compensating Works in the St. Marys River was postponed in 2003 due to lower lake levels requiring only ½ gate open. During FY2003, flow measurements were conducted in the Edison Sault Electric Company power canals at Sault Ste. Marie, MI as part of an ongoing program to verify the power plant rating.

The Board is required by the IJC to hold at least one public meeting each year to inform them of the Board's activities and to solicit feedback regarding activities and current issues. As such, the District participated in the Board's FY2003 annual meeting held in Sault Ste. Marie, Ontario in June 2003. The District also disseminates extensive Board information to the public, the media and user interests via news releases, letters and the Board's web page.

Hydropower peaking and ponding causes flow and water level variations in the St. Marys River downstream of the power plants. With water levels and Lake Superior outflows below average, these fluctuations have become a concern to commercial navigation. The District provided significant technical support to the Board to evaluate this issue and make a recommendation on peaking and ponding operations in early 2002. The Board submitted a follow-up report on St. Marys River hydropower plant peaking and ponding operations to the IJC in December 2002. In March 2003, the IJC approved continuation of peaking and ponding until March 2004, subject to prior approval by the Board at the beginning and middle of each month. District staff provide ongoing technical support to the Board for these peaking and ponding recommendations.

Starting in August 2001, the District participated on a binational study team, formed by the IJC. The team developed a Plan of Study to review the existing Orders of Approval, the current regulation plan (Plan 1977-A) and various beneficial uses not currently being considered. The "Upper Great Lakes Plan of Study for Review of the Regulation of Outflows from Lake Superior" was submitted to the IJC in January 2002. District staff will have significant roles in the study once the study is initiated by the IJC.

c. International Niagara Board of Control, International Niagara Working Committee, and International Niagara Committee. The District provides direct technical support and consulting engineering services to this Board and its Committees. The Chief of the Great Lakes Hydraulics and Hydrology Office is a member of the Niagara Working Committee. Under the auspices of the Committee, the Detroit District, with Canada, computes, coordinates, and publishes the monthly flows in the Niagara River.

The Detroit District and the Water Survey of Canada routinely conduct discharge measurements in the lower Niagara River at the Cableway Section. This is part of a continuing effort to verify the Ashland Avenue gage equations. The Ashland Avenue equations rate the flow out of the Maid-of-the-Mist Pool, which encompasses the total flow over the American and Canadian Falls, to ensure that the hydropower plants operate within the terms of the Niagara Treaty. Information is currently being evaluated to determine if the existing equations are adequate to represent the present hydraulic regime over the Niagara Falls. Discharge measurements for the Ashland Avenue rating curve are scheduled every three years. The last sets of measurements were made in 2001, and the next series of measurements are scheduled for FY2004.

Discharge measurements are also made routinely in the Welland Canal. These are part of the continuing effort to verify the ratings for the Welland Canal supply weir. Data collected to date indicates that the present equations may be underestimating the flow. Revision of the ratings is being evaluated. The last sets of measurements were made in 2001 and the next measurements at this section are scheduled for FY2004, in accordance with the three-year schedule.

Due to the dynamic nature of the Niagara River at the Niagara Falls, the District is also involved with periodic verification of the rating curve for the flow in the American Falls Channel and the Niagara River flow out of Lake Erie. Discharge measurements are made in the American Falls Channel on a five-year schedule. The last set of measurements were made in 2000, and the next is scheduled for 2005.

Discharge measurements made at the International Railway Bridge Section are used in verifying the rating equations for the flow out of Lake Erie. The rating equation based on the Buffalo gage was recently revised based on measurements collected at this section since 1974. Measurements are made at the International Railway Bridge Section on a three-year schedule. The last set of measurements was made in 2003, and the next is scheduled for 2006.

d. Great Lakes Basin Studies The Detroit District participated in the International Lake Ontario - St. Lawrence River Study in 2003. The study was initiated in 2000 by the IJC to assess and evaluate the Commission's Order of Approval used to regulate outflows from Lake Ontario through the St. Lawrence River. The Study is evaluating the impacts of changing regulation and the resulting changes in water levels on environmental factors, shore erosion, flood damages, recreational boating, and tourism. The District provided technical support to the Coastal Technical Working Group and the Information Management Technical Working Group in 2003. This effort is expected to continue through the duration of the five-year study.

In FY2002 efforts were begun to develop a prioritization of areas on the upper Great Lakes (Lakes Superior, Huron, St. Clair, and Erie) that are susceptible to potential losses due to erosion, flooding, and low water. The analysis also identified available data for the upper Great Lakes that could be used in future studies. The importance of sensitive environmental issues, anthropogenic effects, and recreation and tourism were also prioritized on a county-by-county basis across the upper Great Lakes. This effort was completed in FY2003. Future investigations on other areas of the upper great Lakes will benefit from the results of this effort.

Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data. The Chief of the Great Lakes Hydraulics and Hydrology Office is the U.S. Secretary to this Committee. Other Office personnel also hold membership on the three subcommittees: the Vertical Control-Water Levels, Hydraulics, and Hydrology.

The District continued its support of Committee operations pertaining to the coordination of basic hydraulic and hydrologic data with Canada. District efforts have also continued to closely coordinate the formats of the U.S. and Canadian water level bulletins

in order to avoid confusion and to better inform the public. In addition, the District continued working with NOAA's Great Lakes Environmental Research Lab (GLERL) with regard to improving the computational procedures currently employed in the Great Lakes 6-month water level forecast.

Efforts continued in 2003 on development of a coordinated Great Lakes regulation and routing model (CGLRRM). This model will be used to evaluate levels and flows in the Great Lakes system from Lake Superior to Lake Ontario. A user-friendly graphical user interface (GUI) is also being finalized. This GUI will allow the user to change input parameters easily to evaluate the effects of different scenarios on water levels. The CGLRRM has been developed under the guidance of the Coordinating Committee with support from Environment Canada, Buffalo District, and the Hydrologic Engineering Center (HEC).

During FY03, the District continued development and/or supported development of 2-dimentional hydrodynamic models of all the Great Lakes connection channels. These models will serve as valuable tools in answering the many "what if" questions that are asked about the rivers.

Field Operations. In addition to field operations conducted in support of the IJC, and as a continuing and ongoing mission, the Detroit District conducts hydraulic flow measurements throughout the Great Lakes Connecting Channels and St. Lawrence River system. This capability is unique among the Corps Districts (and other federal agencies) on the Great Lakes. During FY2003, the Detroit District continued gathering hydraulic data using the ADCP (Acoustic Doppler Current Profiler) instrumentation at several sections on the lower St. Marys River, the upper and lower Detroit River, the St. Clair River, the Niagara River and the St. Lawrence River. These hydraulic data sets are currently being used to develop two-dimensional flow models of the river systems, and to help refine the flow retardation estimates for weed conditions through the growing season.

As an ongoing mission, during the winter months the District monitors the extent of ice in the St. Marys, St. Clair, and Detroit Rivers. Water levels are monitored continuously at key water level gages in these rivers to detect possible ice jams and potential flooding. The Corps and other governmental agencies, including the National Weather Service and the Coast Guard, can use this information to provide advance warning to area residents and to trigger emergency actions. Currently, data are obtained through phone access of these gages or from a satellite data relay to the District's water management data system and remote laptop personal computers. These systems provide water level information to the District office within minutes of data collection.

Water Management Data System. In FY2003, the Detroit District continued to provide an extensive variety of water management products for the entire Great Lakes system, based on the water level gage network, on its Internet web pages. Weather information and meteorological data are also received and processed within the District and available on the Internet. The Detroit District has 29 active data collection platforms (DCPs). In FY2003, the Detroit District continued implementation of the Corps of Engineers Water Management Software (CWMS) suite with its initial prototype development being placed on modernizing the Lake Winnebago watershed outflow management.

Great Lakes Hydrology. The Great Lakes Hydraulics and Hydrology Office uses water supply forecasts routinely in forecasting water levels on all the Great Lakes and regulating the outflows from Lake Superior. Studies to improve the existing Great Lakes water level forecasting system, including investigations into the factors affecting the Great Lakes water balance relationship (i.e., runoff, over-lake precipitation, evaporation, ice retardation, etc.) and use of real-time hydrologic data such as the new National Weather Service Doppler radar networks were continued during FY 2003.

Great Lakes Water Levels. The Great Lakes Hydraulics and Hydrology Office continued to make routine short-term (30 day) and long-term (six month) Great Lakes still water level forecasts. These forecasts are distributed in the form of weekly, semi-monthly and monthly news releases and bulletins. The Monthly Bulletin of Lake Levels for the Great Lakes, containing a six-month projection of Great Lakes water levels, has a circulation of about 9,000 copies per month. Included with the monthly bulletin on a quarterly basis is an informational enclosure entitled Great Lakes Update, which covers various topics of interest pertaining to the water resource management of the Great Lakes.

With water levels on the Great Lakes being well below average during FY 2003 and continuing into FY 2004, media and public attention has been high. Office personnel provided essential expertise regarding water level forecasts, recorded lake levels, and the potential impacts of these water levels on interested parties. These parties include members of Congress, state and local officials, news media, navigation and power interests, property owners, and recreational boaters.

Water level information is supplied to the public via the District's web pages, telephonic and written responses to inquiries, presentations to various interest groups, and interviews with the news media.

The total costs for FY 2003 under the Surveillance of Northern Boundary Waters was $3,082,238 and under the International Water Studies, $182,155.

MULTIPLE-PURPOSE PROJECTS INCLUDING POWER

78. ST. MARYS RIVER, MI

Location. A Great Lakes connecting channel about 63 miles long, flows southeasterly between State of Michigan and Providence of Ontario, Canada, from eastern end of Lake Superior into northern end of Lake Huron. (See NOAA Nautical Charts 14882, 14883, and 14884.) At Sault Ste. Marie, MI, about 14 miles downstream from Lake Superior, there are four parallel locks and a hydroelectric power plant.

Previous Project. For details see page 1955, Annual Report for 1915; and page 1529, Annual Report for 1938.

Existing Project. Channels permitting 25.5-foot draft navigation in St. Marys River and Lake Superior and Lake Huron approaches thereto; constructing and operating four locks and two canals; constructing an electric plant of 14,000 kilowatt capacity (45,000 kilowatt ultimate capacity) constructing anchorage areas in river above and below locks; and constructing various other works in conjunction with project. Subsequently, in 1932, the Unit 10 powerhouse was installed raising the capacity to 18,400 kilowatts (45,000 ultimate capacity). Original State Locks were operated and maintained under permanent indefinite appropriation from Jun. 9, 1881, to Nov. 2, 1886, after which they were destroyed by excavation for the Poe Lock in 1896. Weitzel Lock, destroyed in 1942 by excavation for the MacArthur Lock, was operated and maintained under the same appropriation from Sep. 1, 1881, to Jun. 30, 1935. Poe Lock was operated and maintained under the same appropriation from Aug. 3, 1896, Davis Lock from Oct. 21, 1914, and Sabin Lock from Sep. 18, 1919, to end of FY 1935. The 1,200-foot by 110-foot new Poe Lock was authorized in 1962 and put into operation in 1968. Details of existing project are set forth in Table 21-F.

Project depths are referred to low water datum corresponding to sloping surface of river as follows: Above locks: When water surface of Lake Superior is at elevation 601.1 feet and at upstream side of locks is 600.6 feet above mean water level at Rimouski, Quebec, IGLD 1985. Below locks: When water surface at downstream side of locks is at elevation 578.4 feet and Lake Huron is 577.5 feet above mean water level at Rimouski, Quebec, IGLD 1985. Estimated (1974) cost for new work is $163,087,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized construction of a second lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks. Material removed during construction of the replacement lock will be placed on the Northwest Pier to serve as a windbreak for downbound vessels approaching the lock. Estimated cost (Oct. 90) is $174,200,000 Federal and $93,800,000 non-Federal.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as follows:

(a) Provide without cost to the United States all lands, easements, and rights-of-way necessary for implementation and later maintenance of the proposed project, and for aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and later disposal of dredged/demolition material and including necessary retaining dikes, bulkheads, and embankments therefor, or the costs of such retaining works;

(b) Hold and save the United States free from damages due to the implementation and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors;

(c) Accomplish without cost to the United States such alterations and relocations of pipelines, powerlines, cables, sewer, water supply, drainage, and other utilities, structures, and improvements made necessary by the project. (Any such costs of the items on Federal property at the locks, would be part of the total construction cost and not separable local sponsor cost.);

(d) Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $67,000,000. The estimated cash contribution of $67,000,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

(e) Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at $26,800,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

(f) Any construction needed to prevent/mitigate for erosion or shoaling attributed to the lock would be cost shared in the same proportion as the project.

Terminal Facilities. This improvement serves through commerce between Lake Superior and lower lakes and has not materially influenced terminal facilities at localities along its route. Three piers at Sault Ste. Marie receive coal and petroleum products. Limestone is shipped from a pier at Drummond Island. Vessel refueling stations are at Lime Island and village of DeTour; they receive coal and petroleum products. Present terminals satisfy current traffic requirements.

Operations During Fiscal Year. New Work: Construction of a replacement lock. The St. Marys River project includes four navigation locks: MacArthur, Poe, Davis and Sabin. Currently, the MacArthur and Poe service loaded commercial vessel traffic. The Davis Lock is rarely used and the Sabin Lock is in disrepair and has been closed for several years. The new lock will replace the Davis and Sabin Locks in the North Canal of the St. Marys Falls Canal. As a minimum, the new lock would have the same dimensions as the 1200-foot by 110-foot Poe Lock. FY03 funds in the amount of $1,802,958 were expended to complete the Engineering Technical Appendix for the Limited Reevaluation Report (LRR) to better define the design features. Also completed as part of this effort, was a detailed cost estimate.

Operations, maintenance, and care of locks: Two canals and three locks were operated (the fourth lock, Sabin, was in caretaker status) as required. Necessary repairs and improvements were made thereto and to appurtenant structures and equipment. Canals were open to navigation 297 days during the period 1 October 2002 through 30 September 2003. A total of 7,887 vessels, aggregating 75,272,107 short tons of freight and 96,032 passengers passed through the MacArthur, Davis and Poe Locks. Total cost for operation, maintenance, and care of the locks during the FY was $8,906,762. Total cost includes $28,301 for preparation of plans and specifications to upgrade the MacArthur and Poe locks (automation) and $13,193 to prepare plans and specifications for MacArthur Guard Gate rehabilitation.

Powerhouse and equipment: A total of 154,552,490 kilowatt-hours of power was generated this FY. Income from the sale of power, sent to the U.S. Treasury, amounted to $1,244,687. Total cost of operation and maintenance for two hydroelectric powerhouses during the FY was $3,424,849. Total cost includes $1,568,595 to continue the rehabilitation of governor, excitation, fire suppression system, and installation contracts, $167,895 for engineering and design during construction, and $163,485 for supervision and administration of the contracts. Supervision and administration to closeout FY01 replacement contract for the existing horizontal roof on the main power plant and the boathouse cost $13,721. The contract awarded last FY for replacement of main power plant piping was completed this FY at a cost of $224,737. Engineering and design during construction cost $10,746. Supervision and administration cost $23,235. Engineering and design to sandblast and paint the main power plant head and tailgates continued at a cost of $28,531.

Other operation and care items: Buildings and grounds were operated and maintained, condition surveys, operations studies, environmental activities, real estate, and miscellaneous inspections and reports cost $4,183,544, which includes a custodial, snow removal and grounds upkeep contract for $536,943 and a service contract for security measures for $770,200.

Channels and canals: St. Marys River channels and canal approach depths were surveyed by sweeping. Removal of shoals in the St. Marys River channels and canal approaches performed by hired labor using the U.S. Derrickbarges NICOLET and SCHWARTZ, and the U.S. Cranebarge HARVEY cost $2,720,565. The FY01 vidal shoals contract to deepen the federal channel in the Upper St. Marys River by one foot continued at a cost of $535,300, supervision and

administration of the contract cost $156,332. Engineering and design for replacement of canal feeders was completed this FY at a cost of $50,068. A contract was awarded this FY for this work in the amount of $234,100. No work was performed this FY. However, the contractor was paid $26,000 to cover his cost of bonds, supervision and administration cost $6,669; and repair of the gate seals at the compensating works continued at a cost of $15,202. An environmental and engineering assessment for deepening the Lower St. Marys River from the south approach to the locks down to the northerly entrance to the Rock Cut (Little Rapids Cut) was completed at a cost of $13,905. A contract was awarded this FY for this work in the amount of $1,907,084. At the end of the FY the contract was 58% complete at a cost of $1,099,963, supervision and administration cost $158,651. Fender replacement cost $10,802.

Other miscellaneous items: Supervision and administration of the FY99 contract for repair of armor old disposal sites cost $8,658. An adjustment of $145,906 was made in contract cost for installation of fire alarms and enunciators was completed last FY. Engineering and design during construction cost $5,811. Supervision and administration cost $42,820. The contract awarded last for the repair of the West Center Piers continued at a cost of $1,151,649. Engineering and design during construction cost $24,725. Supervision and administration cost $115,845. Preparation of plans and specifications was initiated for electrical load throughout the facility (lighting) at a cost of $3,876. NOAA tower design cost $31,582.

Recreational facilities: Information center, visitors center, comfort stations, park fountain, and observation and overlook platforms were operated and maintained at a cost of $249,064 which includes a custodial contract for the Information Center. Visitors entering the Soo Locks Visitors Center numbered 404,879. Visitors to the observation platforms overlooking the locks numbered 346,097. Total visitors to the Soo Locks Park numbered 470,692. A grand total of 570,319 people (includes tour boat visitors of 96,083) visited the Soo Locks.

Total project costs in FY03 amounted to $24,891,506.

Project in effect prior to modification of March 21, 1956, is complete and work authorized by 1956 modification to provide a safe draft of 25.5 feet for both upbound and downbound traffic is also complete. Public Works Acceleration Funds used for maintenance were $118,000. Total cost of the existing project to end of FY was $623,354,557, of which $164,743,248 was for new work and $458,611,309 for maintenance (includes $340,400 contributed funds).

GENERAL INVESTIGATIONS

79. SURVEYS

Project and Location	FY Cost for Sep 30, 2003
Reconnaissance and Feasibility Studies	
Belle Isle Shoreline Detroit, MI	$18,438
Cass River, Vassar, MI	$40,424
Detroit River Master Plan MI	$95,488
Detroit River Sewals MI	$26,601
Great Lakes Navigation System, MI	$636,340
John Glenn Great Lakes Basin Program MI	$61,376
John Glenn Great Lakes Recreational Boat	$125,464
Lansing, MI	$31,282
Watershed and Ecosystem Restoration Reconnaissance and Feasibility Studies	
Detroit River, Environmental Dredging, MI	$2,890
Fox River, WI	$51,652
Great Lakes Fishery & Ecosystem Restor	$137,684
Muskegon Lake, MI	$1,217
Rouge River Environmental Dredging, MI	$1,442
Rouge River Watershed, MI	$96,688
White Lake, MI	$4,011
St. Clair River & Lake St Clair, MI	$57,016
Coordination Studies with Other Agencies	
FERC Licensing Activities	$3,249
Interagency Water Resources Development	$2,590
North American Water Fowl Mgmt Planning	$2,145
National Estuary Studies	$3,931
Special Investigations	$21,205
Sec 22 Planning Assistance to States & Tribes:	
Great Lakes Remedial Action Program	$254,670

Federal amount shown, studies cost shared equally with partner include:

Door County, WI GIS	$118,920
Fabius Township GIS	$10,870
Grand Traverse County, MI GIS	$8,426
Ingham County GIS	$80,266
Mequon Dam Evaluation, WI	$8,127
Muskegon County, MI GIS	$14,000
PAS Negotiation Funds, MI	$9,970
St. Clair County, MI GIS	-$329
Sylvan Lake, IN	$29,922

Three Rivers, MI GIS $720
Vassar, MI $1,361

80. PRECONSTRUCTION ENGINEERING AND DESIGN

Great Lakes Connecting Channels and Harbors, Replacement Lock

An adjustment of -$28,546 was made in costs on preconstruction engineering and design work activities.

The project, as authorized in the WRDA of 1986 and the WRDA of 1990, calls for constructing a second lock able to accommodate the largest vessels engaged in Great Lakes commerce. The authorized dimensions are 1,294 feet in length, 115 feet in width, and 32 feet in depth. The authorized cost (1985) is $227,428,000. The new lock would replace two existing locks that are only 80 feet in width and 23 feet in depth. The project had not been funded earlier due to lack of a local sponsor. The WRDA of 1996 eased the cost-sharing requirements for a non-Federal sponsor. Given the delay in initiating preconstruction engineering and design, the initial work effort was to prepare a limited re-evaluation report to assure that the project remained economically justified.

Project and Location	FY Cost for Sep 30, 2003
Fort Wayne, IN (410)	$13,917

81. COLLECTION AND STUDY OF BASIC DATA

Project and Location	FY Cost for Sep 30, 2003
Flood Plain Mgmt Services Program	
FPMS Unit	$66,510
Technical Services	$41,951
National Flood Proofing Committee	$20,709
HEC-RAS Workshop in Wisconsin	$311
Advanced HEC-RAS Workshop, Michigan	$174
Advanced HEC-RAS in Indiana	$74
Special Study Flood Plain, Rabbit River, MI	$409
Special Study NE Minnesota, Tiescher Creek	$804

No Federal Emergency Management Agency's Community Assistance Program Study or Flood Insurance Studies in FY03.

General Hydrologic Studies $867
International Water Studies $26,831

TABLE 21-A **COST AND FINANICAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
1.	Alpena Harbor, MI	New Work					
		Approp.	0	0	0	0	337,394[1]
		Cost	0	0	0	0	337,394[1]
		Maintenance					
		Approp.	761,019	81,463	2,433	3,090	2,047,717
		Cost	761,054	81,404	2,483	3,149	2,047,717
2.	Arcadia Harbor, MI	New Work					
		Approp.	0	0	0	0	0
		Cost	0	0	0	0	0
		Maintenance					
		Approp.	80,802	95,817	122,163	128,600	5,645,711
		Cost	80,832	95,799	120,747	130,029	5,645,667
3.	Ashland Harbor, WI	New Work					
		Approp.	0	0	0	0	1,695,645
		Cost	0	0	0	0	1,695,645
		Maintenance					
		Approp.	135,371	7,629	3,258	185,206	4,583,961
		Cost	135,677	7,601	3,258	184,708	4,583,436
4.	Bay Port Harbor, MI	New Work					
		Approp.	0	0	0	0	93,597
		Cost	0	0	0	0	93,597
		Maintenance					
		Approp.	9,173	102,000	9,070	111,084	686,296[2]
		Cost	9,173	101,678	9,335	111,140	686,296[2]
		Maintenance					
	Contributed Funds	Contrib.	0	0	0	0	137,399
		Cost	0	0	0	0	137,399
5.	Big Suamico River, WI	New Work					
		Approp.	0	0	0	0	20,243
		Cost	0	0	0	0	20,243
		Maintenance					
		Approp.	127,246	124,100	423,995	22,578	1,921,925
		Cost	127,183	124,078	423,387	23,270	1,921,925
6.	Black River Harbor, MI (P.H.)	New Work					
		Approp.	0	0	0	0	480,244[3]
		Cost	0	0	0	0	480,244[3]
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	349,921
		Cost	0	0	0	0	349,921
		Maintenance					
		Approp.	47,797	33,577	54,377	491,400	2,117,642[4]
		Cost	47,479	33,895	54,303	328,714	1,954,882[4]

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
7.	Black River Harbor, MI (U.P.)	New Work Approp.	0	0	0	0	383,350[5]
		Cost	0	0	0	0	383,350[5]
		Maintenance Approp.	5,632	112,500	5,293	28,367	1,161,200
		Cost	5,562	112,473	4,613	29,145	1,161,200
8.	Bolles Harbor, MI	New Work Approp.	0	0	0	0	217,916
		Cost	0	0	0	0	217,916
		New Work Contrib.	0	0	0	0	255,000
		Cost	0	0	0	0	255,000
		Maintenance Approp.	4,097	262,899	25,800	14,570	3,951,209
		Cost	4,097	262,897	23,578	16,694	3,951,109
9.	Charlevoix Harbor, MI	New Work Approp.	0	0	0	0	180,623
		Cost	0	0	0	0	180,623
		Maintenance Approp.	87,730	170,746	61,800	63,500	10,887,214
		Cost	87,649	170,767	61,807	63,509	10,887,152
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	1,129,396
		Cost	0	0	0	0	1,129,396
10.	Clinton River, MI	New Work Approp.	0	0	0	0	260,046[6]
		Cost	0	0	0	0	260,046[6]
	Contributed Funds	New Work Contrib.	0	0	0	0	289,752[7]
		Cost	0	0	0	0	289,752[7]
		Maintenance Approp.	106,496	716,200	21,800	9,265	8,305,436
		Cost	106,591	715,486	22,471	9,309	8,305,436
11.	Detroit River, MI	New Work Approp.	0	0	0	0	76,877,357[8]
		Cost	0	0	0	0	76,877,357[8]
		Maintenance Approp.	3,408,297	3,017,964	4,283,743	3,833,000	180,913,589[9]
		Cost	3,381,961	3,020,417	4,305,016	3,822,439	180,899,958[9]
	Contributed Funds	Maintenance Contrib.	0	0	0	0	361,235
		Cost	0	0	0	0	361,235

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
12.	Duluth-Superior Harbor, MN & WI	New Work Approp.	0	0	0	0	16,894,658[10]
		Cost	0	0	0	0	16,894,658[10]
		New Work Contrib.	0	0	0	0	331,685
		Cost	0	0	0	0	331,685
		Maintenance Approp.	2,333,867	2,321,781	3,137,600	2,308,630	87,497,350[11]
		Cost	2,330,540	2,312,629	3,142,964	2,311,667	87,487,364[11]
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	11,555,410
		Cost	0	0	0	0	11,555,410
13.	Fox River, WI	New Work Approp.	0	0	0	0	3,753,334[12]
		Cost	0	0	0	0	3,753,334[12]
		Maintenance Approp.	2,254,855	4,394,807	4,146,100	7,955,412	80,774,401[13,14]
		Cost	2,196,546	4,433,137	4,111,716	4,192,543	76,934,453[13,14]
14.	Frankfort Harbor, MI	New Work Approp.	0	0	0	0	1,923,450
		Cost	0	0	0	0	1,923,450
	Contributed Funds	New Work Contrib.	0	0	0	0	31,709
		Cost	0	0	0	0	31,709
		Maintenance Approp.	166,738	133,120	175,700	179,000	12,035,742[15]
		Cost	166,649	117,513	184,454	185,299	12,035,038[15]
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	274,776
		Cost	0	0	0	0	274,776
15.	Grand Haven Harbor, MI	New Work Approp.	0	0	0	0	1,283,469[16]
		Cost	0	0	0	0	1,283,469[16]
	Section 111	New Work Approp.	0	0	0	0	175,000
		Cost	0	0	0	0	175,000
	Contributed Funds	Maintenance Approp.	441,336	457,482	924,500	577,400	35,667,928[17]
		Cost	438,671	460,037	925,143	577,487	35,667,877[17]

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
15.	Grand Haven Harbor, MI (Continued)	Maintenance Contrib.	0	0	0	0	15,585
		Cost	0	0	0	0	15,585
	Section 111	Maintenance Approp.	85,665	84,800	81,900	82,921	3,022,046
		Cost	85,673	84,734	81,825	81,220	3,020,205
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	813,613
		Cost	0	0	0	0	813,613
16.	Grand Marais Harbor, MI	New Work Approp.	0	0	0	0	1,055,871
		Cost	0	0	0	0	1,055,871
		Maintenance Approp.	2,473	1,528	124,867	257,544	3,026,971
		Cost	2,473	1,528	124,837	162,046	2,931,442
17.	Grand Traverse Bay Harbor, MI	New Work Approp.	0	0	0	0	266,037
		Cost	0	0	0	0	266,037
	Section 111	New Work Approp.	0	0	0	0	63,528
		Cost	0	0	0	0	63,528
		Maintenance Approp.	232,052	3,070	54,560	216,055	2,682,347
		Cost	232,115	3,070	54,538	215,842	2,682,112
18.	Green Bay Harbor, WI	New Work Approp.	0	0	0	0	9,946,395[18,19]
		Cost	0	0	0	0	9,946,395[18,19]
		Maintenance Approp.	1,344,900	1,607,573	3,220,000	2,745,200	59,077,775[20]
		Cost	1,361,584	1,611,212	3,218,858	2,702,373	59,033,561[20]
19.	Holland Harbor, MI	New Work Approp.	0	0	0	0	736,122[21]
		Cost	0	0	0	0	736,122[21]
	Contributed Funds	New Work Contrib.	0	0	0	0	35,705
		Cost	0	0	0	0	35,705
	Section 111	New Work Approp	0	0	0	0	621,000
		Cost	0	0	0	0	621,000

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
19.	Holland Harbor, MI (Continued)	Maintenance Approp.	781,506	877,154	499,100	373,000	29,503,164[22]
		Cost	780,367	876,579	500,644	372,686	29,502,506[22]
		Maintenance	67,835	70,300	85,200	85,592	2,576,742
	Section 111	Approp.	67,856	70,194	85,176	82,389	2,573,409
		Cost					
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	502,452
		Cost	0	0	0	0	502,452
20.	Inland Route, MI	New Work Approp.	0	0	0	0	770,222
		Cost	0	0	0	0	770,222
	Contributed Funds	New Work Contrib.	0	0	0	0	148,000
		Cost	0	0	0	0	148,000
		Maintenance Approp.	220,566	22,629	34,700	27,700	4,053,110[23]
		Cost	220,747	22,599	34,683	27,606	4,052,970[23]
21.	Kenosha Harbor, WI	New Work Approp.	0	0	0	0	988,969[24,25]
		Cost	0	0	0	0	988,969[24,25]
		Maintenance Approp.	196,809	78,811	299,000	3,366	12,268,222[26]
		Cost	196,852	78,776	298,988	3,366	12,268,175[26]
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	1,270,275
		Cost	0	0	0	0	1,270,275
22.	Kewaunee Harbor, WI	New Work Approp.	0	0	0	0	758,333[27]
		Cost	0	0	0	0	758,333[27]
		Maintenance Approp.	717,935	93,446	84,600	79,002	11,711,214[28]
		Cost	718,005	93,364	84,638	79,028	11,711,196[28]
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	617,300
		Cost	0	0	0	0	617,300
23	Keweenaw Waterway, MI	New Work Approp.	0	0	0	0	5,974,141
		Cost	0	0	0	0	5,974,141

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
23.	Keweenaw Waterway, MI (Continued)	Maintenance Approp.	220,235	283,350	601,000	74,346	30,244,159[29]
		Cost	220,228	292,127	600,647	73,683	30,243,135[29]
24.	Knife River Harbor, MN	New Work Approp.	0	0	0	0	528,945
		Cost	0	0	0	0	528,945
		Maintenance Approp.	2,368	2,404	2,961	26,002	346,928
		Cost	2,368	2,404	2,961	26,002	346,928
25	Lac LaBelle Harbor, MI	New Work Approp.	0	0	0	0	269,270[30]
		Cost	0	0	0	0	269,270[30]
		Maintenance Approp.	41,444	14,199	50,941	2,516	856,439
		Cost	41,444	14,166	50,839	2,621	856,409
26	Lake St. Clair, MI, Channels	New Work Approp.	0	0	0	0	7,675,357[31]
		Cost	0	0	0	0	7,675,357[31]
		Maintenance Approp.	88,344	54,015	106,500	94,700	14,352,831[32]
		Cost	82,476	60,116	96,444	107,660	14,352,660[32]
27.	Leland Harbor, MI	New Work Approp.	0	0	0	0	672,950
		Cost	0	0	0	0	672,950
	Contributed Funds	New Work Contrib.	0	0	0	0	354,139
		Cost	0	0	0	0	354,139
		Maintenance Approp.	139,151	151,539	186,063	184,800	4,237,276
		Cost	139,155	151,510	186,008	184,843	4,237,234
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	70,678
		Cost	0	0	0	0	70,678
28	Lexington Harbor, MI	New Work Approp.	0	0	0	0	1,646,304
		Cost	0	0	0	0	1,646,304
	Contributed Funds	New Work Contrib.	0	0	0	0	1,088,888
		Cost	0	0	0	0	1,088,888
	Section 111	New Work Approp.	0	0	0	0	372,000
		Cost	0	0	0	0	372,000

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
28.	Lexington Harbor, MI (Continued)	Maintenance Approp.	227,508	973	3,304	142,500	1,212,445
		Cost	228,402	1,915	3,304	136,539	1,206,438
	Section 111	Maintenance Approp.	54,462	7,000	1,300	95,654	2,199,402
		Cost	54,473	6,995	1,223	95,735	2,199,402
29.	Little Lake Harbor, MI	New Work Approp.	0	0	0	0	542,808
		Cost	0	0	0	0	542,808
	Contributed Funds	New Work Contrib.	0	0	0	0	57,670
		Cost	0	0	0	0	57,670
		Maintenance Approp.	71,241	434,800	17,600	318,500	5,460,913
		Cost	71,893	434,741	17,636	317,725	5,460,115
30	Ludington Harbor, MI	New Work Approp.	0	0	0	0	7,912,202[33]
		Cost	0	0	0	0	7,912,202[33]
	Section 111	New Work Approp.	0	0	0	0	620,000
		Cost	0	0	0	0	620,000
		Maintenance Approp.	1,138,569	222,374	553,600	146,900	21,755,290[34]
		Cost	1,125,852	234,536	554,209	146,841	21,755,195[34]
	Section 111	Maintenance Approp.	0	50,500	0	0	832,740
		Cost	5,090	50,465	92	0	832,740
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	357,913
		Cost	0	0	0	0	357,913
31.	Manistee Harbor, MI	New Work Approp.	0	0	0	0	2,696,522[35]
		Cost	0	0	0	0	2,696,522[35]
		Maintenance Approp.	22,085	592,115	61,300	82,000	12,764,514[36]
		Cost	22,147	592,086	61,286	82,002	12,764,473[36]
		Major (or Minor) Rehabilitation Approp.	0	0	0	0	1,374,164
		Cost	0	0	0	0	1,374,164

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
32.	Manistique Harbor, MI	New Work					
		Approp.	0	0	0	0	1,299,355[37]
		Cost	0	0	0	0	1,299,355[37]
		Maintenance					
		Approp.	2,042,571	2,220,886	(3,800)	3,033	6,993,247
		Cost	2,042,691	2,221,031	(3,937)	3,199	6,993,247
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	316,333
		Cost	0	0	0	0	316,333
33.	Manitowoc Harbor, WI	New Work					
		Approp.	0	0	0	0	2,048,914[38]
		Cost	0	0	0	0	2,048,914[38]
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,911,130
		Cost	0	0	0	0	1,911,130
		Maintenance					
		Approp.	249,439	182,413	570,300	105,400	13,134,974[39]
		Cost	249,467	179,126	573,541	105,431	13,134,958[39]
	Contributed Funds	Maintenance					
		Contrib.	(7,163)	9,206	3,700	0	79,648
		Cost	18,875	0	0	0	66,735
34.	Marquette Harbor, MI	New Work					
		Approp.	0	0	0	0	1,282,893[40]
		Cost	0	0	0	0	1,282,893[40]
		Maintenance					
		Approp.	186,829	944	204,163	333,200	3,903,695[41]
		Cost	186,843	1,444	203,623	333,166	3,903,121[41]
		Major (or Minor) Rehabilitation					
.		Approp.	0	0	0	0	465,757
		Cost	0	0	0	0	465,757
35.	Menominee Harbor & River, MI & WI	New Work					
		Approp.	0	0	0	0	533,476[42]
		Cost	0	0	0	0	533,476[42]
		New Work					
	Contributed Funds	Contrib.	0	0	0	0	36,762
		Cost	0	0	0	0	36,762

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
35.	Menominee Harbor & River, MI & WI (Continued)	Maintenance					
		Approp.	180,181	78,880	99,500	179,700	4,236,960[43]
		Cost	180,017	79,051	99,523	179,735	4,236,953[43]
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,351,852
		Cost	0	0	0	0	1,351,852
36.	Milwaukee Harbor, WI	New Work					
		Approp.	0	0	0	0	8,231,024[44]
		Cost	0	0	0	0	8,231,024[44]
		Maintenance					
		Approp.	1,212,969	396,239	458,000	548,661	55,174,406[45]
		Cost	1,242,020	395,059	458,724	549,290	55,174,405[45]
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	322,471
		Cost	0	0	0	0	322,471
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	12,715,560
		Cost	0	0	0	0	12,715,560
37.	Monroe Harbor, MI	New Work					
		Approp.	0	0	0	0	687,340
		Cost	0	0	0	0	687,340
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	300,000
		Cost	0	0	0	0	300,000
		Maintenance					
		Approp.	179,610	531,605	60,300	560,768	61,332,734[46]
		Cost	179,598	531,621	60,348	431,565	61,203,508[46]
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	249,849[47]
		Cost	0	0	0	0	249,849[47]
38.	Muskegon Harbor, MI	New Work					
		Approp.	0	0	0	0	2,912,110[48]
		Cost	0	0	0	0	2,912,110[48]
	Section 111	New Work					
		Approp.	0	0	0	0	105,000
		Cost	0	0	0	0	105,000
		Maintenance					
		Approp.	207,437	26,493	457,750	98,000	11,462,021[49]
		Cost	207,125	26,804	457,505	98,341	11,462,021[49]

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
38.	Muskegon Harbor, MI (Continued) Section 111	Maintenance					
		Approp.	0	0	0	0	3,265,600
		Cost	75	0	0	0	3,265,600
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	13,824,300
		Cost	0	0	0	0	13,824,300
39.	New Buffalo Harbor, MI	New Work					
		Approp.	0	0	0	0	1,285,716
		Cost	0	0	0	0	1,285,716
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,186,467
		Cost	0	0	0	0	1,186,467
		Maintenance					
		Approp.	32,955	135,977	25,135	178,000	5,778,117[50]
		Cost	32,975	135,956	24,985	178,171	5,778,117[50]
40	Oconto Harbor, WI	New Work					
		Approp.	0	0	0	0	130,754[51]
		Cost	0	0	0	0	130,754[51]
		Maintenance					
		Approp.	94,330	81,400	33,800	2,405	2,475,831[52]
		Cost	94,023	83,703	33,800	2,409	2,475,831[52]
41.	Ontonagon Harbor, MI	New Work					
		Approp.	0	0	0	0	953,903[53]
		Cost	0	0	0	0	953,903[53]
		Maintenance					
		Approp.	443,905	508,359	1,991,890	939,328	26,719,568[54]
		Cost	414,195	539,609	1,991,532	939,565	26,719,333[54]
42.	Pentwater Harbor, MI	New Work					
		Approp.	0	0	0	0	179,899
		Cost	0	0	0	0	179,899
		Maintenance					
		Approp.	3,817,734	597,232	248,000	79,100	15,221,834
		Cost	3,817,919	597,231	247,998	79,089	15,221,817
43.	Point Lookout, MI	New Work					
		Approp.	0	0	0	0	2,642,584
		Cost	0	0	0	0	2,642,584
		Maintenance					
		Approp.	101,752	486,000	11,420	11,080	4,678,587[55]
		Cost	101,751	485,972	11,425	11,104	4,678,587[55]
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	9,257
		Cost	0	0	0	0	9,257

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
44.	Port Austin Harbor, MI	New Work					
		Approp.	0	0	0	0	3,191,234
		Cost	0	0	0	0	3,191,234
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	172,100
		Cost	0	0	0	0	172,100
		Maintenance					
		Approp.	19,082	20,861	81,000	24,809	2,209,447[56]
		Cost	19,082	13,861	87,758	24,668	2,209,064[56]
45.	Port Sanilac Harbor, MI	New Work					
		Approp.	0	0	0	0	909,963
		Cost	0	0	0	0	909,963
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	487,108
		Cost	0	0	0	0	487,108
	Section 111	New Work					
		Approp.	0	0	0	0	336,000
		Cost	0	0	0	0	336,000
		Maintenance					
		Approp.	41,756	283,400	14,691	129,263	2,812,352[57]
		Cost	41,759	282,953	15,100	118,239	2,801,290[57]
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	115,000
		Cost	0	0	0	0	115,000
	Section 111	Maintenance					
		Approp.	0	10,000	1,300	67,304	1,270,054
		Cost	79	9,895	1,372	67,337	1,270,054
46.	Port Washington Harbor, WI	New Work					
		Approp.	0	0	0	0	2,582,204[58]
		Cost	0	0	0	0	2,582,204[58]
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	1,624,000
		Cost	0	0	0	0	1,624,000
		Maintenance					
		Approp.	43,256	25,330	49,338	300,938	3,825,270[59]
		Cost	44,343	25,270	49,386	300,951	3,825,270[59]
47	Port Wing Harbor, WI	New Work					
		Approp.	0	0	0	0	63,393
		Cost	0	0	0	0	63,393
		Maintenance					
		Approp.	2,693	48,639	258,701	71,942	1,821,886
		Cost	2,769	48,605	256,131	74,547	1,821,886

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
48.	Portage Lake Harbor, MI	New Work					
		Approp.	0	0	0	0	256,129
		Cost	0	0	0	0	256,129
		Maintenance					
		Approp.	144,862	2,837,755	1,927,000	922,289	8,740,790
		Cost	144,918	2,837,030	1,926,529	923,621	8,740,717
49.	Presque Isle Harbor, MI	New Work					
		Approp.	0	0	0	0	1,190,492
		Cost	0	0	0	0	1,190,492
	Section 111	New Work					
		Approp.	0	0	0	0	61,700
		Cost	0	0	0	0	61,700
		Maintenance					
		Approp.	2,540	1,031	1,400	88,775	1,951,348[60]
		Cost	2,540	1,031	1,400	88,775	1,951,348[60]
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	76,500
		Cost	0	0	0	0	76,500
50.	Rouge River, MI	New Work					
		Approp.	0	0	0	0	675,251[61]
		Cost	0	0	0	0	675,251[61]
		Maintenance					
		Approp.	123,755	179,603	182,200	876,786	39,398,802[62]
		Cost	123,760	178,867	182,785	874,609	39,396,475[62]
51	Saginaw River, MI (Federal Funds)	New Work					
		Approp.	0	0	0	0	14,917,127[63]
		Cost	0	0	0	0	14,917,127[63]
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	13,600
		Cost	0	0	0	0	13,600
		Maintenance					
		Approp.	1,022,466	1,950,876	1,391,700	2,292,525	86,412,569[64]
		Cost	1,022,382	1,939,543	1,391,696	2,301,905	86,409,175[64]
52.	Saint Clair River, MI	New Work					
		Approp.	0	0	0	0	19,213,246
		Cost	0	0	0	0	19,213,246
		Maintenance					
		Approp.	798,453	2,311,458	800,500	537,100	31,880,519[65]
		Cost	797,223	2,294,377	810,553	543,136	31,876,977[65]

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
53.	Saint Joseph Harbor, MI	New Work					
		Approp.	0	0	0	0	976,485[66]
		Cost	0	0	0	0	976,485[66]
	Section 111	New Work					
		Approp.	0	0	0	0	828,000
		Cost	0	0	0	0	828,000
		Maintenance					
		Approp.	489,518	995,832	496,200	503,000	23,414,964[67]
		Cost	492,623	992,969	496,952	501,793	23,409,700[67]
	Section 111	Maintenance					
		Approp.	124,563	130,900	120,000	73,922	8,715,836
		Cost	124,658	130,920	119,739	72,372	8,713,995
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	962,216
		Cost	0	0	0	0	962,216
54.	Saugatuck Harbor & Kalamazoo River, MI	New Work					
		Approp.	0	0	0	0	364,527[68]
		Cost	0	0	0	0	364,527[68]
		Maintenance					
		Approp.	1,725,815	482,600	177,300	24,750	10,206,812[69]
		Cost	1,726,003	482,563	177,145	24,842	10,206,712[69]
55.	Saxon Harbor, MI	New Work					
		Approp.	0	0	0	0	507,507[70]
		Cost	0	0	0	0	507,507[70]
	Section 111	New Work					
		Approp.	0	0	0	0	204,270
		Cost	0	0	0	0	204,270
		Maintenance					
		Approp.	265,987	(31,487)	7,651	1,405	1,215,428
		Cost	65,556	168,888	6,818	2,294	1,215,428
56.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	35,573
		Cost	0	0	0	0	35,573
		Maintenance					
		Approp.	66,405	35,864	29,000	24,002	4,338,250[71]
		Cost	66,258	36,023	28,889	24,142	4,338,250[71]
57.	Sheboygan Harbor, WI	New Work					
		Approp.	0	0	0	0	1,136,088[72]
		Cost	0	0	0	0	1,136,088[72]

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
57.	Sheboygan Harbor, WI (Continued)	Maintenance					
		Approp.	123,101	105,076	415,400	341,100	10,236,847[73]
		Cost	123,154	104,980	415,132	341,451	10,236,834[73]
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	609,028
		Cost	0	0	0	0	609,028
58.	South Haven Harbor, MI	New Work					
		Approp.	0	0	0	0	452,426[74]
		Cost	0	0	0	0	452,426[74]
	Section 111	New Work					
		Approp.	0	0	0	0	532,000
		Cost	0	0	0	0	532,000
		Maintenance					
		Approp.	354,226	84,666	1,452,995	835,995	9,058,354[75]
		Cost	349,614	99,681	1,452,351	836,692	9,058,347[75]
	Section 111	Maintenance					
		Approp.	0	(100)	0	29,906	1,966,039
		Cost	(87)	0	0	21,225	1,957,279
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	1,632,076
		Cost	0	0	0	0	1,632,076
59.	Sturgeon Bay, WI, and Lake Michigan Ship Canal, WI	New Work					
		Approp.	0	0	0	0	1,059,722[76]
		Cost	0	0	0	0	1,059,722[76]
		Maintenance					
		Approp.	341,941	237,401	95,900	109,400	11,698,913[77]
		Cost	351,980	237,450	95,867	109,436	11,698,865[77]
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	884,899
		Cost	0	0	0	0	884,899
60.	Two Harbors, MN	New Work					
		Approp.	0	0	0	0	4,170,710[78]
		Cost	0	0	0	0	4,170,710[78]
		Maintenance					
		Approp.	1,841	1,379	1,607	18,051	5,273,498
		Cost	1,841	1,379	1,607	18,002	5,273,449

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
61.	Two Rivers Harbor, WI	New Work					
		Approp.	0	0	0	0	360,320[79]
		Cost	0	0	0	0	360,320[79]
		Maintenance					
		Approp.	274,338	444,145	135,657	2,671,001	12,519,712[80]
		Cost	250,652	452,010	153,711	2,670,990	12,519,619[80]
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	58,057
		Cost	0	0	0	0	58,057
62.	White Lake Harbor, MI	New Work					
		Approp.	0	0	0	0	207,862
		Cost	0	0	0	0	207,862
	Section 111	New Work					
		Approp.	0	0	0	0	249,700
		Cost	0	0	0	0	249,700
		Maintenance					
		Approp.	78,894	176,276	20,158	10,804	11,130,025
		Cost	78,937	176,190	19,971	11,080	11,130,025
	Section 111	Maintenance					
		Approp.	0	59,600	0	29,484	1,259,199
		Cost	0	59,587	(231)	28,023	1,257,398
71.	Fort Wayne Metro Area, IN	New Work					
		Approp.	4,087,000	1,554,000	315,000	0	37,260,000
		Cost	4,196,925	1,606,848	307,677	7,773	37,255,102
	Contributed Funds	New Work					
		Contrib.	1,524,000	222,221	75,000	0	8,022,221
		Cost	1,072,714	672,567	80,921	0	8,021,882
72.	Saginaw River-1958 Act Flint, MI	New Work					
		Approp.	0	0	0	0	24,755,359
		Cost	0	0	0	0	24,755,359
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	173,000
		Cost	0	0	0	0	173,000
		Maintenance					
		Approp.	0	75,000	4,000	(170)	6,453,831
		Cost	659,374	112,580	24,029	0	6,453,831
73.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	365,642
		Cost	0	0	0	0	365,642
		Maintenance					
		Approp.	4,501	8,678	6,500	7,900	478,535
		Cost	4,507	8,591	6,527	7,950	478,525

TABLEL 21-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
77.	Surveillance of Northern Boundary Waters	New Work					
		Approp.	0	0	0	0	0
		Cost	0	0	0	0	0
		Maintenance					
		Approp.	3,081,614	3,093,366	3,227,400	3,252,703	80,660,832[81]
		Cost	3,102,836	3,116,939	3,185,141	3,264,393	80,599,677[81]
78.	St. Marys River, MI	New Work					
		Approp.	0	0	2,321,000	1,850,000	164,828,071[82]
		Cost	0	0	2,283,219	1,802,958	164,743,248[82]
		Maintenance					
		Approp.	20,811,820	22,268,620	26,252,210	22,878,841	462,751,403[83,84]
		Cost	20,857,071	22,080,895	21,790,725	23,088,548	458,270,909[83,84]
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	340,400
		Cost	320	0	0	0	340,400

TABLE 21-A (Continued) COST AND FINANCIAL STATEMENT

[1]Includes $18,889 for previous projects.
[2]Includes $792 for diked disposal.
[3]Includes $85,849 for previous projects.
[4]Includes $12,008 for previous projects.
[5]Excludes $30,000 for contributed funds.
[6]Includes $25,500 for previous projects.
[7]Includes $3,796,180 for previous projects.
[8]Includes $2,097,254 for previous projects.
[9]Includes $42,470,585 for diked disposal.
[10]Includes $1,547,195 for previous projects.
[11]Includes $1,556,249 for diked disposal.
[12]Includes $3,239,910 for previous projects.
[13]Includes $89,309 for previous projects.
[14]Includes $42,084 expended for M&O of Dams. (Excludes $10 expended in FY99).
[15]Includes $1,204,500 for diked disposal.
[16]Includes $311,329 for previous projects.
[17]Includes $13,437 for previous project and $780,400 for diked disposal.
[18]Includes $506,437 for previous projects.
[19]Excludes $100,000 contributed funds.
[20]Includes $8,918 for previous projects and $7,642,642 for diked disposal.
[21]Includes $176,620 for previous projects.
[22]Includes $127,598 for previous projects and $1,663,300 for diked disposal.
[23]Includes $404,300 for diked disposal.
[24]Includes $453,839 for previous projects.
[25]Excludes $3,000 contributed funds.
[26]Includes $21,818 for previous projects and $4,378,600 for diked disposal.
[27]Includes $149,312 for previous projects.
[28]Includes $88,364 for previous projects and $2,961,461 for diked disposal.
[29]Includes $402,242 for previous projects and $1,523,500 for diked disposal.
[30]Excludes $38,190 contributed funds.
[31]Includes $656,000 for previous projects.
[32]Includes $235,346 for previous projects and $5,119,800 for diked disposal.
[33]Includes $491,416 for previous projects.
[34]Excludes $136,286 contributed funds.
[35]Includes $354,999 for previous projects.
[36]Includes $150,910 for previous projects.
[37]Includes $3,955 for previous projects.
[38]Includes $400,126 for previous projects.
[39]Includes $54,288 for previous projects and $3,081,756 for diked disposal.
[40]Includes $312,423 for previous projects.
[41]Includes $36,194 for previous projects.
[42]Includes $312,423 for previous projects.
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[43]Includes $36,194 for previous projects and $593,660 for diked disposal.
[44]Includes $1,293,220 for previous projects.
[45]Includes $459,305 for previous projects and $6,380,925 for diked disposal.
[46]Includes $38,606,400 for diked disposal.
[47]Includes $83,182 contributed funds - diked disposal.
[48]Includes $613,408 for previous projects.
[49]Includes $446,183 for previous projects.
[50]Includes $181,500 for diked disposal.
[51]Includes $84,569 for previous projects.
[52]Includes $8,181 for previous projects.
[53]Includes $284,802 for previous projects.
[54]Includes $113,326 for previous projects and $21,000 for diked disposal.
[55]Includes $121,600 for diked disposal.
[56]Includes $159,000 for diked disposal.
[57]Includes $9,158 for diked disposal.
[58]Includes $188,495 for previous projects.
[59]Includes $15,123 for previous projects and $10,621 for diked disposal.
[60]Includes $16,500 for diked disposal.
[61]Includes $50,084 for previous projects.
[62]Includes $56,608 for previous projects and $14,907,318 for diked disposal.
[63]Includes $962,556 for previous projects.
[64]Includes $20,951,888 for diked disposal ($1,671,660 public works fund and $49,419 emergency relief funds)
[65]Includes $420,000 expended for M&O of Dams.
[66]Includes $503,113 for previous projects.
[67]Includes $638,076 for diked disposal.
[68]Includes $90,232 for previous projects.
[69]Includes $117,554 for previous projects.
[70]Excludes $50,193 contributed funds.
[71]Includes $15,000 for previous projects.
[72]Includes $487,817 for previous projects.
[73]Includes $87,131 for previous projects and $907,792 for diked disposal.
[74]Includes $187,233 for previous projects.
[75]Includes $131,299 for previous projects and $42,381 for diked disposal.
[76]Includes $323,419 for previous projects.
[77]Includes $219,730 for previous projects and $311,119 for diked disposal.
[78]Includes $48,404 National Recovery Act for New Work Funds.
[79]Includes $212,857 for previous projects.
[80]Includes $33,113 for previous projects and $1,187,472 for diked disposal.
[81]Includes $3,973,897 for previous projects.
[82]Includes $2,904,807 for previous projects.
[83]Includes $13,100 for diked disposal.
[84]Includes $799,947 expended for M&O of Dams.

TABLE 21-B **AUTHORIZING LEGISLATION**

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
1.		**ALPENA HARBOR, MI**	
	Sep. 19, 1890	Channel depth of 16 ½ feet.	Annual Report, 1889, p. 2288.
	Mar. 2, 1919 Sep. 22, 1922	Rubblemound breakwater for protecting channel on south side and widening entrance channel.	H. Doc. 830, 65th Cong., 2d Sess., and Rivers & Harbors Comm. Doc. 1, 67th Cong., lst Sess.
	Aug. 30, 1935	21 and 18½ foot channel depths and turning basin.	Rivers and Harbors Comm. Doc. 42, 72d Cong., lst. Sess.
	Oct. 27, 1965	Present project dimensions. New turning basin. Removal of old breakwater and construction of new breakwater.	H. Doc. 151, 88th Cong., 1st. Sess.[1]
	Nov. 17, 1986	Deauthorization of the feature authorized by the 1965 River and Harbor Act.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
2.		**ARCADIA HARBOR, MI**	
	Mar. 3, 1905	Maintenance of existing 12-foot channel.	H. Doc. 194, 58th Cong., 2d Sess.
3.		**ASHLAND HARBOR, MI**	
	Aug. 5, 1886	Breakwater 7,900 feet long and dredging to remove a shoal.	H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966.
	Aug. 11, 1888	Appropriation of $60,000 for 'Continuing improvements on enlarged project' (On completion of Poe Lock in 1896, with available depth of 20 feet, dredging at Ashland Harbor was carried to a similar depth.)	H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966.
	Mar. 3, 1899 Jun. 6, 1990	Detached breakwater extending 4,700 feet out from shore at a point 2,600 feet east of main breakwater (prolonged) and parallel thereto.	
	Aug. 8, 1917	Project modified by omitting detached breakwater and defining depth and extend of channel to be dredged.	H. Doc. 1698, 64th Cong., 2d Sess.
	Jul. 3, 1930	Widening part of present channel for entrance channel and for basin in eastern part of harbor.	S. Doc. 133, 71st Cong., 2d Sess
	Aug. 30, 1935	Deepening east basin to 25 feet and west channel, as far as 8th Ave. West, extended to 21 feet.	Rivers and Harbors Committee Doc. 46, 82d Cong., 1st Sess.
	Mar. 2, 1945	Widening west channel to 750 feet at its westerly end	H. Doc. 337, 77th Cong., 1st Sess.
	Jul. 14, 1960	Deepening portions of east basin and west channel to 27 and 21 feet, respectively.	H. Doc. 165, 86th Cong., 1st Sess.[1]
4.		**BAY PORT HARBOR, MI**	
	May 20, 1965	Channel 6 feet deep and 50 feet wide.	Section 107, 1960 Rivers and Harbor Act.
5.		**BIG SUAMICO RIVER, WI**	
	Aug. 26, 1937	Channel from Green Bay to 1,800 feet above the river mouth.	H. Doc. 498, 74th Cong., 2d Sess.[1]
6.		**BLACK RIVER, MI (PORT HURON)**	
	Sep. 19, 1890	Channel from mouth of Grand Trunk R.R. Bridge.	Annual Report, 1889, p. 2291.
	Jul. 13, 1892	Channel from Grand Trunk R.R. Bridge to Washington Ave.	No Printed Report.
	Sep. 22, 1922	Consolidation of projects for Black River at Port Huron and Mouth of Black River.	H. Doc. 436, 64th Cong., lst. Sess.
	Jul. 3, 1930	Settling Basin.	H. Doc. 162, 71st Cong., 2d Sess.
	Aug. 30, 1935	Deepening channel and settling basin to 20 feet, and widening to 100 feet 2 bends; 1 at the foot of 12th St., the other below the Grand Trunk R.R. Bridge.	Rivers and Harbors Committee Doc. 54, 72d Cong., 2d Sess.
	Apr. 23, 1970	Extension of existing channel.	Section 107, 1960 Rivers and Harbors Act.

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
7.		**BLACK RIVER HARBOR, MI (UPPER PENINSULA)**	
	Mar. 2, 1945	Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. Project depths 12 feet in approach channel and 8 feet in the river channel and basin.	H. Doc. 446, 78th Cong., 2d Sess.[1]
8.		**BOLLES HARBOR, MI**	
	Jul. 6, 1965	Entrance channel in Lake Erie, Access channel in LaPlaisance Creek. Steel sheet pile revetment.	Section 107, 1960 Rivers and Harbors Act.
9.		**CHARLEVOIX HARBOR, MI**	
	Aug. 14, 1876	Channel from Lake Michigan to Round Lake protected where needed by piers and revetments.	S. Ex. Doc. 16, 44th Cong., 1st 0ess. and Annual Report 1876, p. 523.
	Aug. 2, 1882	Channel from Round Lake to Lake Charlevoix.	No Prior Survey of Estimates.
	Jun 13, 1902	Project depth increased to 15 feet.	No Prior Survey of Estimates.
	Jun. 20, 1938	Project depth increased to 18 feet.	S. Doc. 163, 75th Cong., 3rd Sess.[1]
	Nov. 17, 1988	Restore recreational uses or provide comparable recreational uses at the South Pier.	H. Doc. 1098, 100th Cong., 2d Sess. Sec. 25 of the WRDA of 1988.
	Mar. 29, 1977	Project depth increased to 24 and 23 feet, and construction of revetment upstream of Highway Bridge.	Section 107, 1960 Rivers and Harbors Act.
10.		**CLINTON RIVER, MI**	
	Aug. 14, 1876	Channel in River and Lake St. Clair, Pile Dike, Closing channels and making Cutoff, and revetments as needed.	S. Doc. 199, 46th Cong., 2d Sess. Annual Report, 1880, p. 2062, and H. Doc. 210, 44th Cong., 2d Sess., and Annual Report, 1886, p. 219.
	Jul. 19, 1963	Widening entrance channel and constructing protected harbor basin.	Section 107, 1960 Rivers and Harbors Act.
11.		**DETROIT RIVER, MI**	
	Jun. 13, 1902 Mar. 3, 1905 Jun. 25, 1910	Amherstburg Channel and removal of Grosse Ile Shoal.	H. Doc. 712, 56th Cong., 1st. Sess. and 40, 58th Cong., 3rd Sess.
	Mar. 4, 1913	Fighting Island Channel.	H. Doc. 17, 62d Cong., 1st Sess.
	Mar. 2, 1907 Jun. 25, 1910 Mar. 2, 1919	Livingstone Channel.	H. Doc. 266, 59th Cong., 1st Sess.; 676, 61st Cong., 2d Sess.; and 322, 65th Cong., 1st Sess.
	Jul. 3, 1930	Channel Depths of 26 and 25 feet.	H. Doc. 253, 70th Cong., 1st. Sess.
	Aug. 30, 1935 [3]	Channel to Wyandotte 21 feet deep and 300 feet wide through Middle Ground opposite Head of Fighting Island.	Rivers and Harbors Committee Doc. 1, 72d Cong., 1st Sess.[1]
	Aug. 26, 1937	Trenton Channel and Turning Basin (West of Grosse Ile).	H. Doc. 205, 75th Cong., 1st Sess.
	Mar. 2, 1945	American Channel North of Belle Isle between Windmill Point and Fairway Slip, Detroit.	H. Doc. 734, 79th Cong., 2d Sess.
	Jul. 24, 1946 [22]	Deepen Westerly 300 feet of Amherstburg Channel and Ballards Reef Channel below Livingstone Channel to 27 feet to provide depths adequate for 24-foot draft navigation when governing Lakes are at Datum, with necessary widening at approaches and bends and construction of necessary compensating works, Detroit River.	H. Doc. 335, 80th Cong., 1st Sess.
	May 17, 1950 [4]	Extend Turning Basin in Trenton Channel 600 feet.	S. Doc. 30, 81st Cong., 1st Sess.[1]

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		Dredge through East Draw of lower Grosse Ile Bridge and extend 300-foot width of Channel North of lower Grosse Ile Bridge.	
	Mar. 21, 1956 [22]	Channel Depth of 28.5 feet throughout downbound and Two-Way Channels, except in upper (27.7-foot depth) and lower (29-foot depth), Livingstone Channel, and in upbound Channel; 27-foot depth in Ballards Reef Channel below junction with Livingstone Channel, 27.5-foot depth in westerly 300-foot width of Limekiln Crossing and Amherstburg Reaches, and 28.5-foot depth in westerly 300-foot width of Hackett Beach, with necessary compensation works. Also 28.5-foot depth in Lake Erie from Detroit River to Pelee Passage Shoal, inclusive.	S. Doc. 71, 84th Cong., 1st Sess.[1]
	Jul. 14, 1960	Trenton Channel: Deepen to 25 feet, where necessary, Wyandotte Reach from Detroit River to Upper Grosse Ile Bridge, about 5.5 miles, deepen to 28 feet and widen to 300 feet below Upper Grosse Ile Bridge to and including a Turning Basin 28 feet deep and 15 feet across in area outside project limits.	H. Doc. 319, 86th Cong., 2d Sess.[1]
	Aug. 13, 1968 [22]	Trenton Channel: Deepen to 28 feet and widen to 300 feet from Upper Turning Basin at Trenton to Gibraltar, about 20,500 feet from downstream: Construct a Turning Basin at Gibraltar at a depth of 28 feet, width of 830 feet, and length of 1,500 feet: Build compensating works to maintain water levels.	H. Doc. 338, 90th Cong., 2d Sess.[1]
12.		**DULUTH-SUPERIOR HARBOR, MN AND WI**	
	Jun. 3, 1896	Dredging.	H.Ex. Doc. 59, 53d Cong., 3rd Sess. and Annual Report, 1895, p. 2538.
	Jun. 13, 1902	Rebuilding piers at Superior Entry.	
	Mar. 2, 1907	Enlarge plan for Superior Entry and additional dredging near draw span of Burlington Northern railway bridge.	H. Doc. 82, 59th Cong., 2d Sess.
	May 28, 1908 [5]	Dredging additional area of basin inside Duluth entrance to 22-foot depth.	H. Doc. 221, 60th Cong., 1st Sess.
	Jul. 27, 1916	Enlarging Superior Harbor Basin.	H. Doc. 651, 64th Cong., 1st Sess.
	Mar. 2, 1919	Removal of shoal point at southerly end of East Gate Basin.	H. Doc. 1018, 64th Cong., 1st Sess.
	Jan. 21, 1927 Jul. 30, 1930 [3]	Howards Bay Channel, 20 feet deep.	H. Doc. 145, 69th Cong., 1st Sess., and Rivers and Harbors Committee Doc. 32, 71st Cong., 2d Sess.
	Aug. 30, 1930 [3]	Deepening and widening channels and basins.	H. Doc. 482, 72d Cong., 2d Sess.
	Jul. 16, 1952 [4,6]	Deepen Superior Front Channel and a portion of East Gate Basin to 25 feet.	H. Doc. 374, 82d Cong., 2d Sess.
	Jul. 14, 1960 [7,22]	Present project dimensions of channels and basin.	H. Doc. 150, 86th Cong., 1st Sess.; H. Doc. 196, 86th Cong., 1st Sess.
	Oct. 4, 1961	Abandons northerly portion of 21st Avenue West Channel.	
	Nov. 17, 1986	Deepen portions of the North and South Channels, the entire Upper Channel and Minnesota Channel to 27 feet; widen the Cross Channel turning basin to 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet, and construct an upland CDF.	H. Doc. 204, 99th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
13.		**FOX RIVER, WI**	
	Aug. 5, 1886	Improvement of Fox River.	Annual Report, 1885, pp. 2041-2045 (plan of a board approach Dec. 10, 1884, as modified by Corps of

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
			Engineers, May 14, 1886).
	Sep. 19, 1890	Dredging Fond du Lac Harbor on Lake Winnebago.	H. Ex. Doc. 24, 51st Cong., 1st Sess. Annual Report, 1890, p. 2390.
	Jun. 3, 1896	Improvement of Wolf River.	No prior survey or estimates.
	Jun. 3, 1896	Improvement of Stockbridge, of Calumet and Miller	No prior survey or estimates.
	Jun. 13, 1902	Bay, and of Brothertown Harbor, on Lake Winnebago.	
	Mar. 2, 1907		No prior survey or estimates.
	Mar. 3, 1925 [8,22]	Increased depth in rock cuts on lower river, widen Neenah Channel, and a concrete retaining wall at Kaukauna.	H. Doc. 294, 68th Cong., 1st Sess.[1]
	Jun. 26, 1934 [9]	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul. 3, 1958 [10]	Sec. 108, Federal project structure, appurtenances, and real property of Upper Fox River, WI, be disposed of to State of Wisconsin.	S. Bill 3910, 85th Cong., 2d Sess.
	Oct. 31, 1992	Sec. 332 authorized transfer of navigation system to Wisconsin subject to agreement, Federal government to continue water regulation/dam operation.	Public Law 102-580 (WRDA of 1992).
14.		**FRANKFORT HARBOR, MI**	
	Jun. 23, 1866 [11]	A New Outlet 12 feet deep protected by Piers and Revetments.	H. Doc. 482, 5th Cong., 2d Sess.
	Mar. 3, 1925	Exterior Breakwaters, removal of portions of Piers, Project Dimensions of Outer Basin.	H. Doc. 208, 68th Cong., 1st Sess.
	Aug. 26, 1937	Dredge the area in Lake Betsie.	
	Oct. 27, 1965	Deepen approach and entrance channels. Extend Inner Basin and Dredge recreational anchorage area.	H. Doc. 511, 74th Cong., 2d Sess., S. Doc 16, 89th Cong., 1st Sess.[1]
15.		**GRAND HAVEN HARBOR, MI**	
	Jun. 23, 1866	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jun. 14, 1880	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Sep. 19, 1890	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 13, 1892	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 3, 1930	Present Project dimensions of Harbor channel to Grand Trunk Car Ferry Slip and River Channel. Eliminating all of that portion of Grand River above Bass River, Consolidation of Projects for Harbor and River.	S. Doc. 88, 71st Cong., 2d Sess.
	Aug. 26, 1937	Channel to Spring Lake.	Rivers and Harbors Committee Doc. 1, 75th Cong., 3rd Sess.[1]
	Mar. 2, 1945	Present Project Dimensions of Harbor Channel from Car Ferry Slip to Grand Trunk Railway Bridge and Turning Basin.	H. Doc. 661, 76th Cong., 3rd Sess.[1]
	Nov. 17, 1986	Deepen the harbor entrance channel and harbor river channel to 29 and 27 feet, respectively; provide a new and larger turning basin, trapezoidal in shape, 1,200 feet long at the channel, 300 feet long at the shore, 800 feet at a right angle to the channel, and 18 feet deep.	H. Doc. 227, 98th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
16.		**GRAND MARAIS HARBOR, MI**	
	Jun. 14, 1880	Existing project, except for pile dike.	Specified in Act, Annual Report 1881, p. 2050
	Jun. 14, 1880	For pile dike.	Annual Report, 1895, p. 351
	May 17, 1950	800-foot extension of West Pier.	H. Doc. 751, 80th Cong., 2nd Sess.

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
17.		**GRAND TRAVERSE BAY HARBOR, MI**	
	Mar. 2, 1945	Two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between piers and 10 feet in basin. Projects area extended 200 feet upstream in 1966.	H. Doc. 446, 78th Cong., 2nd Sess.
18.		**GREEN BAY HARBOR, WI**	
	Jun. 23, 1866	Outer Channel and revetment at Grassy Island.[12]	Annual Report, 1867, p. 70.
	Jul. 13, 1892	Inner channel.[13]	Unpublished report approved Aug. 3, 1892.
	Jun. 26, 1910	Turning basin at DePere.	H. Doc. 222, 61st Cong., 2d Sess.
	Aug. 8, 1917	Maintenance of turning basin at DePere.	H. Doc. 1017, 64th Cong., 1st Sess.
	Mar. 3, 1925	Increasing depth of inner channel and turning basin to 18 feet.	H. Doc. 294, 68th Cong., 1st Sess.
	Aug. 30, 1935 [2]	Deepen outer channel to 22 feet with widening and straightening inside of Tail Point Bend, widen channel in Fox River through city of Green Bay to 22 feet.	Rivers and Harbors Committee Doc. 40, 72d Cong., 2d Sess.
	Aug. 26, 1937	Turning basin above Chicago & North Western R.R. Bridge.	
	Mar. 2, 1945	Turning basin at mouth of East River.	Rivers and Harbors Committee Doc. 73, 74th Cong., 2d Sess.
	Oct. 23, 1962	Deepen and widen 9 miles of entrance channel to 26 by 500 feet; 3.6 miles of entrance channel to 24 by 300 feet; and 3.2 miles of existing Fox River to 24 feet deep.	H. Doc. 95, 76th Cong., 1st Sess. H. Doc. 470, 87th Cong., 2d Sess.[1]
	Nov. 17, 1986	Deepen the Fox River channel at Green Bay, WI, to 27 feet.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986, Sec. 601c).
19.		**HOLLAND HARBOR, MI**	
	Aug. 30, 1852	Artificial channel between Lakes Macatawa and Michigan.[12]	S. Ex. Doc. 42, 35th Cong., 1st Sess.
	Mar. 2, 1867	Piers and Revetments.[12]	Annual Report, 1866, p. 106.
	Mar. 3, 1899	Extending Inner Piers.	H. Doc. 272, 51st Cong., 2d Sess.; and Annual Report 1887, p. 2950.
	Mar. 3, 1905	Converging Breakwater.	Annual Report, 1905, p. 2176;
	Jul. 3, 1930	Channel to Holland and Turning Basin at Holland.	H. Doc. 588, 69th Cong., 2d Sess.
	Aug. 30, 1935	Present Project Dimensions of Channels at Turning Basin.	Rivers and Harbors Committee Doc. 48, 74th Cong., 1st Sess.
	Sep. 3, 1954 [22]	Widen Bend in Revetted Entrance Channel into Lake Macatawa, Dredge Channel in Black River, and Widen and Extend Turning Basin.	H. Doc. 282, 83rd Cong., 2d Sess.
20.		**THE INLAND ROUTE, MI**	
	Sep. 3, 1954	Channel 30 feet wide and 5 feet deep through Lakes and Rivers with suitable jetties.	H. Doc. 142, 82d Cong., 1st Sess.[1]
	Sep. 2, 1964	Lock and Dam.	Chief of Engineers.
21.		**KENOSHA HARBOR, WI**	
	Mar. 3, 1899	Parallel piers and 600 feet of breakwater.[12]	H. Doc. 328, 54th Cong., 2d Sess.; Annual Report, 1897, p. 2772; H. Doc. 164, 55th Cong., 3rd Sess.; Annual Report, 1899, p. 1817.
	Mar. 2, 1907	Extending Breakwater 200 feet.	H. Doc. 62, 59th Cong., 2d Sess. and Rivers and Harbors Committee Doc. 3, 5th Cong., 2d Sess.
	Aug. 30, 1935 [2]	Present project dimensions of entrance channel and basin.	Rivers and Harbors Committee Doc. 19, 74th Cong., 1st Sess.
	May 17, 1950	Channel northwesterly from basin.	H. Doc. 750, 80th Cong., 2d Sess.

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct. 23, 1962 [22]	Deepen lake approach channel to 27 feet and 800 feet wide; deepen approach channel to 26 feet, entrance channel and inner basin to 25 feet.	H. Doc. 496, 87th Cong., 2d Sess.[1]
22.		**KEWAUNEE HARBOR, WI**	
	Mar. 3, 1881	Entrance piers.	Annual Report, 1881, p. 2082.
	Jun. 25, 1910	Turning basin.	H. Doc. 324, 60th Cong., 1st Sess.
	Aug. 30, 1935 [2,14]	North breakwater, remove old north pier, widen and deepen entrance channel and turning basin to 20 feet and remove outer south shoal.	Rivers and Harbors Committee Doc. 43, 72d Cong., 1st Sess.[1] S. Doc. 19, 86th Cong., 1st Sess.[1]
	Jul. 14, 1960	Enlarge existing turning basin, extend existing project into north basin, and increase depth of north basin to 20 feet at a maximum width of 500 feet and eliminate removal of outer shoal.	
23.		**KEWEENAW WATERWAY, MI**	
	Sep. 19, 1890	Acquision of waterway; for a 16-foot channel of 70-foot bottom width, renew canal revetments, reconstruct and extend piers at upper entrance to 30-foot depth of water, and at proper time for increase of channel depth to 20 feet with bottom width of not less than 120 feet (increase in width and depth of channel approved May 15, 1898).	H. Ex. Doc. 105, 49th Cong., 2d Sess.; and Annual Report, 1887, p. 1977.
	Jun. 25, 1910	Anchorage basin just within lower entrance about one-half mile long, 800 feet wide; a mooring pier on its westerly side 2,000 feet in length, and for purchase of necessary land.	H. Doc. 325, 60th Cong., 1st Sess.
	Mar. 2, 1919	Princess Point Cutoff Channel.	H. Doc. 835, 63rd Cong., 2d Sess.
	Aug. 30, 1935 [15]	General deepening, widening and straightening of channels and basins to provide 25-foot depth with additional overdepth at entrances, extend lower entrance breakwater, and necessary alteration or replacement of structures due to deepening channels.	H. Doc. 55, 73rd Cong., 1st Sess.[1]
	Nov. 17, 1986	Deauthorization of the uncompleted portion of the project authorized by the 1935 Rivers and Harbors Act.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
24.		**KNIFE RIVER HARBOR, MN**	
	Mar. 2, 1945	Dredging.	H. Doc. 686, 77th Cong., 2d Sess. and Annual Report for 1949. H. Doc. 463, 83rd Cong., 2d Sess.[1]
	Sep. 3, 1954	Breakwater and modified channels.	
	Mar. 7, 1974	Construction of measures to correct the design deficiencies which results in unsatisfactory entrance and mooring conditions.	
25.		**LAC LA BELLE HARBOR, MI**	
	Mar. 2, 1945	Two parallel piers at the entrance, 584 and 682 feet; an entrance channel between the piers 50 feet wide and 12 feet deep, 820 feet long with a flared approach and inner canal 50 feet wide, 10 feet deep, and 730 feet long.	H. Doc. 446, 78th Cong., 2d Sess. Annual Report, 1961, p. 1039.
26.		**LAKE ST. CLAIR, MI, CHANNELS**	
		Two Dikes.	Annual Report, 1885, p. 2150.
	Aug. 5, 1886	Deepening Canal and dredging Channel at Grosse Pointe.	H. Doc. 297, 51st Cong., 2d Sess.
	Jul. 13, 1892	Second Canal for downbound vessels.	H. Doc. 234, 56th Cong., 2d Sess.

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Jun. 13, 1902	21-foot depth in Grosse Pointe Channel for about 5.25 miles.	H. Doc. 188, 65th Cong., 1st Sess.
	Mar. 2, 1919	25-foot depth through Canals and Channel through Lake St. Clair.	H. Doc. 253, 70th Cong., 1st Sess.
	Jul. 3, 1930 Aug. 30, 1933 [3]	Removal of Center Dike and widening Channel to 700 feet.	Rivers and Harbors Committee Doc. 3, 72d Cong., 1st Sess.
	Mar. 21, 1956	Deepening Channel to 27.5 feet and abandonment of Channel above mouth of Southeast bend cutoff Channel.	S. Doc. 71, 84th Cong., 1st Sess.[1]
27.		**LELAND HARBOR, MI**	
	Aug. 30, 1935	Entrance Channel protected by Piers.	Rivers and Harbors Committee Doc. 23, 74th Cong., 1st Sess.
	Oct. 23, 1962	Outer Breakwater, Anchorage Area, Approach Channel and removal of North Pier.	H. Doc. 413, 87th Cong., 2d Sess.
28.		**LEXINGTON HARBOR, MI**	
	Oct. 27, 1965	Approach Channel and Maneuver Area Protected by Breakwaters.[1]	H. Doc. 301, 88th Cong., 2d Sess.[1]
29.		**LITTLE LAKE HARBOR, MI**	
	Mar. 2, 1945	12-foot deep Channel from Lake Superior into Little Lake Breakwaters and Revetments.	H. Doc. 446, 78th Cong., 2d Sess.[1]
30.		**LUDINGTON HARBOR, MI**	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 114.[16]
	Mar. 3, 1899	Pier Extension, Reconstruction and repairs to existing structures and present project dimensions of Channel.	H. Doc. 273, 54th Cong., 2d Sess.; and Annual Report, 1897, p. 2951.
	Mar. 2, 1907	Breakwaters, Shore Connections, and Removal of outer ends of the two inner piers.	H. Doc. 62, 59th Cong., 1st Sess.; and Rivers and Harbors Committee Doc. 3, 59th Cong., 2d Sess.[16]
	Dec. 31, 1970	Deepen Channels and widen opening between breakwaters.	H. Doc. 342, 91st Cong., 2d Sess.[1]
31.		**MANISTEE HARBOR, MI**	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 115.
	Sep. 19, 1890	Extending Channel 8,000 feet to connect with Manistee Lake, and further Pier extension.	Annual Report, 1891, P. 2678.
	Jul. 25, 1912	Depth of 20 feet in Outer Harbor 570 feet wide to Outer end of South Pier 18 feet deep in river, South Breakwater with shore connection, and extend North Pier if required.	H. Doc. 599, 62d Cong., 2d Sess.
	Jul. 3, 1920	23-foot depths in entrance channel and 21-foot depths in River Channel.	S. Doc. 131, 71st Cong., 2d Sess.
	Mar. 2, 1945	Remove old South Revetment, Construct new South Pier and Revetment, and widen river entrance Channel.	H. Doc. 380, 77th Cong., 1st Sess.
	Jul. 14, 1960	Present project dimensions of Channel through Outer Basin and River, and Federal participation in cost of replacing Maple Street Bridge.	H. Doc. 358, 86th Cong., 2d Sess.
32.		**MANISTIQUE HARBOR, MI**	
	Mar. 3, 1905	Breakwaters and Outer Harbor.	H. Doc. 429, 58th Cong., 2d Sess.
	Mar. 2, 1907	Present location of West Breakwater and Pier at River Mouth.	Annual Report, 1908, p. 648, and Unpublished Report of Mar. 13, 1908; Approved by Secretary of War, Apr. 3, 1908.
33		**MANITOWOC HARBOR, WI**	
	Mar. 2, 1907	Breakwaters.	H. Doc. 62, 59th Cong., 1st Sess., as modified by Rivers and Harbors

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
			Comm. Doc. 3, 59th Cong., 2d Sess.
	Aug. 30, 1935 [17]	Present project dimensions of channel through outer basin, removal of old north stub pier, and approach channel to a proposed city terminal south of shore end of south breakwater.	Rivers and Harbors Committee Doc. 39, 73rd Cong., 2d Sess.
	Aug. 26, 1937	Channel in river.	
	Oct. 23, 1962 [29]	Deepen Lake approach to 25 feet by 800 feet wide, deepen outer harbor to 25 feet, river channel to 23 feet to 8th Street, and Upper River Channel to 22 feet to Soo Line R.R.	Rivers and Harbors Committee Doc. 80, 74th Cong., 2d Sess. H. Doc. 479, 87th Cong., 2d Sess.
	Dec. 31, 1968 (Sec. 107 of 1960 R & H)	Dredge River Channel to 12 feet from Soo Line R.R. 720 feet upstream.	Jun. 1967 Detailed Project Report Apr. 1982 Supplement.[1]
	Jun. 26, 1979	Construct 765-foot long stone Breakwater, and rubblemound bulkhead; construct 360-foot long entrance Breakwater; dredge 16,500 cubic yards for entrance channel.	Sec. 107, 1960 Rivers and Harbors Act.
34.		**MARQUETTE HARBOR, MI**	
	Mar. 2, 1867	Breakwaters, 2,000 feet long.	H. Ex. Doc. 56, 39th Cong., 2d Sess., pts. 1 and 2; and Annual Report, 1866, pp. 8 and 77.
	Aug. 11, 1888	Extending the breakwater 1,000 feet.	Annual Report, 1889, pp. 272 and 2021.
	Jun. 25, 1910	Additional 1,500-foot extension to breakwater and removing a shoal in northerly part of harbor.	H. Doc. 573, 61st Cong., 2d Sess.
	Aug. 30, 1935	Deepening harbor to 25 feet.	Rivers and Harbors Committee Doc. 20, 72d Cong. , 1st Sess.
	Jul. 11, 1960	Deepening harbor to 27 feet.	H. Doc. 154, 86th Cong., lst Sess.[1]
35.		**MENOMINEE HARBOR AND RIVER, MI AND WI**	
	Mar. 3, 1871	Entrance piers.	Annual Report, 1867, p. 132.
	Jun. 13, 1902	Consolidation of project for harbor and river, and a channel 18 feet deep.	H. Doc. 419, 56th Cong., 1st Sess.
	Mar. 4, 1913 Jul. 3, 1930	Partial restoration of work above bridge which had been eliminated by Act of May 3, 1905.	
	Aug. 30, 1935	20-foot depth in channel and 18-foot depth in turning basin.	H. Doc. 171, 70th Cong., 1st Sess.
		21-foot depth in channel and turning basin and enlarge turning basin.	Rivers and Harbors Committee
	Mar. 2, 1945		Doc. 28, 73rd Cong., 2d Sess.
	Jul. 14, 1960	Extend channel 12 feet deep to vicinity of Marinette Yacht Club.	H. Doc. 228, 76th Cong., 1st Sess.
		Deepen existing approach channel to 26 feet, entrance and river channels to 24 feet and enlarge turning basin.	H. Doc. 113, 86th Cong., 1st Sess.
	Jun. 27, 1967 (Sec. 107)	Deepen 1,100 feet of river channel generally north of Marinette Corp. facilities to 19 feet.	Detailed Project Report, Dec. 1966.[1]
36.		**MILWAUKEE HARBOR, WI**	
	Aug. 30, 1852	North Pier.[12]	S. Doc. 175, 25th Cong., 2d Sess.
	Mar. 3, 1883	Inner 7,600 feet of breakwater.[12]	Annual Report, 1881, p. 2122.
	Mar. 2, 1907	South pier. Extending north breakwater 1,000 feet.	Annual Report, 1906, p. 1752 (No prior survey or estimate affecting breakwater extensions).
	Sep. 22, 1922	Extend north breakwater; a south breakwater; present project dimensions of inner entrance channel.	H. Doc. 804, 66th Cong., 2d Sess.

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Aug. 30, 1935 [22]	Dredging a portion of outer harbor to 21-foot depth.	H. Doc. 289, 72d Cong., 1st Sess.
	Mar. 2, 1945 [18]	Dredging river channels to 21-foot depth.	S. Doc. 29, 76th Cong., 1st Sess.
	Jul. 14, 1960	Deepen South Menominee and Burnham Canals to 21 feet.	H. Doc. 285, 86th Cong., 2d Sess.
	Oct. 23, 1962	Deepen an approach channel to 30 feet by 800 feet wide and 300 feet wide through breakwater; deepen entrance channel 28 feet through piers, outer harbor to 28 feet south of entrance channel, and a channel to 27 feet in Milwaukee River to Buffalo Street, and in Kinnickinnic River to Chicago & North Western R.R. bridges.	H. Doc. 134, 87th Cong., 1st Sess.[1]
37.		**MONROE HARBOR, MI**	
	Feb. 24, 1835 [19]	9-foot channel, protecting Revetments and Piers.	Annual Report, 1872, p. 237.
	Jul. 3, 1930	21-foot channel, dikes and turning basin.[20]	Rivers and Harbors Committee Doc. 22, 71st Cong., 1st Sess.
	Jul. 14, 1932 [21]	Modified Conditions of Local Cooperation imposed by Act of Jul. 3, 1930.	Rivers and Harbors Committee Doc. 12, 72d Cong., 1st Sess.; 45, 75th Cong., 1st Sess.[1]
	Nov. 17, 1986	Deepen portion of existing navigation channel to 27 feet; deepen lake channel to 28 feet; widen the channel from 200 to 500 feet; dredge a new turning basin 24 feet deep, 1,600 feet wide at river's mouth; and construct a 190 acre CDF in Plum Creek Bay to enable creation of a 700 acre marsh behind the CDF.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
38.		**MUSKEGON HARBOR, MI**	
	Jun. 13, 1902	Piers and Revetments.	H. Doc. 104, 56th Cong., 2d Sess.
	Mar. 3, 1925	Breakwaters.	H. Doc. 494, 67th Cong., 4th Sess.
	Aug. 30, 1935	Repairing Revetments around Car Ferry Slip.	Rivers and Harbors Committee Doc. 64, 75th Cong., 1st Sess.[1]
	Oct. 23, 1962	Channel deepening and present project dimensions of channel. Piers and Revetments.	H. Doc. 474, 87th Cong., 2d Sess.[1]
39.		**NEW BUFFALO HARBOR, MI**	
	Oct. 23, 1962	Entrance channel 10 feet deep by 80 to 180 feet wide and 850 feet long to mouth of Galien River, new north and south breakwaters 1,305 and 740 feet, respectively, deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long.	H. Doc. 474, 87th Cong., 2d Sess.
40.		**OCONTO HARBOR, WI**	
	Aug. 2, 1882	Piers, except for inner 300 feet of south pier and 250 feet north pier built by city.[2]	Annual Report, 1881, p. 2066.
	Jun. 25, 1910	Present project dimensions of channel and turning basin.	H. Doc. 538, 61st Cong., 2d Sess., Plan C.[1]
41.		**ONTONAGON HARBOR, MI**	
	Jun. 25, 1910	Channel 17 feet deep and 150 feet wide through bar and 15 feet deep and 100 feet wide between piers, and pier maintenance.	H. Doc. 602, 61st Cong., 2d Sess.
	Aug. 26, 1937	Modified project widths and provide inner basin.	S. Committee print, 74th Cong., 2d Sess.
	Oct. 23, 1962 [29]	Enlarging and deepening the existing harbor basin.	H. Doc. 287, 87th Cong., 2d Sess.
	Nov. 17, 1986	Deauthorization of the turning basin feature of the project authorized by the 1962 Rivers and Harbors Act.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
	Jan. 3, 1996	Reauthorization of the turning basin feature which was deauthorized (Sec. 1002) in WRDA 86.	Sec. 363 (e) of WRDA 1996

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
42.		**PENTWATER HARBOR, MI**	
	Mar. 2, 1867	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Mar. 3, 1873	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Jul. 5, 1881	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Jul. 13, 1892	Piers and revetments, dredging.	H. Ex. Doc. 70, 39th Cong., 2d Sess.
	Mar. 25, 1907	Present project depth of channel.	H. Doc. 181, 39th Cong., 2d Sess.[1]
43.		**POINT LOOKOUT HARBOR (AU GRES RIVER), MI**	
	Mar. 2, 1945	Breakwaters, Anchorage Area, Channel Dredging.	H. Doc. 446, 78th Cong., 2d Sess.
44.		**PORT AUSTIN HARBOR, MI**	
	Mar. 2, 1945	Breakwater, Anchorage Basin, Channel Dredging.	H. Doc. 446, 78th Cong., 2d Sess.
	Jul. 16, 1984	Construct a breakwater access for recreation purposes.	H. R. 5653, 98th Cong., 2d Sess.
	Jul. 11, 1987	Breakwater.	P. L. 98-360 (98Stat. 405) Sec. 106 P. L. 100-71.
45.		**PORT SANILAC HARBOR, MI**	
	Mar. 2, 1945	Entrance Channel 12 feet deep, Anchorage Basin, Breakwater.	H. Doc. 446, 78th Cong., 2d Sess.
46.		**PORT WASHINGTON HARBOR, WI**	
	Jul. 11, 1870	North pier and south basin.[12]	H. Ex. Doc. 28, 41st Cong., 2d Sess. and Annual Report, 1879, p. 119.
	Aug. 14, 1876	North basin.	Annual Report, 1876, pt. 2, p. 379.
	Aug. 30, 1935 [27]	North breakwater, removal of 650 feet of north pier, outer turning basin, present project dimensions of channel and basin and extension of south breakwater.	H. Doc. 168, 72d Cong., 1st Sess. and Rivers and Harbors Committee Doc. 41, 74th Cong., 1st Sess.
	Jul. 3, 1958 [28]	Extending and raising of north breakwater and placing rubble along sides; removing 456 feet of south breakwater and dredging in outer basin.	H. Doc. 446, 83rd Cong., 2d Sess.[1]
	Jan. 3, 1996	Deauthorization of portion of the navigation project.	Sec. 501(17) of WRDA of 1996.
47.		**PORT WING HARBOR, WI**	
	Jun. 13, 1902	Construction of parallel piers and dredging.	H. Doc. 114, 56th Cong., 1st Sess.
	Jun. 30, 1948	Dredging inner channels and abandonment of certain revetments and channels.	H. Doc. 668, 80th Cong., 2d Sess.
	Aug. 5, 1977	Deauthorization of 50 feet of entrance channel widening.	
48.		**PORTAGE LAKE HARBOR, MI**	
	Mar. 3, 1879	Entrance channel 18 feet deep protected by piers and revetments.	Annual Report 1879, p. 1634 [30]
49.		**PRESQUE ISLE HARBOR, MI**	
	Jun. 3, 1896	Breakwater, 1000 feet long.	H. Doc. 318, 54th Cong., lst. Sess.;
	Jun. 13, 1902	Shore extension, 216 feet long.	Annual Report, 1903, pp. 474, 1823
	Aug. 30, 1935	For dredging and rubblemound extension to breakwater 1,600 feet long; Changed designation of project.	H. Doc. 473, 72d Cong., 2d Sess.
	Jul. 14, 1960	Deepening harbor from 26 and 28 feet to 28 and 30 feet, respectively.	H. Doc. 145, 86th Cong., 1st Sess.
50.		**ROUGE RIVER, MI**	
	Aug. 8, 1917	21-foot channel via the Shortcut Canal	H. Doc. 1063, 64th Cong., 2d Sess.[23]
	Aug.30, 1935[2,24,25]	25-foot channel at mouth of Old Channel, 1,425 feet long and adjacent to latter; 21-foot channel extending from junction of Old Channel and Shortcut Canal into Old Channel to Detroit, Toledo & Ironton R.R. Bridge.	
	Jul. 3, 1958 [2]	Old Channel; 100 feet wide from Peerless Cement Corp.	H. Doc. 125, 85th Cong., 1st. Sess.

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		To Junction with Shortcut Canal widened to 150 feet at 2 bends.	
	Oct. 23, 1962 [2]	25-foot channel over modified limits from Detroit River to Jefferson Avenue (via Shortcut Canal).	H. Doc. 509, 87th Cong., 2d Sess.[1]
51.		**SAGINAW RIVER, MI**	
	Jun. 25, 1910	Channel 200 feet wide, with depth of 18.5 feet in Bay and 16.5 feet in River.	H. Doc. 740, 61st Cong., 2d Sess.
	Jul. 3, 1930	Project Depth of 18.5 feet extended up River to Saginaw.	Rivers and Harbors Committee Doc. 30, 71st Cong., 2d Sess.
	Aug. 26, 1937	Turning Basin.	Rivers and Harbors Committee Doc. 21, 75th Cong., 1st Sess.
	Jun. 20, 1938	Present project channel dimensions from Bay to Sixth Street Bridge in Saginaw.	H. Doc. 576, 75th Cong., 3rd Sess.
	Sep. 3, 1954	New Channel in Bay, 350 feet wide and 24 feet deep from 24-foot contour to River Mouth, Project Depth of 24 feet in River Channel up to Detroit & Mackinac Railway Bridge, Project Depth of 22 feet in River Channel up to Sixth Street Bridge, Turning Basins at Essexville and Carrollton, and elimination of present Channel in Bay.	H. Doc. 500, 83rd Cong., 2d Sess.
	Oct. 23, 1962	Deepen Bay Channel, Deepen River Channel to Detroit & Mackinac Bridge, Extend 22-foot project above Sixth Street Bridge, Deepen Essexville Turning Basin, and Construct 2 new Turning Basins.[3]	H. Doc. 554, 87th Cong., 2d Sess.
	Oct. 27, 1965	Deepen River Channel to 25 feet, from Detroit & Mackinac Bridge to New York Central Railroad Bridge.	H. Doc. 240, 89th Cong., 1st Sess.[1]
52.		**ST. CLAIR RIVER, MI**	
	Jul. 13, 1892	20-foot Channel in the River.	H. Doc. 207, 51st Cong., 2d Sess.
	Jul. 8, 1930	Deepen Channel to 25 and 26 feet, and Compensating Works.	H. Doc. 253, 70th Cong., 1st Sess.
	Mar. 2, 1945	Widening Channel at Southeast Bend to 700 feet.	H. Doc. 309, 77th Cong., 1st Sess.
	Jul. 24, 1946 [22]	Widen and deepen Southeast Bend and improve Outlet of North Channel, St. Clair River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956 [22]	Deepen and further improve Channels in St. Clair River between limits of 27.1 to 30 feet to provide safe navigation by vessels with drafts of 25.5 feet. A cutoff Channel in Canada at Southeast Bend and abandon old Southeast Bend Channels.	S. Doc. 71, 84th Cong., 1st Sess.
	Nov. 17, 1986	Deauthorization of the work authorized by the Rivers and Harbors Act of Jul. 24, 1946.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
53.		**ST. JOSEPH HARBOR, MI**	
	Mar. 3, 1875	Interior Revetments.[26]	H. Ex. Doc. 160, 43rd Cong., 2d Sess., and Annual Report, 1875, pt. 1, p. 162.
	Jun. 14, 1880	Benton Harbor Canal.[26]	Annual Report, 1880, pp. 2030, 2031, 2049, and 2055.
	Mar. 3, 1899	Present project dimensions of piers and a turning basin.	H. Doc. 307, 55th Cong., 2d Sess., and Annual Report, 1898, p. 2496.
	Aug. 30, 1935	Present project dimensions of the channel and turning basin near mouth of Paw Paw River.	Rivers and Harbors Committee Doc. 52, 74th Cong., 1st Sess.
	Jun. 2, 1937	Abandon easterly 1,000 feet of canal above west line of 9th Street.	
	Mar. 2, 1945	Turning basin above mouth of Morrison Channel and eliminate turning basin near mouth of Paw Paw River.	H. Doc. 129, 76th Cong., 1st Sess.

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Jul. 3, 1958	Maintenance of turning basin near mouth of Paw Paw River.	S. Doc. 95, 84th Cong., 2d Sess.[1]
54.		**SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI**	
	Jun. 3, 1896	Entrance Channel, Piers and Revetments.	H. Doc. 912, 54th Cong., 1st Sess.; Annual Report, 1896, Vol. 2, Pt. 5, p. 2739.
	Mar. 2, 1907	Deepening entrance to 16 feet.	Annual Report, 1907, p. 6416.
	Jun. 25, 1910	Deepening Channel in River to 14 feet.	H. Doc. 635, 61st Cong., 2d Sess.
55.		**SAXON HARBOR, WI**	
	Jul. 3, 1958	Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and a diversion of Oronto Creek to Parkers Creek by 3 short reaches of channel excavation and a levee.	River and Harbors Act, H. Doc. 169, 85th Cong., lst Sess.,[1] Annual Report for 1965, p. 1025.
56.		**SEBEWAING RIVER, MI**	
	Jun. 3, 1896	Entrance Channel 8 feet deep, 100 feet wide and 15,000 feet long in Saginaw Bay.	H. Doc 71, 54th Cong., lst Sess.
57.		**SHEBOYGAN HARBOR, WI**	
	Mar. 2, 1907	North breakwater.	H. Doc. 62, 59th Cong., 1st Sess.
	Jan. 21, 1927	Preserving south pier as part of project, providing turning basin, and elimination of proposed south breakwaters.	H. Doc. 475, 68th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channel.	Rivers and Harbors Committee Doc. 47, 74th Cong., 1st Sess.
	Sep. 3, 1954	Widen and deepen outer harbor entrance channel to 450 feet, widen and deepen river channel from present project limit to north side of Jefferson Avenue.	H. Doc. 554, 82d Cong., 2d Sess.[1]
58.		**SOUTH HAVEN HARBOR, MI**	
	Aug. 11, 1888	Channel from Inner End of Piers to Highway Bridge.[12]	No Prior Survey or Estimate.
	Mar. 3, 1905	Present dimensions of Piers and for a Turning Basin.	H. Doc. 119, 58th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of Channel and Turning Basin.	Rivers and Harbors Committee Doc. 9, 73rd Cong., 1st Sess.[1] and Unpublished review Report of Chief of Engineers, dated Dec. 21, 1934.
	Oct. 31, 1992	Turning Basin deauthorized.	Public Law 102-580 (Section 116 of WRDA of 1992).
59.		**STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI**	
	Mar. 3, 1873	Breakwaters.[12]	H. Ex. Doc. 34, 42d Cong., 2d Sess.; Annual Report, 1872, p. 171.
	Jul. 13, 1892	Acquision of the canal.	H. Ex. Doc. 106, 49th Cong., 2d Sess.
	Jun. 13, 1902	Canal revetments and consolidation of canal and harbor works.	H. Doc. 117, 56th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channels and elimination of turning basin immediately west of revetted canal.	Rivers and Harbors Committee Doc. 9, 74th Cong., 1st Sess.
	Mar. 2, 1945	Turning basin between city and Bushman wharves.	H. Doc. 421, 78th Cong., 2d Sess.
60.		**TWO HARBORS, MN**	
	Aug. 5, 1886	Breakwater and dredging.	H. Ex. Doc. 94, 48th Cong., 2d Sess.
	Aug. 5, 1886	Construction of two breakwater piers.	Annual Report, 1887, p. 1952.
	Aug. 30, 1935	Shore connection to east breakwater and dredging	Rivers and Harbors Committee

TABLEL 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		maneuvering area.	Doc. 17, 72d Cong., 1st Sess.
	Nov. 7, 1945	Construct new east breakwater and enlargement of maneuvering basin.	H. Doc. 805, 78th Cong., 2d Sess.
	Jul. 14, 1960	Deepen harbor project depths from 26 and 28 feet to 28 and 30 feet, respectively.	H. Doc. 146, 86th Cong., 1st Sess.[1]
61.		**TWO RIVERS HARBOR, WI**	
	Mar. 3, 1871	South pier, 750 feet of north pier, and about 44 feet of north revetment.[12]	Annual Report, 1871, p. 123 (as modified by Chief of Engineers, Feb. 27, 1897).
	Mar. 2, 1907	Remainder of north pier and stilling basin.	H. Doc. 730, 59th Cong., 1st Sess., Modification of Plan A.
	Aug. 30, 1935 [22]	Deepening entrance channel and inner basin to 18 feet.	Rivers and Harbors Committee Doc. 25, 73rd Cong., 2d Sess.
	Jul. 3, 1958	Extend existing project in West Twin River to 18 feet deep and in East Twin River to 10 feet deep to 22nd Street Bridge.	H. Doc. 362, 84th Cong., 2d Sess.[1]
62		**WHITE LAKE HARBOR, MI**	
	Mar. 2, 1867	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Mar. 3, 1873	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Jul. 5, 1884	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Jul. 13, 1892	New Channel, with Piers and Revetments.	No Prior Survey or Estimate.[31]
	Mar. 2, 1907	Present project depth of Channel.	
71.		**FORT WAYNE METRO AREA, IN**	
	Oct. 30, 1990	Provides 100-year level of flood protection to part of Central area of city of Fort Wayne, IN.	Public Law 101-640 (Section 101 of WRDA of 1990)
72.		**SAGINAW RIVER, MI, FLOOD CONTROL**	
	Jul. 3, 1958	Flood control improvements to Saginaw River and its tributaries including Tittabawassee, Shiawassee, Flint, and Cass Rivers.	H. Doc. 346, 84th Cong., 2d Sess.[1]
	Aug. 17, 1991	One-time O&M repairs at Flint Unit to restore project to original dimensions.	Energy and Water Development Appropriation Act of 1992, (P.L. 102-104).
	Oct. 8, 1992	Provides funding for continuing O&M repairs at Flint Unit.	
	Jan. 3, 1996	Project is modified to include as part of the project the design and construction of an inflatable dam.	Energy and Water Resources Appropriation Act of 1993, H.R. 5373, (P.L. 102-377). Sec. 329 of WRDA 1996.
73.		**SEBEWAING RIVER, MI**	
	Aug. 18, 1941	Enlarging present Channel of Sebewaing River, altering Railroad and Highway Bridges, removal of Dike.	H. Doc. 286, 76th Cong. 1st Sess.[1]
78.		**ST. MARYS RIVER, MI**	
	Jul. 11, 1870	Weitzel Lock (Replaced in 1943 by MacArthur Lock), widen and deepen existing State Channel.[26]	Report by Maj. O.M. Poe, Corps of Engineers, not published.
	Aug. 5, 1886	Poe Lock.[1]	H. Ex. Doc. 72, 49th Cong., 2d Sess.
	Jul. 13, 1892	Dredging through shoals above falls and shoals below falls between lower end of Canal and upper entrance Channel into Lake Nicolet (formerly Hay Lake).	H. Ex. Doc. 207, 51st Cong., 2d Sess., and Annual Report, 1891, p. 2810.
	Jun. 13, 1902	Enlarging the Old Channel.	H. Doc. 138, 56th Cong., 2d Sess., and 215, 58th Cong., 3rd Sess.
	Jun. 13, 1902	Lake Nicolet and Neebish Channels work in that section of River below Locks.	H. Doc. 128, 56th Cong., 2d Sess.

TABLE 21-B (Continued) AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Mar. 2, 1905		H. Doc. 215, 56th Cong., 3rd Sess.
	Mar. 3, 1907	Davis Lock Second Canal, and Emergency Dam.	H. Doc. 333, 59th Cong., 2d Sess. (Plan 3).
	Mar. 3, 1909	Lease of Waterpower at Falls, Lease entered into with Michigan Northern Power Company provided for construction of remedial and compensating works.	
	Jul. 25, 1912	Fourth Lock (Renamed 'Sabin' Lock in 1943).	H. Doc. 65, 62d Cong., 1st Sess.
	Mar. 4, 1915	Deepen Tailrace of Power Plant.	
	Sep. 22, 1922	Widen upper approach to Canals through Vidal Shoals, extend anchorage and maneuver area below locks.	District Engineer Report, Oct. 29, 1920.
	Jan. 21, 1927	Remove Round Island, middle ground extension of Northwest Canal Pier, and widen Channels Middle Neebish Route.	H. Doc. 270, 69th Cong., 1st Sess.
	Jul. 3, 1930	Deepen Channels throughout downbound Route.	H. Doc. 253, 70th Cong., 1st Sess.
	Jun. 26, 1934 [9]	Operation and Care of Canal and Locks provided from War Department Appropriations for Rivers and Harbors.	
	Aug. 30, 1935	Widen Brush Point Turn and Channel from Brush Point to Point Louise.	Rivers and Harbors Committee Doc. 53, 74th Cong., 1st Sess. H. Doc. 218, 77th Cong., 1st Sess.
	Mar. 7, 1942	Construct new (MacArthur) Lock on site of former Weitzel Lock, deepen approach Channels to 27 feet, and reconstruct approach Piers.	
	Jun. 15, 1943	Name 'MacArthur' Lock and changed name of 'Fourth' Lock to 'Sabin' Lock.	
	Mar. 2, 1945	Remove Bridge Island and construct new Hydroelectric Power Plant.	H. Doc. 679, 78th Cong., 2d Sess., and 339, 77th Cong., 1st Sess.
	Jul. 24, 1946	Replace Poe Lock at St. Marys Falls Canal with a new structure 800 feet long, 100 feet wide and 32 feet deep with necessary construction of Nose and Center Piers, and widen and deepen Channel across Point Iroquois Shoals and in Lake Nicolet to provide wider anchorage and maneuver areas in St. Marys River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956	Deepen to provide a Project Safe Draft of 25.5 feet over full width to downbound and 2-way Channels (including anchorage areas) and over Westerly 300-foot width of upbound Middle Neebish Channel, when levels of Lakes Superior and Huron are at their respective LWD's.	S. Doc. 71, 84th Cong., 1st Sess.[1]
	Jul. 9, 1956	Repeal Authorization of Bridge as a part of Project, authorize alteration with cost to be apportioned by Sec. 6, Truman Hobbs Act, Jun. 21, 1940.	None.
	Nov. 17, 1986	Construct a second large lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).

TABLEL 21-B (Continued) **AUTHORIZING LEGISLATION**

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents

[1]Contains latest published map.
[2]Including Emergency Relief Administration Work authorized May 28, 1935.
[3]Included in Public Works Administration Program September 6, 1933.
[4]This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.
[5]Administrative Act, Section 4.
[6]Public Law 568, 82d Congress.
[7]Public Law 388, 87th Congress.
[8]This portion inactive.
[9]Permanent Appropriations Repeal Act.
[10]Transfer completed June 1962.
[11]Amended 1868, 1879, 1892.
[12]Completed under previous project.
[13]Included in Public Works Administration Program January 3, 1934.
[14]Inactive portion; removal of 200 linear feet of north pier, widening inner 200 feet of channel through outer basin, and closing gap in north shore connection of breakwater.
[15]Latest published map is in Annual Report, 1914, p. 2974.
[16]Latest published map in Annual Report, 1914, p. 2914.
[17]Superseded by Act of October 23, 1962.
[18]Uncompleted portion was deauthorized in 1977 (dredging Milwaukee River from Buffalo Street Bridge to North Humboldt Avenue Bridge).
[19]Modified by Act of June 10, 1872.
[20]Riprapping of protecting dikes portion of project is inactive.
[21]War Department Appropriations Act.
[22]Uncompleted portion deauthorized December 31, 1989, under Section 1001, P.L. 99-662.
[23]Contains latest published maps. See also map with Rivers and Harbors Committee Doc. 19, 72d Cong., 1st Sess.
[24]Except for dredging 25-foot channel to 1,150 feet upstream of mouth of old channel, work authorized in this Act is considered inactive.
[25]This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.
[26]Completed under previous projects. Public Law 130, 75th Cong., 1st Sess.
[27]Work recommended in H. Doc. 588, 64th Cong., 1st Sess.
[28]Deauthorized in 1977.
[29]This modification deauthorized December 31, 1989, under Section 1001, P.L. 99-662.
[30]Latest published map is in H. Doc. 588, 64th Cong., 1st Sess.
[31]Latest published map is in H. Doc. 2053, 64th Cong., d Sess.

TABLE 21-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Algoma Harbor, WI	Completed	2002	292,010[1]	1,711,597
Alternative Technology Project, Duluth	Active	---	0	984,820[2]
Ausable Harbor, MI	Completed	2002	209,776[3]	3,183,299
Bayfield Harbor, WI	Completed	1979	183,855	174,207[2]
Bell River, MI	Completed	1980	24,301	135,377
Beaver Bay, MN	Active	1982	293,000	2,818
Big Bay Harbor, MI	Completed	2000	396,943[4]	1,727,348
Black River (lcona Co), MI	Inactive	1907	0	878
Caseville Harbor, MI	Completed	2000	587,314	2,027,751
Cedar River Harbor, MI	Completed	2002	408,000	3,663,229
Channels in Straits of Mackinac, MI	Completed	1991	2,832,629	263,180
Cheboygan Harbor, MI	Completed	1998	504,236	1,050,729[2]
Chippewa Harbor, Isle Royale, MI	Completed	1959	125,629	17,829
Clinton River Spillway, MI	Completed	2002	3,495,008	0
Cornucopia Harbor, WI	Completed	2002	462,653	1,461,179
DeTour Harbor, MI	Completed	1989	2,559,346	172,543[2]
Eagle Harbor, MI	Completed	1996	205,164[5]	142,528[2]
Grand Marais Harbor, MN	Completed	2002	450,972	2,565,639
Grays Reef Passage, MI	Completed	1970	190,521	867,934
Greilickville Harbor, MI	Completed	2000	369,557[6]	452,641
Hammond Bay Harbor, MI	Completed	1998	1,092,366	1,072,489[2]
Harbor Beach Harbor, MI	Completed	2000	1,200,598	15,826,715[7]
Harrisville Harbor, MI	Completed	2002	2,639,392	1,631,494
La Point Harbor, WI	Completed	2000	139,874	189,857
Les Cheneaux Island Channels, MI	Completed	1980	399,478	373,739

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Little Bay De Noc, Gladstone Harbor, MI	Completed	1966	332,832	105,634
Lutsen Harbor, MN	Active	1982	357,000	0
Mackinac Island Harbor, MI	Completed	1989	334,089	1,816,628
Mackinaw City Harbor, MI	Completed	1986	136,286[8]	127,679[2]
Northport Harbor, WI	Inactive	----	0	0
Pensaukee Harbor, WI	Completed	1996	34,035	684,587[2]
Petoskey Harbor, MI	Completed	2000	123,839	963,539
Pine River, MI	Completed	1980	13,649	102,484
Silver Bay Harbor, MN	Completed	1999	2,600,000	0
St. James, Beaver Island, MI	Completed	1957	49,171[9]	580,975
St. Joseph River, MI	Completed	1975	54,555	19,185
Tawas Bay Harbor, MI	Completed	1996	2,110,745	108,980[2]
Washington Island, WI	Completed	1950	62,838	108,823[2]
Whitefish Point Harbor, MI	Completed	2000	771,639	595,379

[1] Includes $92,774 for previous projects.

[2] Includes FY 01 cost not reported.

[3] Includes $114,786 for previous projects.

[4] Excludes $56,500 Contributed Funds.

[5] Excludes $27,800 for previous projects.

[6] Excludes $127,000 Contributed Funds.

[7] Includes $243,100 for Diked Disposal.

[8] Excludes $210,500 Contributed Funds.

[9] Excludes $7,500 Contributed Funds.

TABLE 21-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation & Maintenance
Kawkawlin River, MI [1,2]	Completed	1999	1,000,000	470,500
Kalamazoo River (Battle Creek) MI [3,4]	Deferred	1975	4,471,235	----
Paw Paw Lake, MI	Completed	1989	3,589,000	----
Upper Peninsula of Michigan, MI[5]	Active	----		2,322,624
Upper River Rouge, MI[6]	Inactive	1968	7,935	
River Rouge, MI	Completed	1981	31,960,332	----

[1]Excludes $204,559 Contributed Funds.

[2]Excludes 228,748 Contributed Funds.

[3]Includes $108,335 Contributed Funds.

[4]Uncompleted portion deauthorized Dec. 31, 1989, in accordance with Section 1001 of the W.R.D.A. of 1986 (PL 99-662).

[5]Project authorized in FY02. No costs were expended in FY02.

[6]Planning indefinitely suspended due to lack of local cooperation.

TABLE 21-F MULTIPLE PURPOSE PROJECTS, INCLUDING POWER

ST. MARYS RIVER, MI: EXISTING PROJECT

(SEE SECTION 78 OF TEXT)

Lock		Davis	Sabin	MacArthur	New Poe
Miles Above Mouth		47	47	47	47
Clear Width of Chamber	Feet	80	80	80	110
Length Between Gate Quoins	Feet	1,350	1,350	800	1,200
Lifts	Feet	21.7	21.7	21.7	21.7
Depth Over Upper Breast Walls[1]	Feet	24.3	24.3	31	32
Depth Over Lower Breast Walls[1]	Feet	23.1	23.1	31	32
Foundation		Rock	Rock	Rock	Rock
Type of Construction		Concrete	Concrete	Concrete	Concrete
Estimated Cost		$6,200,000[2]	$3,275,000[3]	$12,909,440	$39,000,000
Actual Cost		$2,200,000[5]	$1,750,000[6]	$12,718,806[4,7]	$34,813,066
Completed (Open to Commerce)		Oct. 21, 1914	Sep. 18, 1919	Jul. 11, 1943	Jun. 26, 1969
Emergency Dam for		South Canal		North Canal	
Miles Above Mouth		47		47	
Estimated Cost		-[9]		$300,000	
Type		Steel Stoplogs Recessed Into Lock Masonry		Steel Stoplogs Recessed Into Lock Masonry	
Cost Completed		-[9]		$169,224[8]	
Year Completed		1943		1922 (Modified 1963)	

[1]At low water datum 600.6 above and 578.4 below.

[2]Includes cost of North Canal.

[3]Includes cost of canal excavations to provide necessary approaches to lock, canal walls, piers, and emergency dam, $662,919.

[4]Excludes cost of deepening and enlarging South Canal, $1,653,378.

[5]Excludes cost of North Canal, $2,572,611.

[6]Excludes cost of canal excavation to provide necessary approaches to lock, canal walls, piers, and emergency dam, $662,919.

[7]Excluding cost of lower guard gates which were never installed.

[8]Including engineering office and inspection.

[9]Not separate from cost of locks.

Note: Limiting draft to locks is determined by depth over breast walls.

TABLE 21-G

DETROIT, MI DISTRICT
DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Beaver Bay, MN (Mar. 2, 1945 R&H Act)	1982	Jul 1995	295,818	0
Berrien County, MI (St. Joseph Shore) beach erosion control (1958 Flood Control Act)	1963	Nov 1986	0	0
Black River Harbor, Alcona County, MI (Authorized Dec.17, 1979, under Section 201 of the 1965 Flood Control Act)	1971	Dec 1989	0	0
Black River Harbor, MI (Aug. 30, 1935 R&H Act)	1976	Nov 1977	0	0
Cross Village, MI (October 13, 2001 WRDA 96, Sec 328)	1983	Oct 2001	364,000	0
Detroit River, Trenton Chnl., MI (May 17, 1950 R&H Act)	1976	Aug 1977	0	0
Detroit River, Trenton Chnl., MI (Uncompleted portion) (Aug. 13, 1968 R&H Act)	1976	Dec 1989	159,300,000	0
Duluth-Superior Inner Harbor, MN and WI (Jul. 14, 1960 R&H Act)	1990	Dec 1989	14,562,100	0
Forestville Harbor, MI (1968 R&H Act)	1969	Nov 1986	0	0
Grand Haven Harbor, MI (Mar. 2, 1945 R&H Act)	1976	Nov 1977	0	0
Grand River at Grandville, MI (Oct. 27, 1965 Flood Control Act)	1966	Nov 1977	0	0
Great Lakes Connecting Channels, MI[1] (Uncompleted portion) (R&H Acts of 1946 and 1956)	1990	Dec 1989	93,993,349	0
Green Bay Harbor, Brown County, WI (1962 Modification)	1999	April 1999	4,030,000	1,970,000
Harbors of Washington Island, WI (R&H Act of 1937)	1950	Dec 1989	62,838	0
Holland Harbor Entrance Channel, MI (Uncompleted portion) (Sep. 3, 1954 R&H Act)	1962	Dec 1989	0	0
Kalamazoo River, Battle Creek, MI (Uncompleted portion) (1954 Flood Control Act)	1975	Dec 1989	6,656,668	108,332
Kalamazoo River, Kalamazoo, MI (Jul. 3, 1958 Flood Control Act)	1975	Dec 1989	416,822	0

TABLE 21-G (Continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Kenosha Harbor, WI (Uncompleted portion) (Oct. 23, 1962 R&H Act)	1990	Dec 1989	552,000	43,000
Kewaunee River, WI (1960 R&H Act)	1976	Aug 1977	0	0
Lansing (Grand River), MI (Jul. 3, 1958 Flood Control Act)	1971	Jun 1981	7,000	0
Lower Fox River, WI (Uncompleted portion) (Mar. 3, 1925 R&H Act)	1990	Dec 1989	3,753,334	0
Lutsen Harbor, MN (Mar. 2, 1945 R&H Act)	1990	Jul 1995	357,000	0
Manitowoc Harbor, WI (Oct. 23, 1962 R&H Act)	1990	Dec 1989	0	0
Milwaukee Outer Harbor, WI (Uncompleted portion) (R&H Act of 1935)	1990	Dec 1989	6,937,804	478,000
Northport Harbor, WI (Authorized in 1972 under Section 201 of the 1965 Flood Control Act)	-	Dec 1989	132,000	0
Ontonagon Harbor, MI (R&H Act of 1962)	1990	Dec 1989	27,482	0
Pentwater Harbor, MI (Jul. 13, 1892 R&H Act)	1976	Nov 1977	0	0
Port Washington Harbor, WI (Portion) (Sec. 501(17) of WRDA 1996)	2003	Jan 1996	0	0
Racine Harbor, WI (Mar. 2, 1907; Aug. 26, 1937; and Mar. 2, 1945 R&H Acts, and Section 107 of the 1960 R&H Act)	1963	May 1986	9,441,554	0
Red Run Drain, Lower Clinton River, MI (1970 Flood Control Act)	1983	Nov 1986	3,823,000	0
Rogers City Harbor, MI (Jun. 25, 1910 R&H Act)	1926	Aug 1977	5,892	0
Rouge River, MI (Oct 23, 1962 R&H Act)	1976	Aug 1977	22,000	0
Rouge River, MI (Jul. 3, 1958 R&H Act)	1976	Aug 1977	12,000	0
Rouge River, MI (Aug. 30, 1935 R&H Act)	1976	Aug 1977	0	0
Saginaw River, MI (Midland on Tittabawassee River)	1983	May 1997	5,125,000	1,611,500

TABLE 21-G (Continued) **DEAUTHORIZED PROJECTS**

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
St. Clair River Compensating Works, MI (Jul. 3, 1930 R&H Act)	1976	Aug 1977	0	0
South Milwaukee Harbor, WI (1836 Flood Control Act)	1906	Aug 1977	0	0
St. Marys River (MacArthur Lock Guard Gates), MI (Mar. 7, 1942 R&H Act)	1977	Oct 1978	0	0
Two Rivers Harbor, WI (Uncompleted portion) (Aug. 30, 1935 R&H Act)	1990	Dec 1989	147,463	0

[1]Includes Detroit and St. Clair Rivers.

TABLE 21-H FEATURES OF EXISTING PROJECT

Name of Channel	Length of Channel (Feet)	Miles from River Mouth	Upbound or Down-bound Vessels	Project Width (Feet)	Project Depth (Feet)	Project Datum Planes IGLD 1985 (Feet)	Year Comp lete
DETROIT RIVER, MI (SEE SECTION 11 OF TEXT)							
Channel north of Belle Isle[1]	---[2]	30	Both	200	21.0	571.9	1964
Channel at head of Detroit River	38,800	32	Both	800	28.5	572.1-571.5	1964
Misc. shoals and obstructions	44,500	25	Both	---	28.5	571.5-570.9	1964
Belle Isle to Fighting Island Channel							
Fighting Island Channel	24,800	17	Both	800	28.5	570.4	1962
Ballards Reef Channel north of	12,200	12	Both	600	28.5	570.4	1964
Junction with Livingstone Channel							
Livingstone Channel Upper	26,000	10	Down	450	27.7	570.4-569.2	1964
Livingstone Channel Lower:							
CS 260+00 to 368+87	10,887	5	Down	450-800	29.0	569.2	1961
CS 368+87 to 492+00	12,313	---	Both	800-1,200	29.0	569.2	1961
East Outer Channel	42,000	---	Both	1,200	28.5	569.2	1964
Misc. shoals and obstructions,	---	---	Both	---	28.5-29.5[3]	569.2	1964
Detroit River to Pelee Passage							
Pelee Passage Shoal	---	---	Both	---	29.5	569.2	---
Amherstberg Channel:							
Upper Section, Ballards Reef Channel	6,500	10	Up	600	27.5	570.4-570.1	1960
Middle Section	12,000	---	Up	600	21-27.5[4]	570.1-569.5	1960
Lower Section, Hackett Range	24,000	---	Up	600	21-28.5[5]	569.5-569.2	1960
West Outer Channel	21,000	---	Down	800	22.0	569.2	1929
Trenton Channel:							
Wyandotte Reach	31,500	17	Local	300	27.0		1964[6]
Trenton Channel (Upper)	5,100	---	Local	300	28.0	570.3-570.2	1964
Trenton Reach (Lower)	600	---	Local	250-300	28.0	570.2-569.4	1941
Grosse Ile Shoal	600	14	Local	---	20.0	570.4	1904
ST. CLAIR RIVER, MI (SEE SECTION 52 OF TEXT)							
Channel at foot of Lake Huron	26,500	44	Both	800	30.0	577.5-577.1	1961
Channel north of Blue Water Bridge	4,100	39	Both	800	30.0	577.1-576.5	1962
Port Huron to Stag Island:							
Widening at Upper and Lower	38,000	38	Both	1,000-	27.4	577.1-575.3	1961
Ends of Stag Island	37,600	31	Both	1,400	27.3	575.3-574.3	1962
St. Clair to Russell Island	77,000	24	Both	900-1,000	27.3	574.3-572.6	1962
Russell Island to Southeast Bend	20,600	11	Both	1,000	27.2	572.6-572.3	1962
Southeast Bend:				700-1,000			
CS 324+00 to 250+00	7,400	5	Both		27.1	572.3-572.2	1962
Cutoff Channel	30,300	---	Both	700	27.1	572.2	1962
North Channel Outlet	8,000	---	Small	700	10.0	572.2	---
			Craft	100			

[1]This is a side channel.
[2]Extends from deep water near Windmill Point to a point opposite Fairview Slip, about 3,000 feet.
[3]Project depth 29.5 feet over Rock Shoals and 28.5 feet over other than Rock Shoals.
[4]Project depth 21 feet in easterly 300-foot width of channel and 27.5 feet in westerly 300-foot width.
[5]Project depth 21 feet in easterly 300-foot width of channel and 28.5 feet in westerly 300-foot width.
[6]Project complete except for work authorized by Rivers and Harbors Act of 1950.

TABLE 21-I

FOX RIVER, WI: LOCKS AND DAMS
(SEE SECTION 13 OF TEXT)

Name of Lock and Dam	Miles from Green Bay	Nearest Town	Dis-tance (miles)	Clear Width (feet)	Depth at Normal Pool: Avail-able Length (feet)	Lift (feet)	Breast Wall[1] (feet)	Lower Miter Sill (feet)	Character of Foundation	Kind of Dam	Type of Construction	Year Com-plete	Actual Cost
DePere lock[2]	7.1	DePere	---	36.0	146.0	8.9	10.3	12.0	Rock	---	Concrete	1936	$229,308
DePere dam[2]	7.2	DePere	---	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1929	209,536
Little Kaukauna lock[2]	13.0	DePere	6	36.0	146.0	7.2	8.0	9.5	Clay	---	Concrete	1938	362,427
Little Kaukauna dam[2]	13.1	DePere	6	---	---	---	---	---	Clay & Gravel	Fixed[3,4]	Piers and concrete	1926	179,398
Rapid Croche lock[2]	19.2	Wrightstow	2	36.0	146.0	8.3	8.8	9.3	Rock	---	Concrete	1934	228,738
Rapide Croche dam[2]	19.3	Wrightstow	2	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1930	118,975
Kaukauna fifth lock[2]	22.8	Kaukauna	---	35.6	144.0	9.1	6.7	9.3	Rock	---	Composite	1898	13,310[5]
Kaukauna fourth lock[2]	23.1	Kaukauna	---	36.6	144.1	10.2	6.9	6.0	Rock	---	Stone masonry	1879	37,536
Kaukauna third lock[2]	23.3	Kaukauna	---	30.6	144.0	10.2	6.9	6.3	Rock	---	Stone masonry	1879	39,948
Kaukauna second lock[2]	23.4	Kaukauna	---	35.0	144.0	9.6	6.0	6.0	Rock	---	Stone masonry	1903	24,313
Kaukauna first lock[2]	23.6	Kaukauna	---	35.1	144.4	11.0	6.9	6.0	Rock	---	Stone masonry	1883	38,704
Kaukauna dam[2]	24.0	Kaukauna	---	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1931	123,763
Kaukauna guard lock	24.0	Kaukauna	---	40.0	---	---	9.4	---	Rock	---	Stone masonry	1891	12,630
Little Chute combined lock:													
Lower	24.4	Little Chute	1	35.4	146.5	10.9	6.0	8.6	Rock	---	Stone masonry	1879	102,304
Upper	25.4	Little Chute	1	36.3	144.1	10.6	7.6	6.0	Hardpan	---	Stone masonry	1879	---
Little Chute second lock[2]	26.4	Little Chute	---	35.0	144.2	13.8	8.0	6.1	Rock	---	Stone masonry	1881	48,555
Luttle Chute first (guard) lock[1]	26.5	Little Chute	---	35.4	---	---	6.6	---	Rock	---	Stone masonry	1904	7,817[5]
Little Chute dam[2]	26.6	Little Chute	---	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1932	82,554
Cedars lock[2]	27.3	Little Chute	1	35.0	144.0	9.8	6.8	7.3	Rock	---	Stone masonry	1888	34,972
Cedars dam[3]	27.4	Little Chute	1	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1933	84,973
Appleton fourth lock[2]	30.7	Appelton	1	35.0	144.0	7.6	8.1	7.9	Rock	---	Stone masonry	1907	40,893
Appleton lower dam[2]	30.9	Appleton	1	---	---	---	---	---	Rock	Fixed[3,4]	Concrete	1934	73,903
Appleton third lock[2]	31.3	Appleton	---	35.0	144.0	8.7	6.0	8.6	Rock	---	Stone masonry	1900	32,238
Appleton second lock[2]	31.6	Appleton	---	35.1	144.6	9.6	6.9	6.0	Clay	---	Stone masonry	1901	22,940
Appelton first lock[2]	31.9	Appleton	---	35.0	144.7	10.0	6.6	6.0	Rock	---	Stone masonry	1884	36,004
Appleton upper dam	32.2	Appleton	---	---	---	---	---	---	Rock	Fixed[3]	Concrete	1940	151,558
Menasha lock[2]	37.0	Menasha	---	35.4	144.0	8.5	7.2	8.0	Clay	---	Composite	1899	19,326[5]
Menasha dam[2]	37.8	Menasha	---	---	---	---	---	---	Hardpan	Fixed[3]	Concrete	1937	84,686

[1]Depth shown is on breast wall, which is controlling depth for upper pool.
[2]Original structure built prior to assumption of control by United States on Sep. 18, 1872.
[3]Provided with sluices.
[4]Flash boards used.
[5]Partially rebuilt.

TABLE 21-J RECONNAISSANCE & CONDITION SURVEYS

Name of Project	Date Survey Conducted
ALGOMA HARBOR, WI	JUNE 2003
AUSABLE HARBOR, MI.	SEPTEMBER 2003
BAYFIELD HARBOR, WI	JUNE 2003
BELLE RIVER HARBOR, MI	JUNE 2003
BIG BAY HARBOR, MI	SEPTEMBER 2003
CASEVILLE HARBOR, MI	JULY 2003
CORNUCOPIA HARBOR, WI	JUNE 2003
EAGLE HARBOR, MI	JULY 2003
GRAND MARAIS HARBOR, MN	MAY 2003
GRAYS REEF PASSAGE, MI	JUNE 2003
HAMMOND BAY HARBOR, MI	JUNE 2003
HARBOR BEACH HARBOR, MI	SEPTEMBER 2003
LA POINTE HARBOR, WI	JUNE 2003
LES CHENEAUX ISLAND CHANNEL, MI	JUNE 2003
PINE RIVER HARBOR, MI	JUNE 2003
TAWAS BAY HARBOR, MI	SEPTEMBER 2003
WHITEFISH POINT HARBOR, MI	MAY 2003

TABLE 21-K NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Navigation activities pursuant to Section 107. Public Law 86-645 (pre-authorization).				
Navigation activities pursuant to Section 107 of the River and Harbor Act of 1960, as amended.				
Coordination Account	Coordination	8,977	---	8,977
City of Mackinac Island Harbor Breakwater, MI	Feasibility Activities	4,282	---	4,282
Detroit River Navigation Improvement, MI	Feasibility Activities	9,554	---	9,554
Duluth (McQuade Road) Harbor, MN	Plans and Specifications	59,421	---	59,421
Escanaba, MI	Feasibility Activities	22,878	---	22,878
Grand Portage Harbor, MN	Feasibility Activities	23,864	---	23,864
Harbor of Refuge, Big Suamico, MI	Feasibility Activities	1,000	---	1,000
Knife Harbor, MN	Feasibility Activities	23,577	---	23,577
Lakeshore State Park, Milwaukee, WI	Feasibility Activities	40,818	---	40,818
Ontonagon River, MI	Feasibility Activities	0	---	0
Rouge River, MI	Feasibility Activities	10,002	---	10,002
Saxon Harbor, WI	Feasibility Activities	59,816	---	59,816
Taconite Harbor, MN	Construction	138	-288	-150
Two Harbors, MN	Plans and Specifications	25,626	---	25,626
Total		289,953	-288	289,665

TABLE 21-L EMERGENCY SHORE PROTECTION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Authority for emergency streambank and shoreline protection of public works and non-profit services (Section 14 Flood Control Act of 1946, as amended).				
Coordination Account	Coordination	19,515	---	19,515
Belle Isle Park, City of Detroit, MI	Planning and Design Analysis	13,205	---	13,205
Belle Isle South Shore, Detroit, MI	Planning and Design Analysis	24,402	---	24,402
Big Rapids, MI	Planning and Design Analysis	47,666	---	47,666
Combined Sewer Outfall #6, South Bend, MI	Planning and Design Analysis	6,820	---	6,820
Detroit River Shoreline, MI	Planning and Design Analysis	44,425	---	44,425
Gibraltar, MI	Planning and Design Analysis	16,202	---	16,202
Grand River (NOWS) Grand Haven, MI	Planning and Design Analysis	18,219	---	18,219
Kenosha Harbor, Retaining Wall, WI	Planning and Design Analysis	21,791	---	21,791
Kinnickinnic River, Milwaukee County, WI	Planning and Design Analysis	10,990	---	10,990
Leeper Park Island Wall, South Bend, IN	Construction	58,592	0	58,592
Marquette Lakeshore Boulevard, MI	Planning and Design Analysis	1,272	---	1,272
Maumee River, Fort Wayne, IN	Feasibility Activities	118	---	118
Mosel, Sheboygan County, WI	Planning and Design Analysis	214,005	---	214,005
North Shore Drive, City of South Bend, IN	Planning and Design Analysis	4,528	---	4,528
Rouge River, City of Southfield, MI	Construction	0	0	0
St. Joseph River, Niles, MI	Planning and Design Analysis	0	---	0
St. Joseph River, South Bend, IN	Planning and Design Analysis	77,178	---	77,178
Thieme Drive, Ft. Wayne, IN	Planning and Design Analysis	38,194	---	38,194
Underwood Creek, Milwaukee County, WI	Planning and Design Analysis	926	---	926
Water Resources Institute Lake Michigan, MI	Planning and Design Analysis	2,897	-2,897	0
Water Treatment Plant, St. Joseph, MI	Planning and Design Analysis	29,376	---	29,376
Total		650,321	-2,897	647,424

TABLE 21-M BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Beach Erosion activities pursuant to Section 103 of the 1962 River and Harbor Act.				
Bay Point Peninsula, City of Luna Pier	Feasibility Activities	40,303	---	40,303
Lakewalk Park, Duluth, MN	Feasibility Activities	6,417	---	6,417
Total		46,720	---	46,720

Shoreline Erosion Control Development and Demonstration Activities pursuant to Section 227 of the Water Resources Development Act of 1966.

Shoreline Erosion Control Development & Demonstration Prgm		161,508	---	161,508

TABLE 21-N MITIGATION OF SHORE DAMAGES

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Mitigation of Shore Damages pursuant to Section 111 of the River and Harbor Act of 1968				
Saugatuck Harbor, MI	Feasibility Activities	1,431	---	1431
Grand River (NOWS) Grand Haven, MI	Feasibility Activities	12,500	---	12,500
Total		13,931		13,931

TABLE 21-O PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Project modification activities pursuant to Section 1135(b) of the Water Resources Development Act of 1986, as amended				
Coordination Account	Coordination	15,066	---	15,066
AuGres River, Arenac County, MI	Preliminary Restoration Plan	9,716	---	9,716
Bad River, Ashland County, WI	Planning and Design Analysis	51,397	---	51,397
Black Mallard Creek, MI	Planning and Design Analysis	36,562	---	36,562
Carp Lake River, MI	Planning and Design Analysis	114,215	---	114,215
Cheboygan River, Cheboygan County, MI	Preliminary Restoration Plan	9,740	---	9,740
Flint River & Swartz Creek, Flint, MI	Preliminary Restoration Plan	3,841	---	3,841
Harlow Creek, Marquette County, MI	Preliminary Restoration Plan	10,060	---	10,060
Hennepin Marsh Grosse Ile, MI	Feasibility Activities	28,867	---	28,867
Kid's Creek, Boardman River, MI	Planning and Design Analysis	110,418	---	110,418
Lake Poygan, WI	Feasibility Activities	191,182	---	191,182
Lower Rouge, Rotunda DR and 94 MI	Feasibility Activities	59,665	---	59,665
Rapid River, MI	Planning and Design Analysis	21,754	---	21,754
Rifle River, Arenac County, MI	Preliminary Restoration Plan	9,370	---	9,370
Rouge River Oxbow, Wayne Co., MI	Preliminary Restoration Plan	11,081	---	11,081
SB Galien River, Berrien County, MI	Planning and Design Analysis	164,168	---	164,168
Schmidt Creek, MI	Planning and Design Analysis	29,164	---	29,164
Sea Lamprey Barrier, Manistique, MI	Preliminary Restoration Plan	4,746	---	4,746
Sea Lamprey Barrier, Paw Paw Lake, MI	Planning and Design Analysis	245,405	---	245,405
Sea Lamprey Trap, St. Mary's River, MI	Preliminary Restoration Plan	7,370	---	7,370
St. Mary's River Restoration, Sault Ste. Marie, MI	Preliminary Restoration Plan	8,440	---	8,440
Sucker River, Alger County, MI	Preliminary Restoration Plan	10,002	---	10,002
Trail Creek, LaPorte County, IN	Planning and Design Analysis	159,249	---	159,249
Upper Rouge, MI Ave to Rotunda Dr., MI	Feasibility Activities	63,400	---	63,400
Total		1,374,878	---	1,374,878

TABLE 21-O PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Aquatic Ecosystem Restoration – Projects for aquatic ecosystem restoration and protection projects, for the purpose of improving the environment pursuant to Section 206 of the Water Resources Development Act of 1996.				
Coordination Account	Coordination	18,148	---	18,148
Belle Isle Piers, Detroit, MI	Feasibility Activities	30,379	---	30,379
Berrien County, Watervliet Dam, MI	Preliminary Restoration Plan	3,572	---	3,572
Centerville Creek, Cleveland, WI	Preliminary Restoration Plan	8,616	---	8,616
Cranbrook Institute, Bloomfield Hills, MI	Preliminary Restoration Plan	1,040	---	1,040
C.K. Eddy Creek, West Branch Township	Preliminary Restoration Plan	3,867	---	3,867
Clearwater Lake, MI	Preliminary Restoration Plan	3,792	---	3,792
Concordia University, WI	Preliminary Restoration Plan	4,646	---	4,646
Detroit River, City of Trenton, MI	Preliminary Restoration Plan	5,225	---	5,225
Dowagiac River, Cassopolis, MI	Preliminary Restoration Plan	8,922	---	8,922
Grayling Millpond Dam, Crawford County	Preliminary Restoration Plan	8,882	---	8,882
Homer Lake, St. Joseph River	Preliminary Restoration Plan	9,897	---	9,897
Houghton Lake, MI	Preliminary Restoration Plan	3,310	---	3,310
Kalamazoo County, MI	Feasibility Activities	13,284	---	13,284
Kinnickinnic River, WI	Preliminary Restoration Plan	7,109	---	7,109
Koontz Lake, IN	Plans and Specifications	14,189	---	14,189
Lake St. Clair, Metro Beach, MI		385.00	---	385.00
Lower Menomonee River Valley, Milwaukee, WI	Preliminary Restoration Plan	7,902	---	7,902
Mallett's Creek, Wastenaw County	Preliminary Restoration Plan	12,279	---	12,279
Marion Mill Pond, Village of Marion, Osceola	Preliminary Restoration Plan	10,585	---	10,585
Menomonee, WI	Feasibility Activities	30,105	---	30,105
Oak Creek, WI	Planning and Design Analysis	37,433	0	37,433
Otsego Lake, MI	Preliminary Restoration Plan	3,310	---	3,310
Pike River, WI	Preliminary Restoration Plan	186	---	186
Remy Chandler Drain Clinton/Ingram Co	Preliminary Restoration Plan	9,891	---	9,891
Secord and Smallwood Lakes, Gladwin Co. MI	Preliminary Restoration Plan	9,290	---	9,290
South Bend Dam, St. Joseph County, IN	Preliminary Restoration Plan	12,242	---	12,242
South Bend Dam, St. Mary's River, South		-960	---	-960
St. Marys River Restoration, Ste Sault Marie	Preliminary Restoration Plan	0	---	0
Trinity Creek, City of Mequon, WI	Preliminary Restoration Plan	1,000	---	1,000
Underwood Creek, Wauwatosa, WI	Preliminary Restoration Plan	4,389	---	4,389
Wolf River, WI	Planning and Design Analysis	1,000	---	1,000
Total		283,915	0	283,915

TABLE 21-O PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Aquatic plant control activities pursuant to Section 302 of the River and Harbor Act of 1965 (PL 89-298).				
Aquatic Plant Control		138,328	---	138,328
Total		138,328	---	138,328
Environmental infrastructure pursuant to Section 219e of the Water Resources Development Act of 1999, as amended				
Genesee County Drain, Genesee County, MI	Design Review	65,242	28,800	94,042
Nagaunee, MI	Design Review	87,853	43,971	131,824
Twelve Towns Darin Retention Treatment	Design Review	167,886	58,031	225,917
Total		320,981	130,802	451,783
Environmental infrastructure pursuant to Section 569 of the Water Resources Development Act of 1999, as amended.				
Northeastern Minnesota, MN (MV&LR)	Various Stages	893,208	---	893,208
Northern Wisconsin Env Assistance	Various Stages	53,698	---	53,698
Total		946,906	---	946,906
Ecosystem Restoration – Section 204 beneficial use of dredged material in connection with dredging. Projects in connection with dredging use of dredged material activities pursuant to Section 204 of Water Resources Development Act of 1992, as amended.				
Cat Island Chain, Brown County, WI	Feasibility Activities	72,941	---	72,941
21st Avenue, West Channel, Duluth, MN	Feasibility Activities	0	---	0
Total		72,941	---	72,941

TABLE 21-P FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.				
Coordination Account	Coordination	4,957	---	4,957
Cass River, Spaulding Township, MI	Feasibility Activities	11,222	---	11,222
Detroit Beach, Lake Erie, Frenchtown Twp., MI	Feasibility Activities	7,213	---	7,213
Oak Creek, Milwaukee County, WI	Feasibility Activities	81	---	81
Red Mill Pond Dam, LaPorte, IN	Feasibility Activities	4776		4776
Root River, Milwaukee County, WI	Feasibility Activities	33,162	---	33,162
Underwood Creek, Village of Elm Grove, WI	Feasibility Activities	21,578	---	21,578
Total		82,989	---	82,989

CHICAGO, ILLINOIS, DISTRICT

The district comprises Cook, McHenry, Lake, Kane, DuPage, and Will Counties in Illinois, and Lake and Porter Counties in Indiana, and a portion of La Porte County along Lake Michigan in Indiana.

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Navigation

1. BURNS WATERWAY HARBOR, IN

Location. Northwestern Indiana on the southern shore of Lake Michigan in Porter County, 28 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None.

Existing Project. Provides for (a) a rubblemound north breakwater 4,630 feet long and a rubblemound breakwater west arm 1,200 feet long, for a total breakwater length of 5,830 feet; (b) an approach channel 30 feet deep and 400 feet wide; (c) an outer harbor 28 feet deep; (d) an east harbor arm 27 feet deep and 620 feet wide; and (e) a west harbor arm 27 feet deep and 620 feet wide. The project was authorized by the River and Harbor Act of October 27, 1965 (Public Law 89-298; House Document Number 160, 88th Congress, 1st Session). The authorizing act also provided the Secretary of the Army with the authority to reimburse the State of Indiana for expenditure of funds used to construct such portions of the project as approved by the Chief of Engineers and constructed under the supervision of the Chief of Engineers (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Eleven berths are available at the facilities owned and administered by the Indiana Port Commission. One berth, committed to grain, is located on the outer harbor. Four berths on the East Harbor Arm are dedicated to handling dry and liquid bulk commodities. The East Harbor Arm also includes a small-boat harbor designed to accommodate working tugs for vessel assistance and barge movement. On the West Arm there are six berths. Although one berth is available for dry bulk cargoes, these berths are primarily used for the shipment and receipt of general cargo. Additionally, the Indiana Port Commission, through a lease, administers the west side of the West Harbor Arm for barge fleeting. The remaining available harbor berthing on the east side of the East Harbor Arm is privately owned.

Operations and Results During Period. Study of the effectiveness of the underwater reef was performed at a cost of $232,007 by other Corps of Engineers. Breakwater maintenance costs were $253,291 for hired labor and other in-house costs, $548,697 for stone supply contract, $679,568 by other Corps of Engineers, and $2,793,544 by construction contract. Supervision and administration cost was $163,014. Engineering and design costs were $109,187 for hired labor and other in-house services. Dredging and placement of concrete mats to prevent prop wash shoaling was completed at costs of $278,726 by other Corps of Engineers, $109,295 for supply contracts, $52,630 for hired labor. Engineering and design cost for this effort was $26,577 by hired labor, $21,696 by AE contract and $2,390 for supervision and administration. Project operation costs were $85,254 for hired labor and other in-house services.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2003 were $37,636,740 of which $13,599,900 was for new work ($13,584,000 federal and $15,900 non-federal) and $24,036,840 ($23,928,478 federal and $108,362 non-federal) for was maintenance.

2. BURNS WATERWAY SBH, IN

Location. Northwestern Indiana on the southeast shore of Lake Michigan in Porter County, at the mouth of the Burns Waterway, approximately 27 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None

Existing Project. Provides for (a) a rubblemound west breakwater 1,043 feet long; (b) a rubblemound north breakwater 678 feet long; and (c) channel improvements of 5,200 linear feet with 145,000 cubic yards of dredged material used for beach nourishment (See table 22-C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas located along Burns Waterway and Burns Ditch. The principal marina, which is owned and operated jointly by the City of Portage and the Little Calumet River Basin Commission, was built in 1996 to comply with the local cooperation agreement. The commodities handled at this harbor are fresh fish caught as a result of charter boat fishing.

Operations and Results During Period. Breakwater maintenance was completed at cost of $290,893 by other Corps of Engineers, $335,098 for stone supply and other contract services, $8,376 for supervision and administration, $10,219 for

engineering and design by hired labor, and $75,082 for hired labor and other in-house services.

Condition at End of Fiscal Year. Total costs of the existing project to September 30, 2003 were $7,834,479 of which $3,770,558 was for new work ($2,000,000 federal and $1,770,558 non-federal), and $4,063,921 for maintenance (federal).

3. BURNS WATERWAY HARBOR (MAJOR REHAB), IN

Location. The project is located in northwestern Indiana on the southern shore of Lake Michigan in Porter County.

Existing Project. The rehabilitation project consists of constructing a segmented reef breakwater system, 75 feet lakeward of the northern section of the existing rubblemound breakwater. The project provides for seven reef segments, one 1,575 feet long and six 375 feet long with 25 feet spacing between segments

Local Cooperation. None required.

Operations and Results During the Period. New Work: Following construction completion in 1998, project closeout was completed in 1999.

Condition at the End of Fiscal Year. The construction contract was financially completed. The total cost of the existing project to September 30, 2003 was $13,384,161.

4. CALUMET HARBOR AND RIVER, IL and IN

Location. Northeastern Illinois, on the southwest shore of Lake Michigan in Cook County, 15 miles south of Chicago Harbor, within the corporate limits of the City of Chicago, except for breakwaters, and approach channel and an anchorage area which are in Indiana. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1400 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib breakwater 6,714 feet long; (b) a stone-filled double-row steel sheet pile detached breakwater 5,007 feet long; (c) an approach channel 29 feet deep and 3,200 feet wide; (d) an outer harbor anchorage area 28 feet deep and 3,000 feet wide; (e) an entrance channel 27 feet deep and 230 to 290 feet wide; (f) a channel in the Calumet River 27 feet deep and at least 200 feet wide to the north side of 130th Street; (g) three turning basins designated as numbers, 1, 3, and 5; and (h) a channel extending into Lake Calumet at a width of about 1,000 feet. The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, August 30, 1935, July 14, 1960, October 23, 1962, and October 27, 1965 (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Thirty six docks, wharves, and terminals are available. The Illinois International Port District owns four wharves, two grain elevators, one dock, and one terminal. The United States Government owns one stone dock. The most important cargoes handled are general cargo, grain, iron ore and concentrates, coal, and cement.

Operations and Results During Period. Sediment surveys and studies were performed by hired labor at a cost of $8,268 and by other Corps of Engineers for $29,998. Costs for routine operation and monitoring of the CDF were $110,557 for hired labor and other in-house services and $23,148 by contract. Costs for breakwater maintenance were $118,970 for hired labor, $161,180 by other Corps of Engineers, $874,166 for supply and service contracts, $10,380 for engineering and design, and $6,153 supervision and administration. Dredging costs for the river were $73,957 for environmental compliance by hired labor, $212,787 for engineering and design, $605,120 by contract, $30,947 for supervision and administration, $5,000 by other Corps of Engineers and $89,663 for hired labor and other in-house. Facilities maintenance costs were $13,820 by hired labor. Work on the stone dock land swap costs were $144,763 for engineering and design, $18,962 by AE contract (soil assessment), $68,450 for boundary survey contract, $72,405 by other Corps of Engineers and $40,776 hired labor. A Dredged Material Management Plan was initiated for $5,106 by hired labor. Project management and operation costs were $125,754.

Condition at End of Fiscal Year. The existing project is 100 percent complete. Total costs of the existing project to September 30, 2003, were $77,413,568 of which $22,578,567 was for new work ($19,541,964 federal funds and $3,036,603 public works funds), $49,407,000 for maintenance ($48,570,333 federal and $836,667 non-federal funds) and $5,428,001 federal funds for rehabilitation.

5. CHICAGO HARBOR, IL

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 1396 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib shore and extension breakwater 2,250 feet long; (b) a stone-filled timber crib exterior breakwater 5,421 feet long; (c) a rubblemound and stone-filled concrete caisson southerly extension to the exterior breakwater 4,944 feet long, exclusive of a 582-foot entrance gap enclosing an outer basin of about 970 acres; (d) a stone-filled timber crib north pier 960 feet long; (e) a stone-filled timber crib north inner breakwater 4,034 feet long with a 304-foot shore return and a 754-foot gap; (f) a stone-filled timber crib south inner breakwater 2,544 feet long, enclosing an inner basin of approximately 224 acres; (g) a lake approach channel 29 feet deep and 800 feet wide; (h) a channel and maneuver area inside the exterior breakwater and southerly extension breakwater 28 feet deep with a maximum width of 1,300 feet; (i) an entrance channel 21 feet deep and (j) the Chicago Harbor Lock. The Chicago Lock was constructed in 1938 by the Metropolitan Water Reclamation District of Greater Chicago. The deep-draft lock is 600 feet long, 80 feet wide, and 23 feet deep over the sill and is of steel cellular design.

The project was authorized by the River and Harbor Acts of July 11, 1870, June 14, 1880, March 3, 1899, July 25, 1912, March 2, 1919 and October 23, 1962 (See table 22-B).

Lock operation and maintenance responsibilities, in the interest of navigation, were transferred to the Federal Government pursuant to Public Law 98-63 approved July 30, 1983; Section 107 of the Public 97-88; and the Memorandum of Agreement between the Department of Army and the Metropolitan Water Reclamation District of Greater Chicago.

Local Cooperation. Fully complied with.

Terminal Facilities. There are five docks with 18 berths for passenger excursion boats and 10 berths for visiting large vessels. The most important cargoes handled through the lock are petroleum products, in addition to sugar and non-metallic minerals.

Operations and Results During Period. The lock was operated by contract at a cost of $864,082. Other costs associated with the lock operation were $181,121 for supervision and administration, hired labor and other in-house services and $15,749 by other Corps of Engineers. Bulkhead storage lease was $16,628. Data collection and evaluation of the wave gage was conducted by other Corps at a cost of $124,304. Lock maintenance costs were $43,131 by hired labor. Work on lock property improvements (East wall) was conducted at costs of $55,374 by AE contract, $62,509 for in-house E&D and $23,053 for hired labor. Breakwater maintenance costs were $91,659 for hired labor and $243,070 by other Corps. Work on the lock major rehabilitation, west gate design, was performed at $239,338 by hired labor E&D. Lock Control House design was initiated by hired labor for $6,713. Breakwater major rehabilitation report was completed at costs of $112,367 by AE contract, $26,701 S&A, $39,985 by other Corps and $37,316 for hired labor and other in-house services. Project management costs were $83,144.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2003 were $62,208,501 of which $4,788,827 was for new work, $55,933,074 was for maintenance, $1,326,600 for rehabilitation and $160,000 Harbor and Dams funds.

6. CHICAGO RIVER, IL

Location. Northeastern Illinois, in Cook County within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927 and 14928.)

Previous Projects. See page 1394 of Annual Report for 1962.

Existing Project. Provides for (a) a channel 21 feet deep in the main river from its mouth at Rush Street to the junction of the North and South Branches (0.7 miles); (b) a channel 21 feet deep in the North Branch from the junction to North Avenue (2.22 miles); (c) a channel 21 feet deep on the North Branch Canal (1.04 miles); (d) a 21-foot deep North Branch Turning Basin just south of North Avenue; and (e) a channel 9 feet deep in the North Branch from North Avenue to Addison Street (authorized but not constructed). The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, March 2, 1907, and July 24, 1946 (See tables 22-B, C). The portion of the project authorized by

the River and Harbor Act of 1946 is presently being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed modifications. The River and Harbor Act of July 24, 1946, which provided for the improvement of the channel, is subject to the condition that local interests furnish assurances that they will hold the United States government free from damages which may result from construction and maintenance of the improvement. Requirement has not been complied with.

Terminal Facilities. Six docks are available. The most important cargoes handled are sand, gravel and crushed rock, non-metallic minerals and scrap iron.

Operations and Results During Period. Water control activities were performed by hired labor at a cost of $87,965, by other Corps of Engineers at a cost $16,456 and by other federal agency at a cost of $156,880. Program management costs were $69,139.

Condition at End of Fiscal Year. The project is complete except for dredging the channel between North Avenue and Addison Street as authorized by the 1946 River Harbor Act. Channel maintenance for the reach from Clark Street to head of navigation has been deferred pending location and approval of suitable dredged material disposal site. Head of navigation for deep-draft vessels is North Avenue, 5.97 miles from the Michigan Avenue bridge. Total costs of the existing project to September 30, 2003 were $18,939,526 of which $1,500,565 was for new work and $17,438,961 was for maintenance.

7. INDIANA HARBOR, IN

Location. Northwestern Indiana, on the southwest shore of Lake Michigan in Lake County, 19 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1943 of Annual Report for 1915, and page 1520 of Annual Report for 1938.

Existing Project. Provides for (a) a northerly rubblemound breakwater 1,120 feet long; (b) an easterly concrete capped caisson breakwater 201 feet long with a rubblemound extension 2,324 feet long; (c) a lake approach channel 29 feet deep and 800 feet wide; (d) an anchorage and maneuver basin 28 feet deep; (e) a main canal entrance channel 27 feet deep and 280 feet wide; (f) a main canal 22 feet deep; (g) a turning basin 22 feet deep; (h) the Forks Turning Basin 22 feet deep; (i) the Lake George Branch 22 feet deep; and (j) the Calumet River Branch 22 feet deep. The project was authorized by the River and Harbor Acts of March 4, 1913, March 2, 1919, March 20, 1922, July 3, 1930, August 30, 1935, August 28, 1937, and July 14, 1960 (See tables 22-B, C).

Local Cooperation. Substantially complied with. See FY 1986 Annual Report for full requirements.

Terminal Facilities. Fifteen docks and wharves are available. Six docks handle iron ore and limestone. Six docks are for handling petroleum products and three docks for handling gypsum, scrap metal and steel, and bulk products. However, not all docks are presently being used for the shipment or receipt of waterborne commodities.

Operations and Results During Period. Project operation costs were $62,219.

Condition at End of Fiscal year. The existing project is complete. Total costs of the existing project to September 30, 2003 were $19,905,208 of which $4,909,648 ($4,897,148 federal and $12,500 non-federal contributed funds) was for new work and $14,995,560 (federal) for maintenance. Channel maintenance has been deferred pending construction of suitable Confined Disposal Facility.

8. INDIANA HARBOR AND CANAL CONFINED DISPOSAL FACILITY (CDF), IN

Location. The navigation project is located on the southwestern shore of Lake Michigan within the City of East Chicago, Lake County, Indiana, 4-1/2 miles east of the Indiana-Illinois state line and 17 miles from downtown Chicago, Illinois. A CDF will be constructed at the Energy Cooperative Incorporate (ECI) site in East Chicago, Illinois.

Existing Project. IHC is an authorized Federal navigation project with an entrance channel and outer harbor protected by breakwaters, and an inner harbor which includes the Indiana Harbor Canal and its two branches, the Lake George Branch, which extends west for a distance of 6,800 feet, and the Calumet River Branch which extends to the south for about 2 miles where it joins the Grand Calumet River. The harbor has not been dredged since 1972, when the United States Environmental Protection Agency determined that disposal in Lake Michigan was no longer acceptable due to the polluted character of the

harbor sediments.

A 4.8 million cubic yards capacity CDF will be constructed on the 164 acres of land adjacent to the Lake George Branch of the IHC, formerly occupied by an oil refinery owned by the Atlantic Richfield Company and subsequently acquired by ECI. The ECI property currently has open Resource Conservation and Recovery Act (RCRA) status due to the contaminated soil and groundwater that exists on the site. Use of this site for the CDF is contingent upon the construction of specific RCRA closure and corrective action features which will be integral aspects of the CDF construction. The elements of the CDF include construction of an impervious cutoff wall built around the 11,000 linear feet perimeter of the site to approximately 30-35 feet depths, tied into the clay layer below; groundwater monitoring and extraction wells and pumps to maintain an inward gradient and prevent any contaminated groundwater from leaving the site; an air monitoring system; an on-site water treatment facility to treat groundwater pumpage, water from dried dredged materials and precipitation falling on the site; dikes built in two 15 feet stages, with an impervious clay layer on the interior of the dikes; a rehandling area; and a cap constructed using 3 feet of clay, 6 inches of sand, 2 feet of clean fill and 6 inches top soil with grass cover. This cap configuration, used for both the CDF and the buffer areas, will satisfy the RCRA closure requirement for the ECI site.

Local Cooperation. The local sponsor is the East Chicago Waterway Management District (ECWMD). The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the ECWMD is required to pay a cash contribution to bring the total non-federal share to twenty-five percent of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance. The local sponsor is also required to reimburse an additional 10 percent of the costs of the general navigation facilities allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal provided for commercial navigation. In addition, the ECWMD is required to pay 100 percent of the costs allocated to general navigation facilities during construction for the local service facilities (non-federal berthing areas) and 100 percent of costs of incremental maintenance for the local service facilities. The Project Cooperation Agreement for the project was executed 7 August 2000.

Operations and Results During the Period. Construction on Cutoff wall was continued along with engineering and design work. Total Real Estate costs were $54,156 ($47,503 non federal and $6,653 federal). Total engineering and design costs were $2,619,206 ($2,619,206 federal and $0 nonfederal). Total Construction management cost was $303,293 ($303,293 federal and $0 nonfederal) . Total outreach cost was $83,687 ($83,687 federal). Total Air monitoring costs were $1,203,111 ($953,111 federal, $250,000 nonfederal). Total cutoff wall construction was $4,306,233 ($1,976,202 federal $2,330,032 nonfederal). Total cost of the project in FY03 was $8,569,687 ($5,942,152 was federal and $2,627,535 non federal.)

Condition at the End of Fiscal Year. Total cost of the existing project to September 30, 2003 was $17,250,311 ($13,895,283 federal and $3,355,028 non federal.)

9. LAKE MICHIGAN DIVERSION

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 22-3 of Annual Report for 1988.

Operations and Results During Period. Operations: Water accounting studies and preparation of reports were performed at costs of $326,452 by hired labor and $519,921 by other federal agency and $356,939 by AE contract.

Condition at End of Fiscal Year. Total cost of the existing project to September 30, 2003 was $8,467,520.

10. MICHIGAN CITY HARBOR, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in La Porte County, 38 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. See page 1407 of Annual Report for 1992.

Existing Project. Provides for (a) a stone-filled timber crib detached breakwater 1,304 feet long; (b) a pile and steel sheeting west pier 835 feet long; (c) a stone-filled timber crib, pile and steel sheeting east pier 2,276 feet long; (d) a stone-filled timber crib east breakwater 1,000 feet long; (e) an entrance channel 18 feet deep and 425 feet wide; (f) a turning basin No. 1, 18 feet deep; (g) a channel in Trail Creek 18 feet deep; (h) an outer basin 12 feet deep in the northerly portion and 8 feet deep in the southerly portion; and (i) a channel in Trail Creek 6 feet deep and 50 feet wide from turning basin No. 2 to the E Street bridge. The project was authorized by the River and Harbor Acts of March 3, 1899, March 3, 1905, January 21, 1927, August 30, 1935, and Section 107 of July 14, 1960, River and Harbor Acts, September 30, 1966 (See tables 22-B, C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas in the lower mile of Trail Creek. The commodity handled at this harbor is fresh fish.

Operations and Results During Period. Confined Disposal Facility maintenance costs were $23,329 by contract and $975 by hired labor. The outer harbor was dredged with costs of $116,849 for E&D, $502,106 by contract, $49,300 for S&A, and $32,094 for hired labor and other in-house services. Contract closeout cost for Trail Creek dredging was $13,466. Breakwater maintenance costs were $371,034 by other Corps, $187,251 for stone purchase contract and $44,326 by hired labor. Engineering and design for east breakwater repair costs were $226,249 by hired labor, and $29,571 for CADD and other in-house services. A DMMP was continued at a cost of $74,413 for hired labor. Project operation costs were $61,787.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2003 were $21,614,399, of which $1,574,158 was for new work ($1,543,646 federal and $30,512 non-federal funds), $18,421,571 for maintenance ($18,366,571 federal and $55,000 non-federal) and $1,618,670 for rehabilitation (federal funds).

11. WAUKEGAN HARBOR, IL

Location. Northeastern Illinois on the west shore of Lake Michigan in Lake County, 38 miles north of Chicago Harbor. (See NOAA Nautical Chart Numbers 14904 and 14905.)

Previous Projects. See page 1392 of Annual Report for 1962.

Existing Project. Provides for (a) a northerly stone-filled timber crib breakwater 588 feet long; (b) a stone-filled reinforced concrete caisson shore connection 270 feet long; (c) a stone-filled double-row steel sheeting shore connection 640 feet long; (d) a single-row steel sheeting shore connection 398 feet long; (e) a stone-filled timber crib north pier 998 feet long; (f) a single-row steel sheet piling north pier 444 feet long; (g) a steel piling revetment 632 feet long; (h) a stone-filled timber crib pier 1,399 feet long; (i) a stone-filled double-row pile and sheeting south pier 1,712 feet long; (j) an entrance channel 22 feet deep and 390 feet wide; (k) a channel between the piers 18 feet deep and 200 feet wide; (l) an inner basin 18 feet deep; and (m) an anchorage area in the southwest corner of the inner basin 8 feet deep. An authorized, but as yet unconstructed project modification provides for (a) an entrance channel 27 feet deep, (b) a channel between the piers 23 feet deep and (c) an inner basin and channel extension 23 feet deep. The project was authorized by the River and Harbor Acts of June 3, 1902, July 13, 1930, and March 2, 1945, and on December 17,1970 by delegated authority under Section 201 of the Rivers and Harbor Act of October 27, 1965. (See tables 22-B, C). The portion of the project authorized by the 1970 modification is being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed portions. The Dec. 17, 1970 modification, which provides for modifications to the channel, is subject to the conditions that local interests furnish assurances that they will hold the United States government free from damages from construction and maintenance of the improvement and that certain lands, easements and rights-of-way be provided.

Terminal Facilities. Four docks are available. The commodities handled at this harbor are gypsum and building cement.

Operations and Results During Period. Outer harbor dredging was conducted at costs of $118,470 for in-house E&D, $284,151 by contract, $33,758 for S&A and $15,933 for sediment survey and $44,429 by hired labor. South pier repair was initiated at costs of $135,750 for in-house E&D, $19,999 by contract, $4,032 for supervision and administration and $25,392 for hired labor and other in-house services.

Work on the CDMP was performed by AE contract for $79,650, and project operation cost was $37,707.

Condition at End of Fiscal Year. The existing project is complete except for the 1970 modification, which is being restudied. Maintenance of the channel between the pier to the head of navigation has been deferred pending location, approval and probable construction of a suitable dredged material disposal site. Total costs of existing project to September 30, 2003 were $20,304,605 of which $823,026 was for new work and $19,481,579 was for maintenance.

12. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys were performed at a cost of $81,973.

13. NATIONAL EMERGENCY PREPAREDNESS

Fiscal Year 2003 costs for management and mobilization planning were $27,019.

Alteration of Bridges

14. OTHER AUTHORIZED BRIDGE ALTERATIONS

See table 22-D.

Beach Erosion Control

15. CASINO BEACH, IL

Location. Casino Beach is located along the Lake Michigan shoreline at Jackson Park in Chicago, Illinois.

Existing Project. The Casino Beach project was authorized by Section 501 (a) of the 1986 Water Resources Development Act. The project consists of rehabilitating 1,800 feet of the Casino jetty by encasing the existing timber pile and stone structure in steel sheet piling and a concrete cap.

Local Cooperation. The local project sponsor is the Chicago Park District. The local sponsor is required to provide all lands, easements and rights-of-way; complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; and make cash contribution toward the cost of construction.

Operations and Results During Period. No new work.

Condition at End of Fiscal Year. Construction is complete. The total cost of the existing project to September 30, 2003 was $2,465,517 federal and $2,499,481 non-federal.

16. CHICAGO SHORELINE, IL

Location. The project area includes 9.2 miles of revetment reconstruction within 24 miles of publicly owned shoreline along Lake Michigan in Chicago, Illinois.

Existing Project. The Chicago Shoreline project is not authorized. The Federally supportable plan consists of constructing rubblemound revetments along 16,750 and 25,400 feet of the shoreline in the Lincoln Park and Burnham Park areas, respectively. Other project features include: revetments near the Adler Planetarium and at Meigs Field; a breakwater to protect the South Filtration Plant near 78th Street; and nourishment of a short reach of shoreline near Fullerton Avenue and 31st Street. The local sponsor prefers to substitute steel sheet pile step stone revetments (the locally preferred plan, or LPP) for the rubblemound revetments in the Lincoln and Burnham Park areas. They have agreed to pay the increased cost above the federally supportable plan. The LPP is the authorized plan.

Local Cooperation. This project has three separate Project Cooperation Agreements (PCA's). The first PCA, for the Reach 5 breakwater reconstruction, was executed on 28 April 1997. The second PCA, for Section 215 work, was executed on 7 August 1998, and covers construction of three portions of the project: 1,000 feet of revetment at Belmont Harbor in Reach 2, an 800 foot stretch of shoreline at 31st Street beach in Reach 4 (both of these are being constructed by the non-federal sponsor), and revetment reconstruction from 31st to 33rd streets in Reach 4 (Corps work). The project Cooperation Agreement for the balance of the project work was executed on 17 May 1999, implementing section 206 of WRDA 92 which allows the non-federal sponsor to perform a significant portion of the work. Design and construction of the project is well underway. Project construction is estimated to be completed in the year 2007.

The local sponsor is required to provide all lands, easements, and rights-of-way; complete all necessary relocations; hold and save the United States free from

damages due to construction or operation of the project; operate and maintain the completed project; perform work for credit towards their cash contribution; and make cash contribution toward the cost of any outstanding balance.

Operations and Results During Period. The Corps performed construction work on at Belmont to Diversey North, Montrose North, Diversey to Fullerton, and 37th to 43rd Street. Engineering and design work was continued on carious reaches. The non-federal sponsor provided cash in the amount of $23,450,479. A total of $37,609,977 was expended for construction ($16,134,305 federal and $21,475,672) Engineering and design costs were $2,690,394 all federal. Total construction management costs were $1,723,276 all federal. Total expenditures for the fiscal year were $42,023,647 of which $20,547,975 federal and $21,475,672 nonfederal.

Condition at End of Fiscal Year. Completed project construction consists of the Reach 5 Breakwater (sponsor); Reach 3, Solidarity Drive Revetment (sponsor); Reach 2, Belmont Harbor Peninsula Revetment (sponsor); Reach 4, 31st Street Beach Stabilization (sponsor); and Reach 4, 31st to 33rd Street (Corps). Continuing construction was at Reach 2, Irving to Belmont (Corps); Reach 4, I-55 to 30th Street (Corps); Reach 4, 33rd to 37th Street (Corps); and Reach 4, 51st to 54th Street (sponsor). Engineering and design was continued in Reaches 2 and 4 by the Corps and the non-Federal sponsor. The total cost of the existing project to September 30, 2003, was $167,887,545 ($114,427,737 federal funds, $21,475,672 nonfederal cash and $31,984,136 in non-federal in-kind services.

17. ILLINOIS BEACH STATE PARK, IL

Location. Northeastern Illinois on the west shore of Lake Michigan along the 9-mile reach of shoreline immediately south of the Illinois-Wisconsin State line. (See NOAA Nautical Chart Numbers 14901 and 14904.)

Previous Projects. None.

Existing Project. Provides for annual beach nourishment and construction of a sediment trap at the south end of the State Park. The project would entail placement of coarse-graded sediment at six stockpile sites at the rate of 124,000 cubic yards in the first year, 104,000 cubic yards in the second year, and 60,000 cubic yards in the third year. Thereafter, 60,000 cubic yards would be placed at the northernmost stockpile annually. The sediment trap would consist of a rubble-mound groin, with a total length of 600 feet from the base of the dunes (400 feet lakeward from the shoreline), with a crest height of about +8 feet above Low Water Datum (LWD). The project was conditionally authorized in Section 501 (b) of the 1986 Water Resources Development Act subject to a report by the Corps of Engineers and approval by the Secretary of the Army. A Feasibility Review Conference was held in April 1991. As a result, the District Engineer was directed to terminate work on this project and to submit a letter report to the Congress summarizing the feasibility study and the results of the Washington level review. Work on the feasibility report was resumed in FY 1994 as directed by the Assistant Secretary of the Army for Civil Works in response to a letter from Congressman John Porter, 10th Congressional District of Illinois.

Local Cooperation. The local project sponsor would be required to provide all lands, easements and rights-of-way; accomplish all required relocations; hold and save the United State free from damages; and provide a cash contribution.

Operations and Results During Period. No work was completed on the pre-construction engineering and design (PED) phase of the project. FY03 funds of $33,073 were expended to continue the Feasibility study.

Condition at End of Fiscal Year. Total cost of the existing Feasibility study to September 30, 2003 was $168,055.

18. INDIANA DUNES NATIONAL LAKESHORE BANK PROTECTION, BEVERLY SHORES, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in Porter County, about 35 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. Provides for placement of 13,000 feet of stone revetment and periodic repair of riprap to maintain the full length of Lake Front Drive in Beverly Shores, Indiana. The current project was authorized by Public Laws 97-88 and 98-63.

Local Cooperation. Fully complied with. Project lands are held by the National Park Service.

Operations and Results During Period. No work was performed during this reporting period.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2003 were $2,956,000 of which $660,000 was for new work and $2,296,000 was for maintenance.

19. INDIANA SHORELINE EROSION, IN

Location. On the south end of Lake Michigan along a two-mile reach of shore west of Michigan City Harbor, Indiana. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. The project consists of beach nourishment along approximately two miles of beach between Michigan City Harbor and Beverly Shores, Indiana, requiring an initial placement of 264,500 cubic yards of sand. Periodic replenishment of about 264,500 cubic yards of sand at five year intervals would be required throughout the life of the project. The project was authorized for construction by Section 501 of the Water Resources Development Act of 1986. Estimated federal cost (1997) for new work is $184,000,000, including future beach nourishment.

Local Cooperation. None required.

Operations and Results During Period. Monitoring of initial sand placement and impacts to fish was performed, and preparation of plans and specifications for the next round of sand placement was initiated. There was no real estate related cost. The FY 2003 cost was $1,459,247. Engineering and Design cost was $76,080, sand placement at $1,333,113 and construction management cost was $50,054.

Condition at End of Fiscal Year. Initial construction was completed. Monitoring of project and preparation of plans and specifications for additional sand placement was continued. The total cost of the existing project to September 30, 2003 is $10,287,046 (federal).

20. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

See table 22-E.

21. BEACH EROSION CONTROL UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103 of the Rivers and Harbors Act of 1962, as amended. None.

Flood Control

22. CHICAGO RIVER, IL (NORTH BRANCH)

Location. Northern Illinois, in Cook and Lake Counties.

Existing Project. Provides for clearing the channel of the North Branch of the Chicago River of fallen trees, roots, and other debris and objects which contribute to the flooding, unsightliness, and pollution of the river. The project extends from Wolf Point in Chicago, Illinois, to its source just south of Rockland Road east of Libertyville, Illinois. The project was authorized by the River and Harbor Act of December 31, 1970 (Section 116) and amended by the River and Harbor Act of March 7, 1974 and the Water Resources Development Act of 1986.

Local Cooperation. The 1970 Act provided that local interests furnish without cost to the United States all lands, easements, rights-of-way, and disposal areas necessary for construction of the project; hold and save the United States free from damages due to construction; maintain and operate all works after completion without cost to the United States; and agree to bear all costs in excess of $200,000 for completing construction. The 1974 Act provided that the United States will maintain the channel free of trees, roots, debris and objects at a cost not to exceed $150,000 per year with non-federal interests paying 25 percent of the cost of maintenance. The 1986 Water Resources Development Act changed the cost sharing to require that non-federal interests pay 50 percent of the cost of maintenance plus the cost of disposal. The requirements are fully complied with.

Operations and Results During Period. No work was performed during this reporting period.

Condition at End of Fiscal Year. Total cost of existing project to September 30, 2003 was $4,775,691 of which $231,884 was for new work ($191,884 federal funds and $40,000 contributed funds), and $4,543,807 was for maintenance ($2,768,632 federal funds and $1,775,175 non-federal contributed funds).

23. DES PLAINES RIVER, ILLINOIS

Location. The Upper Des Plaines River is located in the northeastern Illinois counties of Lake and Cook. Its 67 miles flow through 33 communities, which are part of the Chicago metropolitan area.

Existing Project. The Des Plaines flood control project was authorized by Section 101(b) (10) of the 1999 Water Resources Development Act. The optimized project provides a maximum 0.12 foot reduction in stage for the 100-year flood, and the levee features meet the FEMA criteria for 100-year protection. The project consists of six features to construct (three in Lake County and three in Cook County), environmental mitigation, and a flood warning plan. The project adds 1,975 acre-feet of storage by constructing 6 features: a lateral storage area in Van Patton Woods (412 acre-feet); enlarging the existing North Fork Mill Creek Dam by elevating the crest of spillway (500 acre-feet); and excavating the existing reservoirs at Buffalo Creek (476 acre-feet) and at Big Bend Lake (587 acre-feet). The remaining 2 project features are levees with appurtenant interior drainage features. Levee 37 raises portions of Des Plaines River Road and Milwaukee Avenue between Palatine Road and Euclid Avenue from 0.5 to 5 feet over a total length of 8,500 feet. Levee 50 is a combination levee/flood wall in the City of Des Plaines between Dempster Road and the Chicago and Northwestern railroad. The length of this levee would be about 2,600 feet and the length of the floodwall would be 2,115 feet.

Local Cooperation. The nonfederal sponsor is the Illinois Department of Natural Resources (IDNR). IDNR is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. Engineering and design work was continued at a cost of $1,539 (GI) $69,298 (CG) for a total federal cost of $70,837 and a nonfederal cost of $81,257.

Condition at End of Fiscal Year. Total cost of the existing project to September 30, 2003 is $1,618,814. Federal costs were $1,226,757 and nonfederal costs were $392,057.

24. LAKE GEORGE, HOBART, IN

Location. Lake George in Hobart, Indiana and Deep River watershed upstream of the lake through Lake Station, Indiana.

Existing Project. The project consists of the removal of silt, aquatic growth and other material and the construction of silt traps or other devices to prevent and abate the deposition of sediment. Project was authorized by Section 602 of the Water Resources Development Act (WRDA) of 1986.

Local Cooperation. Section 602(b), Water Resources Development Act of 1986 applies. By letter dated March 9, 1987 the City of Hobart, Indiana indicated that it was a potential local project sponsor and applied for credit for previous work applicable to the project under the provisions of Section 104 (d) of the 1986 WRDA. By letter dated March 19, 1999, the City of Hobart, Indiana withdrew it's interest in the project.

Operations and Results During Period. No work was performed in FY 2001. Project was terminated in FY 1999.

Condition at End of Fiscal Year. Pre-construction engineering and design was terminated. Total cost of the existing project to September 30, 2002 is $1,311,977.

25. LITTLE CALUMET RIVER, IN

Location. The Little Calumet River project is located in northwest Indiana between the Illinois-Indiana State line and the Conrail Railroad in east Gary, Indiana.

Existing Project. The project consists of replacing 9.5 miles of existing spoil bank levees with 12.2 miles of new levees, floodwalls, closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue; construction of 9.7 miles of set-back levees in Gary; a diversion structure at Hart Ditch; permanent evacuation of 29 structures in the Black Oak area of Gary; flood proofing 38 residential structures in Gary; modifying 7 miles of channel and 3 accompanying bridge culvert modifications; modifying one highway bridge; construction of 16.8 miles of hiking trails and accompanying recreation support facilities; and preservation of 788 acres of wetlands with wildlife mitigation measures. The project was authorized by

Section 401 of the Water Resources Development Act of 1986. The construction contract for Stages II-3A, III and V-1 levee segment and the Stage I-4 demolition contract were completed .Completed construction on East Remediation, and Stage IV-2B.

Local Cooperation. The local sponsor is the Little Calumet River Basin Development Commission. The local cooperation agreement was signed on August 16, 1990. The local sponsor is required to provide all lands, easements and rights-of-ways; provide all required relocations; and hold and save the United States from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a five percent cash contribution for structural flood control measures, fifty percent for recreation features and twenty-five percent for fish and wildlife enhancements. A memorandum of agreement with the local sponsor to design non-federal improvements was signed on May 20, 1992.

Operations and Results During Period. Continued construction work on wetland mitigation, Stage III remediation, pump 1A and North 5th pumps and continued work on engineering and design.

Total cost for Real Estate was $126,574 all Federal real estate management cost. No land costs. Total construction placement cost was $2,416,410 of which $2,766,644 was Federal and $304,766 was non-Federal. Total design cost was $1,051,886 of which Federal cost was $974,962 and non-Federal cost was $76,924. Total cost for supervision and administration was $479,132 all Federal cost.

At the end of FY 2003 total federal cost was $4,347,312 and non-federal cost was $381,690 with a betterment cost of $0. Total project cost was $4,729,002.

Condition at End of Fiscal Year. Construction is in progress. Total cost of existing project to September 30, 2003 was $97,844,793. Federal costs total $88,548,555; required non-federal costs were $7,099,561 and non-federal betterment costs $2,196,677.

26. LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN

Location. Cady Marsh is located in Lake County, Indiana. The Ditch is a tributary of the Little Calumet River system in northwest Indiana and flows through the Towns of Griffith and Highland, Indiana.

Existing Project. The Cady Marsh Ditch flood control project was authorized by Section 401 (a) of the 1986 Water Resources Development Act. The project provides for diverting flood flows from Cady Marsh Ditch to the Little Calumet River through a diversion system under Arbogast Avenue in Griffith. Specifically, the project consists of improving 1,290 feet of Cady Marsh Ditch between Colfax and Arbogast Avenues in Griffith, constructing approximately 5,000 feet of large conduct pipes under Arbogast Avenue, excavating an open channel approximately 2,850 feet long from the north end of Arbogast Avenue to the Little Calumet River, and constructing interior drainage improvements.

Local Cooperation. The local project sponsor is the Town of Griffith, IN. The local sponsor is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. New Work: Pre-construction engineering and design was continued at a cost of $311,743 in FY2003 ($40,353 was GI and $271,390 was CG). There were no non-federal expenses.

Condition at End of Fiscal Year. Pre-construction engineering and design is in progress. The total cost of the existing project to September 30, 2003 was $2,028,414 (Federal cost).

27. McCOOK AND THORNTON RESERVOIRS, IL

Location. The McCook Reservoir will be located near the communities of McCook, Justin and Bedford Park, Illinois at the existing Metropolitan Water Reclamation Solids Management Area. The Thornton Reservoir will be located in the community of Thornton, Illinois at the existing Thornton Quarry.

Existing Project. The project consists of converting two quarries into flood storage reservoirs. The McCook Reservoir will have a storage volume of 21,400 acre-feet (7 billion gallons); the Thornton Reservoir will have a volume of 24,200 acre-feet (7.9 billion gallons). The reservoirs will store floodwater from tunnels constructed or under construction by the U.S. Environmental Protection Agency and the

Metropolitan Water Reclamation District of Greater Chicago as part of the Tunnel and Reservoir Project (TARP). The project was authorized by Section 3 of the Water Resources Development Act of 1988.

Local Cooperation. The Metropolitan Water Reclamation District of Greater Chicago will be the local sponsor and provide the required local cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost. The Project Cooperation Agreement for the McCook Reservoir was executed on May 10, 1999.

Operations and Results During Period. New Work: The cutoff wall construction contract was completed, test grout, pumps and tunnel construction contracts were and engineering and design effort were continued. Total costs for FY 2003 were $24,158,636 ($11,352,631 Federal and $12,806,005 Non-Federal). There was no land cost. Real estate cost was $183 all Federal. Construction placement costs totaled $19,595,984 ($8,033,769 federal and $11,562,215 non-federal). Engineering and design costs totaled $3,914,353 ($2,723,719 federal, $1,190,634 non-federal) Construction management costs were $648,116 ($594,960 Federal, $53,156 non-Federal).

Condition at End of Fiscal Year. Construction is in progress and Engineering and design are continuing. Total costs of the existing project to September 30, 2003 were $76,127,641 of which $56,916,285 was federal and $19,211,357 was non-federal.

28. NORTH BRANCH, CHICAGO RIVER, IL

Location. The North Branch Chicago River Basin is located north of the City of Chicago in suburban Cook and Lake Counties.

Existing Project. The project was authorized by the Water Resources Development Act of 1986 and consists of constructing two excavated floodwater storage reservoirs on the West Fork and one excavated reservoir on the Middle Fork. Section 401 of the 1986 Act also included authorization to reimburse non-federal interests 50 percent of the costs of planning and construction for three existing reservoirs on the West Fork, known as Techny Reservoirs, and the existing Mid Fork Reservoir on the Middle Fork. In July 1990, the federal government reimbursed the non-federal interests $4,467,298 for the Techny and Mid Fork Reservoirs. The total federal cost was $4,537,435 for these reservoirs. Reservoir 27 in the Village of Bannockburn, is located on the West Fork, 12.7 miles above its confluence with the North Branch Chicago River. It has a floodwater storage capacity of 525 acre-feet. The reservoir construction was completed in June 1990. Reservoir 29A is located 9.6 miles above the mouth of the West Fork and 3.1 miles south of Reservoir 27. The floodwater storage capacity is 575 acre-feet. Two project features, channel relocation and construction of two bridges, are a non-federal responsibility. Reservoir 29A was substantially completed in September 1994. Reservoir 15 is located near the City of Green Oaks on the Middle Fork, 22.1 miles above its confluence with the North Branch Chicago River. The floodwater storage capacity is 500 acre-feet. The reservoir is approximately 42 feet deep except in the sedimentation pool area which is about 15 feet deeper. Construction of Reservoir 15 was completed in May 1992. The local sponsor has contributed $550,100 for the non-federal improvements for Reservoir 29A.

Local Cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost.

Operations and Results During Period. Completed HTW construction modifications at Reservoir No. 29A , completed a contract modification for Reservoir No. 29A for non-federal improvements and initiated negotiations to settle the claim for Reservoir No. 29A. Total engineering and design cost was $24,628 all federal hired labor.

Condition at End of Fiscal Year. The existing project is 100% complete. Total costs of the existing project to September 30, 2003 are $31,758,809 of which $25,006,426 is federal and $2,259,085 is non-federal required contributions. This excludes the $4,493,298 non-federal cost for the Techny and Mid Fork Reservoirs. Non-federal betterment funds of

$550,101 has been expended on bridge and channel betterments at Reservoir 29A. A total of $7,576,668 in non-federal funds has been expended on investigations in connection with the clean-up of soils contaminated with lead shot pellets at Reservoirs 29A. Non-federal betterment funds in the amount of $38,500 were expended for work on an impact assessment. A total of $11,166 (non-federal betterment) was spent at Reservoir 27 for the Illinois Tollway project.

29. O'HARE RESERVOIR, IL

Location. The reservoir is located in an unincorporated portion of Elk Grove Township in Northwestern Cook County, Illinois about 1 mile northwest of Chicago O'Hare International Airport.

Existing Project. The project consists of a 1,050 acre-foot capacity reservoir, excavated to a depth of 80 feet. The reservoir has been constructed at the terminus of the existing system of 6.6 miles of deep tunnels, constructed under the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago Tunnel and Reservoir Project (TARP). The project was authorized by Section 401 of the Water Resources Development Act of 1986.

Local Cooperation. The local sponsor is the Metropolitan Water Reclamation District of Greater Chicago. The local cooperation agreement for the first construction contract, creek relocation, was signed on July 31, 1990. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a cash contribution of five percent of the total project costs. The local cooperation agreement for the remainder of the project, reservoir excavation and lining, was signed July 29, 1991.

Operations and Results During Period. The reservoir construction was substantially completed in 1998. Contract closeout activities were initiated and E&D effort was expended for pending required reservoir repairs. There were no real estate. FY 2003engineering and design costs totaled $8,112 ($8,112 federal).

Condition at End of Fiscal Year. Construction and modifications were completed and closeout activities were initiated. Total cost of the existing project to September 30, 2003 was $38,856,935 ($31,566,944 Federal and $4,664,510 non-federal, and non-federal improvement costs $2,625,481).

30. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See table 22-F.

31. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities, repair, flood fighting and rescue work (Public Law 99, 84th Congressional antecedent legislation).

Program	Fiscal Year Costs to September 30, 2003
Disaster Preparedness	$ 166,882
Disaster Assistance (FEMA)	$ 79,658

Flood control activities pursuant to Section 205 of Flood Control Act of 1965, as amended:

Fiscal Year 2003 costs were $664,135 federal and $16,090 non-federal for flood control activities. A total of $25,000 was spent on the Section 205 coordination account. Fox River, McHenry Co., IL, construction phase was completed at the cost of $29,431 federal and $4,310 non-federal. Libertyville Estates, IL, construction phase continued at the cost of $75,152 federal. Kankakee River and Newton Co. (Sumava) P&S was initiated at the cost of $275,277 federal and $0 non-federal. City of Oak Forest (Natalie Creek) DPR continued at the cost of $55,375 federal and $11,780 non-federal. Stony Creek, IL, P&S initiated at the cost of $132,417 federal. Deer Creek P&S continued at a cost of $63,016 federal. Monticello DPR continued at $8,468 federal.

Section 14, Emergency Streambank and Shoreline Protection:

Fiscal Year 2003 costs were $234,204 federal and $1,623 non-federal . A total of $10,000 was spent on Section 14 coordination account. Lake Michigan Beach Drive, Dune Acres financial closeout was completed at -$1,623 federal and $1,623 non-federal; Highland Park construction was completed at $1,149 federal. Melvina Ditch PDA was continued at $8,923 federal; Waukegan Sanitary PDA was continued at $29,746 federal; Zion Sanitary PDA was continued at $44,183 federal; North Park University PDA was continued at a cost of $14,852 federal. Village of Riverside PDA was initiated at $81,106. Addison, North Riverside was initiated at $39,642. Fox Lake PDA was initiated at $6,226.

Section 1135, Project modification to improve Environment:

Fiscal Year 2003 costs were $618,820. A total of $10,000 was spent on Section 1135 Coordination Account. Indiana Ridge Marsh P&S was initiated at $22,209. Chicago Sanitary and Ship Canal DPR was completed and P&S initiated at a cost of $586,611.

Section 206, Aquatic Ecosystem Restoration:

Fiscal Year 2003 costs were $2,455,276 federal and $310,554 non-federal. A total of $25,020 was spent on Section 206 Coordination Account. Sqaw Creek, Lake County, IL DPR continued at a cost of $152,366. Hickory Creek, Tinley Park, DPR continued at a cost of $8,037. Chicago Botanical Garden, IL, plans and specifications and construction were continued at a cost of $125,683 federal and $217,828 nonfederal. Cuneo Press, Chicago River, construction was completed at $70,294 federal and $6,006 non-federal. Weed Street, Chicago River construction was completed at $1,963 non-federal. Northside PREP/Von Steuben Chicago construction continued at $436,879 federal and $84,758 non-federal. Butler Lake, IL, P&S initiated at a cost of $256,458. Hoffman Dam, IL, DPR continued at a cost of $252,913. Poplar Creek, IL, DPR continued at a cost of $129,124. Illinois and Michigan DPR was initiated at a cost of $68,079. Paul Douglas Woods – South Barrington PRP completed at a cost of $8,034. Wolf Lake, IN, DPR continued at a cost of $162,819. Grass Lake, Fox River, IL, DPR was continued at a cost of $180,586. Kankakee Sands, Fair Oak Farm, IN, DPR was continued at a cost of $126,202. Lockport Prairie Nature Preserve, IL, DPR was continued at $199,253. Cedar Lake, IN, DPR was initiated at a cost of $29,334 Peggy Notebart PRP completed at $432. Horner Park PRP completed at $4,822. Erie Park PRP completed at $10,000. Village of Lemont PRP completed at $10,000. Sequoit Creek PRP continued at $9,020. Spring Creek Valley PRP continued at $7,282. Nippersink Creek PRP completed at $12,000. Burnham Prairie PRP completed at $9,404. Orland Park PRP completed and DPR initiated at $26,824. South Fork of the South Branch DPR initiated at $30,218. Governor's State University PRP completed at $10,000. I&M Channahon PRP completed at $10,000. Eugene Field PRP completed at $12,545. Ping Tom Park PRP completed at $12,000. Chain of Lakes, Grass Lake PRP completed at $10,000. Long Lake DPR initiated at $25,154. Winfield Creek PRP initiated at $9,878. Yellow River PRP initiated at $5,410. Blackberry Creek PRP was initiated at $9,115.

Section 107, Navigation Harbor:

Fiscal Year 2003 costs were $160,539. A total of $10,000 was spent on Section 107 Coordination Account. Whiting Shoreline DPR was continued at $122,073. Evanston Shoreline DPR was initiated at $28,467.

General Investigations

32. SURVEYS

Fiscal Year 2003 costs were $1,149,714 federal and $793,057 non-federal. Itemized as follows:

	Federal	Non-federal
Flood Damage Prevention Studies	$ 539,899	$ 682,496
Shoreline Protection	39,440	0
Special Studies	95,685	0
Review Authorize Projects	136,319	78,918
Miscellaneous Activities	46,200	0
Coordination Studies	292,171	31,643

33. COLLECTION AND STUDY OF BASIC DATA

Fiscal Year 2003 costs were $74,239 federal and $0 non-federal itemized as follows:

	Federal	Non-federal
Flood Plain Management Services	$ 74,239	$ 0

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003	
1.	Burns Waterway	New Work:						
	Harbor, IN	Approp.	0	0	0	0	13,584,000	
	(Federal Funds)	Cost	0	0	0	0	13,584,000	
	(O&M)	Maint:						
		Approp.	947,000	3,701,760	1,424,000	5,345,000	23,949,864	
		Cost	947,957	3,701,606	1,412,121	5,335,876	23,928,478	
	(Contributed	New Work:						
	Funds)	Contrib.	0	0	0	0	15,900	
		Cost	0	0	0	0	15,900	
		Maint:						
		Contrib.	0	0	0	0	108,362	
		Cost	0	0	0	0	108,362	
2.	Burns Waterway	New Work:						
	Small Boat Harbor, IN	Approp.	0	0	0	0	2,000,000	
	(Federal Funds)	Cost	0	0	0	0	2,000,000	
	(O&M)	Maint:						
		Approp.	1,858,000	0	120,000	714,000	4,063,935	
		Cost	1,857,779	2,052	114,318	719,668	4,063,921	
	(Contributed	New Work:						
	Funds)	Contrib.	0	0	0	0	1,770,558	
		Cost	0	0	0	0	1,770,558	
3.	Burns Waterway	New Work:						
	Harbor (Major Rehab), IN	Approp.	0	0	0	0	13,384,200	
	(Federal Funds)	Cost	0	39	0	0	13,384,200	
	(Contributed	New Work:						
	(O&M)	Contrib.	0	0	0	0	0	
		Cost	0	0	0	0	0	
4.	Calumet Harbor and	New Work:						
	River, IL and IN	Approp.	0	0	0	0	22,578,567	1/
	(Federal Funds)	Cost	0	0	0	0	22,578,567	1/
	(O&M)	Maint:						
		Approp.	3,326,500	3,383,769	4,139,000	2,820,000	48,577,168	2/
		Cost	3,322,279	3,388,639	4,106,234	2,850,330	48,570,333	2/
		Rehab:						
		Approp.	0	0	0	0	5,428,001	3/
		Cost	0	0	0	0	5,428,001	3/
	(Contributed	Maint:						
	Funds)	Contrib.	0	0	0	0	836,667	
		Cost	0	0	0	0	836,667	

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003	
5.	Chicago Harbor, IL	New Work:						
	(Federal Funds)	Approp.	0	0	0	0	4,788,827	4/
	(O&M)	Cost	0	0	0	0	4,788,827	4/
		Maint:						
		Approp.	2,601,400	3,396,561	3,274,000	2,193,000	55,978,507	
		Cost	2,548,572	3,306,885	3,309,242	2,266,244	55,933,074	
		Rehab:						
		Approp.	0	0	0	0	1,326,600	
		Cost	0	0	0	0	1,326,600	
	(Harbor and Dam Funds)	Maint:						
		Approp.	0	0	0	0	160,000	
		Cost	0	0	0	0	160,000	
6.	Chicago River, IL	New Work:						
	(Federal Funds)	Approp.	0	0	0	0	1,500,565	5/
	(O&M)	Cost	0	0	0	0	1,500,565	5/
		Maint:						
		Approp.	350,500	328,222	356,000	330,000	17,444,116	6/
		Cost	348,484	329,389	356,390	330,440	17,438,961	6/
7.	Indiana Harbor, IN	New Work:						
	(Federal Funds)	Approp.	0	0	0	0	4,897,148	7/
	(O&M)	Cost	0	0	0	0	4,897,148	7/
		Maint:						
		Approp.	259,500	409,077	64,000	61,000	14,995,565	8/
		Cost	424,600	408,235	63,747	62,219	14,995,560	8/
	(Contributed	New Work:						
	Funds)	Contrib.	0	0	0	0	12,500	
		Cost	0	0	0	0	12,500	
8.	Indiana Harbor, Confined	New Work:						
	Disposal Facility, IN	Approp	1,560,000	2,758,000	4,201,000	5,708,000	14,827,000	
	(Federal Funds)	Cost	1,455,637	1,297,280	4,632,385	5,942,152	13,895,283	
	(CG 212-075535)							
	(Contributed	New Work:						
	Funds)	Conrib.	0	100,000	2,779,454	1,750,000	4,629,454	
		Cost	0	94,322	633,171	2,627,535	3,355,028	
9.	Lake Michigan	Maint:						
	Diversion, IL	Approp.	802,000	804,200	810,000	1,191,000	8,468,200	
	(Federal Funds)	Cost	801,023	804,167	798,141	1,203,312	8,467,520	
	(O&M)							
10.	Michigan City	New Work:						
	Harbor, IN	Approp.	0	0	0	0	1,543,646	9/
	(Federal Funds)	Cost	0	0	0	0	1,543,646	9/

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003	
		Maint:						
		Approp.	1,543,500	394,407	2,647,000	1,725,000	18,366,961	
		Cost	1,549,497	387,185	2,647,264	1,732,750	18,366,571	
		Rehab:						
		Approp.	0	0	0	0	1,618,670	
		Cost	0	0	0	0	1,618,670	
	(Contributed	New Work:						
	Funds)	Contrib.	0	0	0	0	30,512	
		Cost	0	0	0	0	30,512	
		Maint:						
		Contrib.	0	0	0	0	55,000	
		Cost	0	0	0	0	55,000	
11.	Waukegan Harbor, IL	New Work:						
	(Federal Funds)	Approp.	0	0	0	0	823,026	10/
	(O&M)	Cost	0	0	0	0	823,026	10/
		Maint:						
		Approp.	773,000	1,055,832	765,000	793,000	19,508,600	11/
		Cost	772,562	1,051,616	763,799	799,271	19,481,579	11/
15.	Casino Beach, IL	New Work:						
	(Federal Funds)	Approp.	0	0	0	0	2,525,000	
	(CG 412-013047)	Cost	0	0	0	0	2,465,517	
	(Contributed	New Work:						
	Funds)	Contrib.	333,395	0	0	0	2,499,481	
		Cost	333,395	0	0	0	2,449,481	
16.	Chicago Shoreline, IL	New Work:						
	(Federal Funds)	Approp.	16,539,000	20,193,000	25,626,000	20,404,000	114,489,800	
	(CG 412-013099)	Cost	24,018,363	20,220,973	25,450,497	20,547,975	114,427,737	
	(Contributed	New Work:						
	Funds)	Contr.Credits	4,900,000	1,750,000	25,334,136	23,450,479	55,434,615	
		Cost	4,900,000	1,750,000	25,334,136	21,475,672	53,459,808	
17.	Illinois Beach State	New Work:						
	Park, IL	Approp.	(1,292)	182,121	126,121	25,000	345,150	
	(Federal Funds)	Cost	0	0	123,074	33,073	168,055	
	(GI 132-079225							
18.	Indiana Dunes National	New Work:						
	Lakeshore, Beverly	Approp.	0	0	0	0	660,000	
	Shores, IN	Cost	0	0	0	0	660,000	
	(Federal Funds)	Maint:						
	(O&M)	Approp.	0	0	0	0	2,296,000	
		Cost	5,802	0	0	0	2,296,000	

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
19.	Indiana Shoreline	New Work:					
	Erosion, IN	Approp.	33,000	838,000	840,000	815,000	10,357,800 12/
	(Federal Funds)	Cost	221,338	815,267	156,054	1,459,247	10,287,046 12/
	(CG 411-013038)						
22.	Chicago River North	New Work:					
	Branch, IL	Approp.	0	0	0	0	191,884
	(Federal Funds)	Cost	0	0	0	0	191,884
	(O&M)	Maint:					
		Approp.	41,000	113,500	2,000	0	2,768,850
		Cost	41,561	112,519	2,770	0	2,768,632
	(Contributed	New Work:					
	Funds)	Contrib.	0	0	0	0	40,000
		Cost	0	0	0	0	40,000
		Maint:					
		Contrib.	48,000	0	0	0	1,785,441
		Cost	21,364	121,403	30,977	0	1,775,175
23.	DesPlaines River (PED), IL	New Work:					
	(Federal Funds)	Approp.	346,000	539,000	0	0	933,968
	(GI ; 451- & 651-)	Cost	334,617	484,714	65,847	1,539	933,536
		New Work:					
	(Contributed	Contrib.	87,129	227,860	100,000	0	414,989
	Funds)	Cost	84,409	178,843	47,548	81,257	392,057
	(CG 511-010249)	New Work:					
	(Federal Funds)	Approp.	0	0	220,000	131,000	399,968
		Cost	0	0	177,105	69,298	293,222
	(Contributed	New Work:					
	Funds)	Contrib.	0	0	0	0	0
		Cost	0	0	0	0	0
24.	Lake George, Hobart, IN	New Work:					
	(CG 511-008196)						
	Federal Funds	Approp.	(3,484,000)	0	0	0	1,320,000
		Cost	0	0	0	0	1,311,977
25.	Little Calumet River, IN	New Work:					
	(Federal Funds)	Approp.	8,061,000	8,289,000	5,695,000	3,542,000	88,761,300 13/
	(CG 511-075325)	Cost	10,332,244	8,570,093	4,761,653	4,347,312	88,548,555 13/
	(Contributed	New Work:					
	Funds Required)	Contrib.	400,000	540,272	350,000	316,000	7,111,872
		Cost	704,323	599,185	369,934	381,690	7,099,561
	(Non-Federal	New Work:					
	Improvements)	Contrib.	550,000	591,000	0	0	2,207,500
		Cost	477,000	671,918	0	0	2,196,677

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
26.	Little Calumet River,	New Work:					
	Cady Marsh Ditch, IN	Approp.	0	350,000	106,600	1,138,000	2,936,600
	(CG 511-012385)						
	(Federal Funds)	Cost	129,065	77,791	341,459	271,390	2,028,414
27.	McCook and Thornton	New Work:					
	Reservoirs, IL	Approp.	3,859,000	5,362,000	11,195,600	11,415,000	57,113,600
	(Federal Funds)	Cost	4,457,250	5,433,534	11,072,469	11,352,631	56,916,285
	(CG 511-012574)	New Work:					
	(Contributed	Contrib.	6,000,000	1,625,000	3,465,000	13,300,000	24,390,000
	Funds)	Cost	1,352,530	3,337,720	1,715,102	12,806,005	19,211,357
28.	North Branch	New Work:					
	Chicago River, IL	Approp.	1,100,000	2,565,000	200,000	(58,000)	25,012,500 14/
	(Federal Funds)	Cost	1,182,608	2,664,082	205,129	24,628	25,006,426 14/
	(CG 511-075311)						
	(Contributed	New Work:					
	Funds Required)	Contrib.	(37,422)	0	0	0	2,259,832
		Cost	(38,167)	0	0	0	2,259,085
	(Non-Federal	New Work:					
	Improvements)	Contrib.	(1,078)	1,080	0	0	550,102
		Cost	0	1,079	0	0	550,101
	(Non-Federal Lead	New Work:					
	Shot Clean-up)	Contrib.	0	1,242,100	0	0	7,577,270
		Cost	0	1,256,534	0	0	7,576,668
	(Non-Federal	New Work:					
	Impact Assessment)	Contrib.	0	0	0	0	38,500
		Cost	0	0	0	0	38,500
	(Non-Federal	New Work:					
	Res. 27 IL Tollway)	Contrib.	0	0	0	0	11,166
		Cost	0	0	0	0	11,166
29.	O'Hare Reservoir, IL	New Work:					
	(Federal Funds)	Approp.	(380,000)	275,000	300,000	0	31,572,000
	(CG 511-012412)	Cost	(314,661)	196,425	393,929	8,112	31,566,944
	(Contributed	New Work:					
	Funds Required)	Contrib.	70,000	0	0	0	5,131,200
		Cost	153,268	10,382	40,698	0	4,664,510
	(Non-Federal	New Work:					
	Improvements)	Contrib.	0	0	0	0	2,810,000
		Cost	20,524	0	0	0	2,625,481

TABLE 22-A COST AND FINANCIAL STATEMENT

1 Includes $855,973 for previous projects.
2 Excludes contributed funds in settlement pursuant to decree (No. 54-C-1608) regarding removal of flue dust and includes $45,230 for previous projects.
3 Includes $689,001 in settlement pursuant to decree regarding removal of flue dust.
4 Includes $446,005 for previous projects.
5 Includes $955,886 for previous projects.
6 Includes $109,463 for previous projects.
7 Includes $60,668 for previous projects.
8 Includes $2,509 for previous projects.
9 Includes $287,389 for previous projects.
10 Includes $218,233 for previous projects.
11 Includes $15,711 for previous projects.
12 Includes $107,000 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.
13 Includes $670,529 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.
14 Includes $489,310 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	BURNS WATERWAY HARBOR, IN (See Section 1 and 3 of Text)	
Oct. 27, 1965	Provides for breakwater and channel to present dimensions and depths, a north breakwater, west bulkhead, approach channel and outer harbor, east and west harbor arms.	Public Law, 89-298, H. Doc. 160. 88th Cong., 1st Sess.
	BURNS WATERWAY SBH, IN (See Section 2 of Text)	
Jul. 14, 1960 Sec. 107	Provides for a 700-foot north breakwater, a 950-foot west breakwater an entrance channel 11-feet deep, a harbor-of-refuge area 10 feet deep and a channel in Burns Waterway 6 feet deep.	Detailed Project Report detailed February 1983.
	CALUMET HARBOR AND RIVER, IL AND IN (See Section 4 of Text)	
Mar. 3, 1899	Outer harbor protected by breakwaters.	Annual Report, 1896, pp. 2584 et Seq. and H. Doc. 277, 54th Cong., 1st Sess.
Jun. 13, 1902		
Mar. 3, 1905	Five turning basins.	H. Doc. 172, 54th Cong., 2nd Sess.
Jun. 25, 1910	Provided for shape and dimensions of turning basins.	H. Doc. 346, 60th Cong., 1st Sess.
Sep. 22, 1922	Consolidated the two projects for Calumet Harbor and Calumet River.	
Aug. 30, 1935[1,2]	Detached breakwater, dredging outer harbor to existing project depth and dimensions; deepen river entrance channel and river to existing project depths; widen and straighten river channel; five turning basins to same depth as adjacent channel.	H. Doc. 494, 72nd Cong., 2nd Sess.
Aug. 30, 1935	Dredging area A and B in south end of Lake Calumet and an entrance channel 300 feet wide and 21 feet deep.	H. Doc. 180, 73rd Cong., 2nd Sess.
Mar. 2, 1945[3]	An approach channel to harbor 3,200 feet wide and 28 feet deep through shoals outside breakwater and closing existing gap between breakwaters.	H. Doc. 233, 76th Cong., 1st Sess.
Jul. 14, 1960[13]	Depth of 29 feet in lake approach to 28 feet in outer harbor, and 27 feet in river entrance up to E.J. & E. Ry. Bridge.	H. Doc. 149, 86th Cong., 1st Sess.[8]
Oct. 23, 1962[13]	Deepen, widen and straighten channel in Calumet River from E.J. and E. Ry. Bridge, to and including turning basins 1, 3 and 5 to 27 feet; enlarge turning basins 3 and 5; channel into Lake Calumet to 27 feet deep for 3,000 feet and a width of 1,000 feet; and eliminate turning basins 2 and 4 from project.	H. Doc. 87th Cong., 2nd Sess.[5]
Oct 27, 1965[13]	Modification of Act of Oct 23, 1962. Protection for Elgin, Joliet and Eastern Railway Bridge over the Calumet River, to permit dredging to full width of the south draw to depth of 27 feet, and temporary protection for center pier and south abutment of the New York, Chicago and St. Louis Railroad Bridge (Nickel Plate) to permit dredging of full width of south bridge draw to depth of 27 feet prior to its replacement.	H.R. 973, 89th Cong., 1st Sess.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	CHICAGO HARBOR, IL (See Section 5 of Text)	
Jul. 11, 1870	Inner breakwaters and inner basin.	H. Ex. Doc. 114, 41st Cong. 2nd Sess. and Annual Report 1870, pp. 1562-1567
Jun. 14, 1880	Exterior breakwater.	Annual Report 1870, pp. 1562-1567
Mar. 3, 1899	Present project depth in basin and entrance to Chicago River.	Annual Report 1897, pp. 2790-2791
Jul. 25, 1912	Shore-arm and southerly extension of exterior breakwater	H.Doc 710, Cong, 2d Sess
Mar. 2, 1919	Modification of area to be dredged in inner basin.	H.Doc 1303, 64th Cong, 1st Sess.
Mar 3, 1931	Shore-arm extension of exterior breakwater transferred to Lincoln Park Commissioners.	Public Law 797, 71st Cong
Mar. 2, 1945	Resumption of jurisdiction over shore-arm extension breakwater and over certain navigable waters in Lake Michigan which lie in northwestern part of outer harbor.	Public Law 14, 79th Cong.
Oct. 23, 1962	Deepen a lake approach channel to 29 by 800 feet wide for 6,600 feet; deepen channel and maneuver area inside harbor entrance to 28 by 1,300 feet wide.	H.Doc. 485, 87th Cong., 2nd Sess.[4]
Dec. 4, 1981 Jul. 30, 1983	Provides for lock operations and maintenance responsibilities in the interests of navigation.	Sec. 107 of P.L. 97-88 P.L. 98-63
	CHICAGO RIVER, IL (See Section 6 of Text)	
Mar. 3, 1899	For project depth of 21 feet in lieu of that fixed by act of Jun 3, 1896.	Specified in act.
Jun. 13, 1902	Turning basins	Specified in act.
Mar. 2, 1907	Interpreted by Chief of Engineers, April 11, 1908, as adopting new work of the then existing project for 21-foot depth.	H. Doc. 95, 56th Cong. 1st Sess. (Annual Report, 1900, p. 3863 and Annual Report 1909, p. 709)
Mar. 2, 1919	Eliminated all work except maintenance of main river.	H. Doc. 1294, 64th Cong. 1st Sess.
Jul. 24, 1946	Dredging channel 9 feet deep to within 30 feet of existing bulkheads and river banks from North Ave. to Belmont Ave., thence 9 feet deep and 50 feet wide to Addison St.	H. Doc 767, 78th Cong., 2nd Sess.[6,7]
	INDIANA HARBOR, IN (See Section 7 of Text)	
Jun 25, 1910	Maintenance of outer harbor. Maintenance of inner harbor channel when deeded free of cost to and accepted by the United States.	H. Doc. 1113, 60th Cong., 2nd Sess.
Mar. 4, 1913	Breakwaters.	H. Doc. 690, 62nd Cong., 2nd Sess.
Mar 2, 1919	Lighthouse crib, present length and alignment easterly and northerly breakwaters.	Rivers and Harbors Committee Doc. 6, 65th Cong., 2nd Sess.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Mar. 20, 1922	Reduce channel length to be maintained in extension to Lake George	Public Law 176, 67th Cong
Mar. 3, 1925	Authorized Secretary of War to modify project so far as relates to length and alignment of breakwaters and to sell Youngstown Steel and Tube Co. about 1,180 linear feet of shoreward end of existing north breakwater.	
Mar. 2, 1929	Accept 2.3 acres of land for construction of the Forks Turning Basin.	
July 3, 1930[10]	Existing project channel width and depth in Lake George Branch and turning basin at the Forks	Rivers and Harbors Committee Doc. 21, 71st Cong., 2nd Sess.
Jul. 30, 1932	Authorized Secretary of War to sell to Inland Steel Co., about 1,903 linear feet of southerly end of existing east breakwater.	Public Law 219, 72nd Cong.
Aug. 30, 1935[11]	Extended easterly breakwater, dredge entrance channel and outer harbor, deepen channel between bulkhead fills, widen main stem of canal and portion of Calumet River Branch to 141st St.	Rivers and Harbors Committee Doc. 29, 72nd Cong., 1st Sess.
Aug. 28, 1937	Modified conditions of local cooperation required before enlargement of Indiana Harbor Canal is undertaken by United States.	Rivers and Harbors Committee Doc. 13, 75th Cong., 1st Sess.
Jul. 14, 1960	Increase authorized depths of 29 feet in outer harbor entrance channel, 28 feet in outer harbor and 27 feet in canal entrance channel to first E. J. and E. Ry. Bridge.	H. Doc. 195, 86th Cong. 1st Sess.
Oct. 27, 1965[12]	Deepen main canal from landward end of canal entrance channel to a point lakeward of Dickey Place Bridge over a modified channel width of 190 feet, except through bridge openings.	H. Doc. 227, 89th Cong. 1st Sess.
	INDIANA HARBOR CDF, IN (See Section 8 of Text)	
	LAKE MICHIGAN DIVERSION (See Section 9 of Text)	
Nov. 17, 1986	Responsible for monitoring of Lake Michigan Diversion.	Section 1142, WRDA of 1986
	MICHIGAN CITY HARBOR, IN (See Section 10 of Text)	
	East breakwater and old east pier enclosing the outer basin.	Recommendations of a Board of Engineers, Annual Report 1870, p. 123.
	Extension of east pier.	Reports of Boards of Engineers, Annual Rpt 1851, pp. 2187-2189; Annual Report 1882, p. 2264-2266.
Mar, 3, 1889	Extend east pier and construct detached breakwater.	Annual Report 1897, pp. 2903-2904.
Mar 3, 1905	Lower turning basin. Rebuild west pier as at present location. Present project dimensions of entrance channel.	Joint Resolution of Cong. approved May 13, 1908. Public Law 23.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Jun. 21, 1927	Existing project depth in channel, and in lower and middle turning basins, eliminated improvement of Trail Creek above middle turning basin and uncompleted portion of detached breakwater, abandonment of old east breakwater and old east pier enclosing outer basin.	H. Doc. 279, 69th Cong., 1st Sess.
Aug. 30, 1935	Restore and repair westerly 1,000 feet of east breakwater, dredging outer basin and enlarging entrance to basin through east pier.	River and Harbors Committee Doc 34, 74th Cong., 1st Sess.
Jul. 14, 1960 Sec. 107	Dredge river channel 50 feet wide and 6 feet deep from upper turning basin to E. Street Bridge.	Detailed Project Report dated June 1965[8].
	WAUKEGAN HARBOR, IL (See Section 11 of Text)	
Jun. 14, 1880	Parallel piers and basins.	Annual Rpt 1880, p. 142
Aug. 3, 1882	Modified location of harbor entrance.	Annual Report 1882, pp. 277, 2162.
Jun. 13, 1902	Detached breakwater, extend piers, increase width of harbor at inner end of north pier and dredge channel and basin to depth of 20 feet.	H. Doc. 343, 56th Cong., 1st Sess.
Jul. 3, 1930	Extension of breakwater to shore, dredging near outer end of north piers and enlarging inner basin.	Rivers and Harbors Committee Doc 27, 71st Cong., 2nd Sess.
Mar. 2, 1945	Dredge an entrance channel to existing project dimensions from outer end of north pier to project depth in lake and dredge an anchorage area in southwest corner of inner basin to existing project depth. Abandonment of dredging triangular area in southwest corner of inner basin to 18 feet deep.	H. Doc. 116, 77th Cong., 1st Sess.
Dec. 17, 1970 Sec. 201 Oct. 27, 1965	Provides for deepening the existing entrance channel in the outer harbor to 25 feet and extending to the depth in Lake Michigan, at widths varying from 380 feet to 500 feet; deepening the channel between piers to a depth of 23 feet at a width of 180 feet and deepening the inner basin to 23 feet and extending its limits approximately 275 feet northward.	H. Doc. 368, 90th Cong., 2nd Sess.
	CASINO BEACH, IL (See Section 15 of Text)	
Nov. 17, 1986	Provides for encasing approximately 1,800 feet of the existing Casino Beach jetty in steel sheet piling and a concrete cap and replacing beach fill.	Feasibility Report dated Feb. 1983.
	ILLINOIS BEACH STATE PARK, IL (See Section 17 of Text)	
Nov. 17, 1986	Provides for 46 offshore breakwaters approximately 150 feet long, initial beach nourishment of 100,000 cubic yards and periodic nourishment of 100,000 cubic yards at 5-year intervals.	Feasibility Report dated June 1982.

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	INDIANA DUNES NATIONAL LAKESHORE, BEVERLY SHORES, IN (See Section 18 of Text)	
Dec. 4, 1981	Provides for emergency shore protection repairs to stone revetment initially constructed in 1973.	Public Law 97-88
Jul. 30, 1983	Provides for operations and maintenance of shore protection measures.	Public Law 98-63
	INDIANA SHORELINE EROSION, IN (See Section 19 of Text)	
Nov. 17, 1986	Beach nourishment of 2-mile reach of shore west of Michigan City Harbor, Indiana	Sec. 501, WRDA 1986
	DES PLAINES, IL (See Sections 23 of Text)	
Aug. 17, 1999	Project has six structural features: Prospect Heights (Levee 37), Des Plaines (Levee 50), Big Bend Lake expansion, North Fork Mill Creek dam raise, Buffalo Creek expansion, Van Patten Woods lateral storage area.	Sec. 101, WRDA 1999
	LAKE GEORGE, HOBART, IN (See Section 24 of Text)	
Nov. 17, 1986	Removal of silt, aquatic growth and construction of silt traps.	Sec. 602, WRDA 1986.
	LITTLE CALUMET RIVER, IN (See Section 25 of Text)	
Nov 17, 1986	Provides for levee construction, a diversion control structure at the mouth of Hart Ditch. Permanent evacuation of a portion of the Black Oak area of Gary and non-structural flood proofing measures in Gary.	Sec. 401, WRDA 1986
	LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN (See Section 26 of Text)	
Nov. 17, 1986	Widening and deepening 1,250 feet of Cady Marsh Ditch, installing 4,880 feet of pipe and excavating 2,850 feet of open channel.	Feasibility Report dated April 1984
	McCOOK AND THORNTON RESERVOIRS, IL (See Section 27 of Text)	
Nov. 17, 1988	Provides for construction of two floodwater storage reservoirs in the quarries of the same name.	Sec. 3, WRDA 1988
	NORTH BRANCH CHICAGO RIVER, IL (See Sections 22 and 28 of Text)	
Nov. 17, 1986	Construction of three reservoirs and reimbursement to locals for 50% of the costs of Techny and Mid-Fork Reservoirs	H. Doc. 100-72, 100th Cong., 1st Sess., Sec. 401, WRDA 1986.
Dec. 31, 1970	Clearing fallen trees, roots and other debris and objects which contribute to flooding.	River and Harbor Act (Sec. 116)

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	O'HARE RESERVOIR, IL (See Section 29 of Text)	
Nov. 17, 1986	Provides for a 1,050 acre-foot excavated reservoir.	Sec. 401, WRDA 1986

1. Included in Public Works Administrative Program Sep. 6, 1943 and Dec. 16, 1933.
2. Uncompleted portion was deauthorized in 1977 (dredging in front of U.S. Steel Corp.)
3. Uncompleted portion was deauthorized in 1977 (breakwater closure).
4. Contains latest map of harbor. Uncompleted portion is inactive.
5. Contains latest map of river.
6. Latest published map is in Annual Report for 1914, opposite p. 2928.
7. Contains latest published map of North Branch above North Ave.
8. Contains latest published map.
9. Completed under previous project.
10. Uncompleted portion was deauthorized in 1977 (widen and deepen Lake George Branch).
11. Include in Public Works Administration Program Sep. 6, 1933 and Jul. 25, 1934. Uncompleted portion was deauthorized in 1977 (widen and deepen main canal and Calumet River Branch).
12. Project deauthorized in 1977.
13. Project deauthorized in 1989.

TABLE 22-C EXISTING NAVIGATION PROJECTS

Section In Text	Project	Item	Length (feet)	Width (feet)	Depth (feet)
1.	Burns Waterway Harbor, IN	North Breakwater	4,630	____	____
		West Breakwater	1,200	____	____
		Approach Channel	2,200	400	30
		Outer Harbor	3,700	Varies	28
		East Harbor Arm	2,100	620	27
		West Harbor Arm	3,800	620	27
2.	Burns Waterway SBH, IN	North Breakwater	678	____	____
		West Breakwater	1,043	____	____
		Approach Channel	1,200	200	11
		Burns Waterway	5,593	100	9
4.	Calumet Harbor and River, IL and IN	Northerly Crib Breakwater	6,714	____	____
		Southerly Steel Breakwater	5,007	____	____
		North Pier	2,450	____	____
		Chicago Confined Disposal Facility	2,979	____	____
		Approach Channel	9,700	3,200	29
		Outer Harbor	10,500	3,000	28
		River Entrance	3,000	290	27
		Elgin, Joliet & Eastern Railway Bridge to turning basin No. 3	21,000	200	27
		Turning Basin No. 3 to Turning Basin No.5	8,000	Variable	27
		Approach into Lake Calumet	4,000	400	27
		Extension in Lake Calumet	3,000	1,000	27
		Turning Basins 1, 3 and 5	____	____	27
5.	Chicago Harbor, IL	Shore Arm Extension	2,250	____	____
		Exterior Breakwater	5,421	____	____
		Exterior Breakwater Southerly Extension	4,944	____	____
		North Inner Breakwater	4,034	____	____
		South Inner Breakwater	2,544	____	____
		North Pier	960	____	____
		Approach Channel	6,600	800	29
		Channel and maneuver	2,200	1,300	28
		Lock	600	80	23
		Inner Basin	1,270	740	21
		Entrance Channel	7,300	190-470	21
6.	Chicago River, IL	Main Branch of Chicago River	3,800	190-390	21
		North Branch of Chicago River	11,100	91-390	21
		North Branch Canal	5,500	56-210	21
		North Branch Turning Basin	____	____	21

TABLE 22-C EXISTING NAVIGATION PROJECTS

Section In Text	Project	Item	See	Length (feet)	Width (feet)	Depth (feet)
7.	Indiana Harbor, IN	Northerly Breakwater		1,120	____	____
		Easterly Breakwater		2,525	____	____
		Approach Channel		7,200	800	29
		Outer Harbor		7,200	Varies	28
		Entrance Channel		3,600	65-280	27
		Main Channel		7,400	61-210	22
		Turning Basin		____	____	22
		Lake George Branch		3,700	64-160	22
		Calumet River Branch		2,500	160-260	22
9.	Michigan City Harbor IN	Detached Breakwater		1,304	____	22
		West Pier		835	____	____
		East Pier	2,276	____	____	
		East Breakwater		1,000	____	____
		Entrance Channel		1,900	150-425	18
		Main Channel		2,400	120-150	18
		Outer Basin		900	900	8-12
		Trail Creek		3,000	50-100	8
		Trail Creek		2,300	50	6
10.	Waukegan Harbor, IL	North Breakwater and Shore Connection		1,896	____	____
		North Pier into North Revetment		2,074	____	____
		South Pier		3,111	____	____
		Entrance Channel		3,250	390	22
		Channel to Inner Basin		1,700	200	18
		Inner Basin		1,650	375-500	18
		Anchorage Area		____[1]	____[1]	8

[1]Area of about 6 acres.

TABLE 22-D OTHER AUTHORIZED BRIDGE ALTERATION

Project	Full Report See Annual Report For	Cost to September 30, 2003 For Last Construction	Cost to September 30, 2003 For Last Operation and Maintenance
Calumet River Bridges[1]	1967	$1,625,068	____

[1]Transferred to Department of Transportation in accordance with Section 6(g) of the Act of October 16,1966. P.L. 89-670

TABLE 22-E OTHER AUTHORIZED BEACH EROSION PROJECTS

Project	Full Report See Annual Report For	Cost to September 30, 2003 For Last Construction	Cost to September 30, 2003 For Last Operation and Maintenance
Mt. Baldy, Indiana Dunes National Lakeshore, IN	1984	$1,500,000	____
Hollywood-Ardmore Beach, Chicago, IL	1982	237,271	____
Evanston, IL	1979	766,052	____
Lake Michigan-Lake Bluff, IL	1976	244,889	____
Lake Michigan-Lake Forest, IL[1]	1975	65,611	____
Illinois Shore of Lake Michigan, Kenilworth, IL[2]	1975	5,200	____

[1]Authorized by River and Harbor Act of 1954.
[2]Uncompleted portion deauthorized in 1977.

TABLE 22-F OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Full Report See Annual Report For	Cost to September 30, 2003 For Last Construction	Cost to September 30, 2003 For Last Operation and Maintenance
Lake Michigan, Edgewater/Rogers Park Communities, Chicago, IL	1989	$2,062,347	____
Little Calumet River, IL	1984	583,000	____
Kankakee River Ice Management	1993	44,791	____

TABLE 22-G DEAUTHORIZED PROJECTS

	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Illinois Shore of Lake Michigan, Winnetka, IL	1975	1977	----	----
Illinois Shore of Lake Michigan, Chicago, IL	1975	1977	----	----
Kankakee River, IL and IN				
Levee between Shelby Bridge and Baum's Bridge in IN	1938	Nov 17, 1986	----	----
Little Calumet River, IL and IN				
Little Calumet River and Tributaries, IL and IN	1968	Nov 17, 1986	53,136	----
Calumet Harbor and River, IL and IN				
Widening and straightening the Calumet River in the vicinity of 106th Street and closing the gap between breakwaters, and dredging minor shoals in the outer harbor.	1990	Jan 1, 1990	----	----
Wilmington Ice Control Demonstration	----	Nov 18, 1991	----	----

NASHVILLE, TN DISTRICT

This district comprises portions of southern Kentucky, southwestern Virginia, western North Carolina, northern Georgia and Alabama, northeastern Mississippi and practically all of Tennessee except western portion, and embraces drainage basins of Tennessee and Cumberland Rivers and their tributaries.

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NAVIGATION

1. CUMBERLAND RIVER, TN AND KY

Location. Formed by junction of Poor and Clover Forks in Harlan County, KY, about 694.2 miles above its mouth, and flows west to Burnside, KY, from whence it makes a loop southwestward into Tennessee, passes Nashville, and returns northwestward to Kentucky, emptying into Ohio River near Smithland, KY (See Geological Survey base maps of Tennessee and Kentucky.)

Previous projects. For details see pages 1898 and 1901 of Annual Report for 1915, and page 1208 of Annual Report for 1938, and pages 1069 and 1070 of Annual Report for 1962.

Existing project. For details, see Annual Report for FY02.

Local cooperation. Under modified project for 9-foot navigation and multiple-purpose development, recreation features of reservoir components are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Terminal facilities. There are 42 terminals on the Cumberland River (5 Municipally owned and open for public use; 5 government owned facilities and 32 privately owned facilities). A total of 18 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sands, gravel, coal, coke, iron, steel, chemicals and grain. Facilities considered adequate for existing commerce. For further information see page 695 of Annual Report for 1969.

Operations during fiscal year. New work: None. Maintenance: Operations and Maintenance improvements included replacement of the electrical & hydraulic systems at Cheatham Lock. Major rehab studies were continued for Barkley Power Plant and Old Hickory Power Plant. Cheatham Lock was dewatered for repairs. Canal Recreation Area on Lake Barkley had several improvements for the Lewis and Clark Commemoration. Work was begun for facility protection improvements at Barkley and Old Hickory. An estimated 22 million tons of commodities were locked through the Cumberland River Locks. Commercial lockages were approximately 4,500 and 5,000 recreational craft were also locked through. Total sales energy generated at Barkley Dam (953,443,293 kw-hr) was made available through Southeastern Power Association to the Tennessee Valley Authority, Southern Illinois Power Cooperative, Big Rivers Rural Electric Cooperative Corporation, and Indiana Statewide Rural Electric Cooperative, Inc., Hoosier Energy Division. Total sales energy generated at Cheatham Dam (221,533,120 kw-hr), Cordell Hull (479,584,943 kw-hr), and Old Hickory (610,648,370 kw-hr) was made available for distribution. Activities under reservoir management program comprising malaria control, shoreline sanitation, land management and disposal, and maintenance of public-use facilities continued.

2. KENTUCKY LOCK ADDITION, KY

Location. Kentucky Lock and Dam is located in western Kentucky at Mile 22.4 of the Tennessee River between Livingston and Marshall Counties.

Existing Project. Kentucky L&D was completed in 1945 by the Tennessee Valley Authority. TVA continues to operate the dam and powerhouse while operation of the 110'x600' navigation lock is the responsibility of the Nashville District. Products from 20 states pass through the system of Kentucky and Barkley Locks, the lower-most locks on the Tennessee and Cumberland Rivers, respectively. Over 80% of the commercial tows hauling these products pass through KY Lock instead of Barkley Lock because of difficult and costly navigation on the Cumberland River below Barkley. Since most of the tows are greater than 600' in length, they must perform a time-consuming double lockage to transit through the existing 600' long KY Lock. This results in average delays between three to five hours per tow under existing traffic levels. Since the traffic levels are expected to grow in the near future, these delays will also increase. The last traffic forecast developed in 1995 estimated that 43 M tons of products would be transported through the Kentucky-Barkley system in the year 2000. Actual tonnage for the system in 1997 was 43.5 M tons and has leveled out and decreased slightly over the few years since. It costs a tow about $400/hour to wait in line at the lock. Construction of a new 1200' lock would eliminate the delay time in the near term and drastically shorten it for forecasted traffic levels past the year 2020.

Project Description. The 1992 Kentucky Lock Feasibility report recommended a new 110' X 1200' lock adjacent and landward of the existing 110' X 600' lock. The project was authorized for construction in WRDA 96. Average annual benefits attributed to a new lock are $71M (Oct. '03). Most of these benefits are associated with improving the performance of the lock by reducing traffic delays and disruptive lock outages for maintenance and major rehabilitation work. Based on an estimated construction cost of $579M (Oct. '02), the new lock project has a Benefit/Cost ratio of 2.2 (@5.875%). Other project features in addition to the new lock itself are three major relocation efforts: 1) four large TVA transmission towers, 2) about 2 miles of the Paducah and Louisville Railway, including a major river bridge, and 3) about 2 miles of U.S. Highway 62, also on a new major river bridge.

Operations during fiscal year. FY 2003 funding of $23.1M was used to advance the design of the project, complete one construction contract, and continue construction on three contracts: 1) the West Bank Approaches to the Tennessee River Bridges (99% complete), 2) the Tennessee River Bridges' Substructures (47% complete), and 3) the Upstream Cofferdam (45% complete). The Benton Wetlands Mitigation construction was completed in FY 03. Significant design activities that were progressed in the FY include design of the lock including advancements in site development, site utilities, upstream lock excavation, wall monoliths, materials testing, and electrical/mechanical features. The Railroad and

Highway Superstructure Plans and Specifications were advanced to the 90% level.

3. TENNESSEE RIVER, TN, AL AND KY

Location. Formed by junction of French Broad and Holston Rivers in eastern Tennessee, 4.4 miles above Gay Street Bridge at Knoxville, flows southwest into northern Alabama, thence in a generally westerly course across north Alabama, to northeast boundary of Mississippi, thence nearly due north across Tennessee and Kentucky, entering Ohio River at Paducah, 652.1 miles from junction of French Broad and Holston Rivers. (See Geological survey base map of Tennessee River Basin.)

Previous projects. For details see pages 1902-1906, Annual Report for 1915; pages 1190-1194, 1196-1216, and 1220-1222, Annual Report for 1929; and page 1216, Annual Report for 1938.

Existing project. Originally provided for permanent improvement of river for a navigable depth of 9 feet at low water from mouth about 650 miles to Knoxville, TN. Only work performed by the Corps was construction of locks at General Joe Wheeler Dam and Wilson Dam. Tennessee Valley Authority program provided for obtaining authorized 9-foot project by construction of high dams and locks and utilization of certain locks and dams previously constructed under jurisdiction of the Corps. (See Table 23-B for Authorizing Legislation.) Subsequent construction by the TVA of Melton Hill Dam extends navigable channel of Tennessee River system up the Clinch River about 38 miles above damsite (mile 23.1) to vicinity of Clinton, TN. (See table 23-I on Tennessee River.) In accordance with general navigation laws placing control and supervision over navigable waters under direction of Secretary of the Army, the Corps of Engineers operates and maintains all locks, and maintains navigation channels and safety harbors by performing all necessary maintenance dredging and snagging operations. For information concerning other functions of the Corps under division of responsibilities for Tennessee River since adoption of Tennessee Valley Authority Act of 1933, see page 1084 of Annual Report for 1962.

Local cooperation. Authorization requires no local cooperation in construction of alternate system of low dams. It does, however, provide that if high dams are built before the United States builds projected locks and low dams which are to be replaced, the United States shall contribute to cost of substituted structures an amount equal to estimated cost of works of navigation for which substitution is made.

Terminal facilities. There are 150 terminals on the Tennessee River (13 municipally owned, 15 government owned facilities and 122 privately owned facilities). A total of 79 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sand, gravel, coal, coke, grain, chemicals, iron, and steel. Facilities considered adequate for existing commerce. A list of terminals is revised annually and can be obtained from Division Engineer, Ohio River Division, Corps of Engineers, Cincinnati, Ohio. For further information see page 698 of Annual Report for 1969.

Operations during fiscal year. Channel work by government plant and hired labor consisted of dredging and snagging at various locations, and maintenance of mooring facilities and safety harbors. Cost of channel maintenance was $2,289. Maintenance: Major maintenance included dewatering and repairs to Wilson Main and Pickwick Main Locks. Mooring cells were replaced at mile 470.9 and 529.7. Approximately 1,000 cubic yards of silt was removed from Florence Port, mile 256.5, and placed upland by hired labor channel maintenance dredging. An estimated 45 million tons of commodities were locked through the Tennessee River Locks. Commercial lockages were approximately 23,000 and 17,500 recreational craft were also locked through. The long-term program to maintain Chickamauga Lock was continued. Maintenance to keep the lock operational included the design and installation of a sump pump/ventilation system, installation of grated walkways over the lock, and widening of the access ramp onto the lock. Phase-II as-builts drawings were also updated to keep track of the changes made on the lock.

4. TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS

Location. West Central Alabama and Northeastern Mississippi; in Marengo, Sumter, Greene and Pickens Counties, Alabama, and Noxubee, Lowndes, Clay, Monroe, Itawamba, Prentiss and Tishomingo Counties, Mississippi.

Existing project. For details, see Annual Report for FY02.

Local cooperation. Authorization requires local interests to construct, maintain and operate all highway bridges, construct and maintain all highway relocations or alterations, make and maintain alterations as required to sewer, water supply and drainage facilities, assume cost of operation and maintenance of utility crossings, provide and maintain as required suitable and adequate river and canal terminals in accordance with plans approved by the Secretary of the Army and the Chief of Engineers.

Operations during fiscal year. The Mobile District is responsible for operation and maintenance of the entire Tennessee-Tombigbee Waterway. The project is 100% complete.

5. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 86-645, as amended (preauthorization).

During the period a total of $100,094 were expended for Section 107 projects, $14,612 for Barton Riverfront Park, Muscle Shoals, Al, $34,446 for Point Mallard Park, Decatur, AL, $11,855 for Tennessee River, Bridgeport, AL, $34,257 for Tri-State Commerce Park, Luica, MS and $4,924 in the coordination account.

ALTERATION OF BRIDGES

6. AUTHORIZED ALTERATION OF BRIDGES

Work on Woodland Street Bridge, under Truman-Hobbs Act, was initiated in 1965 and completed in 1966. Costs were $987,632. For details see page 922 of Annual Report for 1967.

FLOOD CONTROL

7. BIG SOUTH FORK NATIONAL RIVER AND RECREATIONAL AREA, KY AND TN

Location. The project is located in Northeastern Tennessee and Southeastern Kentucky along the Big South Fork River and its tributaries in Pickett, Scott, Fentress, and Morgan Counties, Tennessee, and McCreary County, Kentucky.

Existing project. A National River and Recreation Area was established in accordance with the concept included in the interagency report prepared pursuant to section 208 of Flood Control Act of 1968. Total acreage was not to exceed 125,000 acres. The act specifically established the National Area for the purpose of preserving and interpreting the scenic, biological, archeological and historical resources of the river gorge area and developing the natural recreational potential of the area. The project was authorized by the Water Resource Development Acts of 1974, 1976, and 1986. (See table 23B for authorizing legislation). The authorized cost (ceiling) for the project was $156,122,000. $112,588,920 was appropriated to the Corps of Engineers for design and construction of park facilities. The first construction contract was awarded in June 1981. By Memorandum of Agreement dated 1 October 1990 jurisdiction of the area was transferred to The Department of Interior.

Local cooperation. None required.

Operation during fiscal year. The Memorandum of Agreement between the Department of Army and the Department of Interior, transferring jurisdiction of the Big South Fork National River and Recreation Area, itemized activities to be completed by the Army. No construction items were completed this fiscal year.

8. BLACK FOX, MURFREE, AND OAKLAND SPRINGS, TN

Location. Black Fox, Murfree, and Oaklands Springs, wetlands lie in Murfreesboro, Tennessee.

Existing project. Project features include trails, boardwalks, observation platforms, parking, removing exotic invasive vegetation, and planting native species. At Oaklands, the existing ante-bellum mansion will be enhanced by planting tree species native to Tennessee. Ecosystem restoration features include the creation of additional wetlands and in-stream structures. Murfree Springs plans include demolishing several existing buildings to provide space for an environmental education center and creating additional wetland habitat. Only ecosystem restoration measures will be constructed at Black Fox. Funding was provided from FY95 thru FY02 for Master Plan, Design, and Construction on Murfree, Oaklands and Black Fox. The Oaklands Phase I and Murfree Springs Phase II contracts were awarded in Sep 01 and construction continued through FY02 and FY03. Construction at Black Fox was initiated in Oct 01 and completed in Dec 02. A supplement to the decision document was completed in May 02 and approved by the Assistant Secretary of the Army for Civil Works in Dec 02.

Local cooperation. The project authorization by WRDA 1996 and the City of Murfreesboro, TN is the local sponsor. Cost sharing is 75% Federal and 25% non-Federal. Real estate costs over 25% will be borne by the Federal Government.

Operations during fiscal year. FY03 appropriations were used to bring the Phase I Oaklands and Phase II Murfree contracts to 99% completion. Design of Oaklands Phase II and Murfree Phase III and the interpretive features was also initiated.

9. HAMILTON COUNTY STREAMBANK STABILIZATION, TN

Location. The project is on the Tennessee River, in central Chattanooga, TN from approximate river mile 464 to 468. The bank stabilization consists of stone protection at 5 sites along this reach of the river.

Existing project: High floodwaters have caused slope failures and erosion along both previously protected and unprotected areas of the riverbank. Endangered facilities include a large interceptor sewer line (which serves a major portion of North Chattanooga), riverwalk trails, observation decks, fishing piers, drain pipes, ramps, power poles, roads, bridge abutments and parks/recreation facilities. Streambank protection is stone armament using graded limestone (referred to as “riprap”).

Local cooperation: WRDA of 1996 authorized $7.5 M (Federal) for Streambank Stabilization. Hamilton County is the project's sponsor; the City of Chattanooga is also sponsoring the project through a separate agreement with Hamilton County. Chattanooga and Hamilton County provided funding to initiate a feasibility study in FY 97 ($150K) under our Work for Others Program. This information was the basis for development of the decision document called a Detailed Project Report (DPR). Congress appropriated $6.0M through $1.5M increments each for FY 98 through FY 01. The Corps has received $4.23M in Federal funds during this time and has expended $4.1M through September 03. We have prepared a Detailed Project Report (DPR) and Environmental Assessment (EA), executed a Project Cooperation Agreement (PCA) and completed construction on 4-1/2 of 5 sites. Sites 1 through 4 (Coolidge Park, Heritage Landing and Manker Patten to Curtis Pole Road) were completed in 2000. Construction was completed on the lower two-thirds of Site 5 - Rivermont Park to Crutchfield Bar during FY 2002.

Operations during fiscal year: The City of Chattanooga Public Works acquired final easements and the construction contract was awarded during FY03.

10. MARTINS FORK LAKE, KY

Location. Dam located at mile 15.6 on Martins Fork of Clover Fork, Cumberland River, about 10 miles southeast of city of Harlan, with reservoir extending about 6 miles upstream within Harlan County, southeastern Kentucky.

Existing project. Multiple-purpose improvement Combining flood control with water quality control and recreation development adopted by 1965 Flood Control Act (H.Doc. 244, 89th Cong.), in general accordance with recommendations. Dam is concrete type, 504 feet long and rising 97 feet above streambed. Outlet works provide for release of water from reservoir at varying levels. Drainage area above damsite is 55.7 square miles. At full pool level, spillway crest at elevation 1341 above mean sea level, reservoir will cover 578 acres and contain 21,120 acre-feet of storage capacity. Provision is made for 17,450 acre-feet of reservoir capacity between elevations 1341 and 1300 for control of floods in winter and spring season, and 14,360 acre-feet (El. 1341-1310) during summer and fall, in conjunction with which storage of 3,090 acre-feet would be available on a seasonal basis to meet streamflow requirements for water quality control and fish life below the dam. A minimum permanent pool of 3,670 acre-feet, 274 acres in extent, is available during the potential flood seasons; and during late spring and summer when flood storage can be reduced, the lake is operated generally at a higher level (El. 1310) to maintain a larger surface area of 340 acres for recreation and provide the required seasonal storage for releases of water during critical low-flow periods. Project prevents a major portion of average annual flood losses at Harlan and results in significant stage reductions with related benefits along rural reaches and to other urban areas downstream. Actual cost of project including $95,000 code 710 funds is $20,479,911. First construction contract awarded in December 1972. Project completed for beneficial use in September 1978.

Local cooperation. Federal Water Project Recreation Act of 1965 (P.L. 89-72) applies in regard to non-Federal participation in recreation development, in addition to which local interests are to provide certain safeguards to ensure functioning of reservoir as intended. In May 1981 a final recreation cost-sharing contract with Harlan County was approved and certain recreation facilities have been jointly developed by the Corps and the County. These facilities, consisting of a swimming beach and a picnic area are now operated and maintained by Harlan County. Recreation investment to date (Corps and Local) is about $100,000.

Operations during fiscal year. New work: None. Maintenance: Only routine maintenance.

11. MIDDLESBORO, CUMBERLAND RIVER BASIN, KY

Location. At Middlesboro, Ky., on Yellow Creek, a tributary entering Cumberland River about 660 miles above its mouth.

Existing project. A system of canals and levees around one side of town, arranged so as to divert most headwaters of Yellow Creek away form present channel through heart of city. Protection is thus afforded in large measure to life and property within business district and a large part of residential section. For project details, see page 1088 of Annual Report for 1962.

Local cooperation. None required.

Operations during fiscal year. New work: None. Maintenance: Only routine maintenance.

12. TUG AND LEVISA FORKS OF THE BIG SANDY RIVER AND UPPER CUMBERLAND, WV, VA AND KY

Location. The project is located in the State of West Virginia and the Commonwealths of Kentucky and Virginia. The Cumberland portion consists of the Upper Cumberland River Basin, above Cumberland Falls, KY. The basin is approximately 100 miles in length, averaging 30 miles in width at the lower portion and 10 miles in width upstream at Harlan KY. The Big Sandy Basin is within the Huntington District and the Cumberland within the Nashville District.

Existing project. Provides for flood control measures for communities in the Tug and Levisa Forks and Upper Cumberland River Basins. The Cumberland portion has been assigned to the Nashville District. Only activities of the Nashville District are reported herein. Estimated Federal cost of new work under jurisdiction of the Nashville District is $474,616,000. The project was authorized by the Energy and Water Development Appropriation Act of 1981, Section 202 of PL 96-367.

Local cooperation. Flood protection cost for Williamsburg, Middlesborough and Clover Fork, KY are shared with their sponsors in accordance with provisions defined by WRDA, 1986. The sponsor has responsibility to operate and maintain such works upon completion of construction.

Operations during fiscal year. Project construction at Middlesborough is near completion. Nonstructural evacuations and floodproofings continued at the communities along the Clover Fork of the Cumberland River.

13. OHIO RIVER BASIN (NASHVILLE DISTRICT)

Location. A series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Nashville District.

Existing project. The general comprehensive plans approved for flood control and other purposes in Ohio River Basin is set forth in legislation listed in Table 23-B. Individual projects, local protection projects and lakes,

considered in comprehensive plan within Nashville District are listed in Table 23-K.

14. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts, requires local interests furnish assurances they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within their respective districts. Maintenance inspections were made during fiscal year of completed protective works in localities transferred to local interests for maintenance and operation. Local interests were advised, as necessary, of measures required to maintain projects in accordance with standards prescribed by regulations. Fiscal year cost was $29,486. Total cost to September 30, 2003 was $613,182. For project inspection data see table 23-M.

15. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control and coastal emergencies (Public Law 99, 84th Cong., and antecedent legislation). Actual Federal cost for the fiscal year was $242,875 for disaster preparedness.

MULTIPLE-PURPOSE PROJECTS, INCLUDING POWER

16. CENTER HILL LAKE, OHIO RIVER BASIN, TN

Location. Dam is on Caney Fork River, 26.6 miles above its confluence with Cumberland River (mile 309.2) at Carthage, TN. It is in DeKalb County, TN., about 55 miles east of Nashville, and 14 miles southeast of Carthage, TN. Reservoir extends about 64 miles up main stream and about 10 miles up Falling Water River and lies within DeKalb, Putnam, White, and Warren Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public use and conservation purposes. In addition to main dam structure, provision was made for a rolled-earth dike to close a saddle in reservoir rim near damsite. For further details, see page 1099 of 1962 Annual Report. Actual cost of project including $8,940,642 code 710 funds is $53,412,022.

Local cooperation. None required on completed project. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structure and its appurtenance maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (455,057,100 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management involved land management, public relations, and maintenance of public use facilities. Operations and Maintenance work included continued investigation of leakage through the rim of the dam. A major rehab study of the power plant was continued.

Dam Safety: No funds were expended during FY03.

17. DALE HOLLOW LAKE, OHIO RIVER BASIN, TN AND KY

Location. Dam is on Obey River, 7.3 miles above its confluence with Cumberland River (mile 380.9) at Celina, TN. It is in Clay County, TN, and about 80 miles northeast of Nashville, TN 28 miles north of Cookeville, TN, and 3 miles east of Celina, TN. Reservoir extends about 51 miles up main stream, 10 miles up East Fork, and 6 miles up West Fork of Obey River, and lies within Cumberland and Clinton Counties, KY, and Clay, Pickett, Overton, and Fentress Counties, TN.

Existing project. A concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production with a permanent pool for public use and conservation purposes. See page 1096 of 1962 Annual Report for project details. Cost of project including $2,195,600 code 710 funds and $150,000 non-Federal funds recreation facilities under the completed projects program is $28,317,746.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (154,396,000 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, and management and maintenance of public-use facilities. The bearing blocks on the bridge over the dam were repaired.

18. J. PERCY PRIEST DAM AND RESERVOIR, OHIO, RIVER BASIN, TN

Location. Damsite is on Stones River, 6.8 miles above its confluence with Cumberland River (mile 205.9); in Davidson County, TN.; and about 7 miles east of Nashville, TN. Reservoir extends southeasterly from dam about 32 miles along main stream, 10 miles up East Fork, 6.5 miles up West Fork, and for shorter distances up other tributaries of Stones

River; and lies within Davidson, Rutherford, and Wilson Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control, power production and recreation. For further details see page 703 of 1969 Annual Report. Cost of project including $3,260,400 under code 710 funds and $46,000 non-Federal funds for recreation facilities under the completed projects program is $56,914,039.

Local cooperation. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Total sales energy generated (90,140,800 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, fish and wildlife management, and maintenance of public-use facilities.

19. LAUREL RIVER LAKE, OHIO RIVER BASIN, KY

Location. Damsite is at mile 2.3 on Laurel River, a tributary of Cumberland River, in south-central Kentucky. The two streams meet about 9 miles below Cumberland Falls, a prominent physiographic feature at head of Lake Cumberland, which is formed by Wolf Creek Dam. Reservoir extends 19.2 miles upstream to site of Corbin, KY water-supply dam and lies within Laurel and Whitley Counties.

Existing project. Project approved in general accordance with recommendations of House Document 413, 86th Congress, by 1960 Flood Control Act, as amended by Public Law 88-253, was designed for purposes of flood control, power, and recreation as an integral unit of a coordinated plan for development of water resources of Cumberland River Basin. With the view of net gain in power potential on a system basis, the plan of improvement incorporated appropriate flood control storage in the proposed project and corresponding adjustment in operations of Wolf Creek Dam - Lake Cumberland for flood control and power, which in effect constituted a transfer of reservoir capacity without entailing a change in flood control benefits. Further detailed study giving full consideration to power capabilities and marketing arrangements indicated the advantage of maintaining present storage allocation at Wolf Creek and use of all available storage capacity of Laurel River Lake for power. The power plant is complete. Recreation was completed in FY 1986. Total cost is $56,741,232.

Local cooperation. None required.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and Appurtenances maintained as required. Total sales energy generated (90,762,000 kw-hr) was made available through Southeastern Power Association for distribution.

20. WOLF CREEK DAM - LAKE CUMBERLAND, OHIO RIVER BASIN, KY

Location. Wolf Creek Dam is on Cumberland River at mile 460.0 (above mouth) in Russell County, KY, about 10 miles southwest of Jamestown and 12 miles north of Albany, KY. Lake Cumberland extends 101 miles up main stream, 48 miles up South Fork of Cumberland River, in Russell, Clinton, Wayne, Pulaski, McCreary, Laurel, and Whitley Counties, KY.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public-use and conservation purposes. See page 1094 of 1962 Annual Report for project details. Cost of project is $188,267,195. This cost includes $3,259,372 code 710 funds, $880,000 non-Federal funds for recreation facilities under the completed pro-gram, and $104,999,237 for major rehabilitation. WRDA 96 authorized an Uprate Project of the hydroelectric power-plant. Activity involving the integrity of the structure began in 1968 when a leak or seepage developed in the embankment. The major rehab embankment contract was physically completed in September 1982.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (1,202,993,000 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved land management activities, public relations, and maintenance of public-use facilities. Operations and Maintenance work included investigation of seepage through the dam. Improvements were made to five launching ramps in Wayne County. Fabrication began on floating plant for removal of debris. Work was begun for facility protection improvements at the dam. A major rehab study of the power plant was continued.

G ENERAL INVESTIGATIONS

21. SURVEYS

Costs for this period were $788,422 for which $319,077 was for Navigation Studies, $86,876 for Flood Damage Prevention Studies, $271,503 for Special Studies, $62,948 for Miscellaneous Activities and $48,018 for Coordination With Other Agencies and Non-Federal Interests.

22. COLLECTION AND STUDY OF BASIC DATA

Costs for this period were $81,020, for which $72,992 was for Floodplain Management Services and $8,028 for General Hydrologic studies.

23. PRECONSTRUCTION ENGINEERING AND DESIGN

Costs for this period were $2,877,499 for Navigation Projects ($2,877,599 for Chickamauga Lock, TN and ($100) for Kentucky Lock, KY).

TABLE 23-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept 30, 2003
1. Cumberland River		New Work					
TN and KY		Approp.					320,252,240[1, 2, 3]
		Cost	-	-	-	-	320,252,240[1, 2, 3]
		Maint.					
		Approp.	24,297,555	26,539,201	28,394,07	26,262,011	571,296,772[4]
		Cost	24,277,115	26,044,500	23,494,463	26,387,012	565,934,239[5]
2. Kentucky Lock		New Work					
TN and KY		Approp.	19,250,000	24,142,000	19,684,000	23,003,900	111,745,900
		Cost	18,725,705	24,395,456	20,456,766	23,024,115	111,684,624
3. Tennessee River,		New Work					
TN, AL, and KY		Approp.	-	-	-	-	16,251,428[6]
		Cost	-	-	-	-	16,251,428[6]
		Maint.					
		Approp.	16,592,069	14,254,767	15,151,046	13,277,710	343,811,804[7]
		Cost	16,888,421	13,918,383	15,419,213	13,268,874	343,745,810[8]
		Rehab.					
		Approp.	-	-	-	-	400,000
		Cost	-	-	-	-	400,000
4. Tenn.-Tombigbee		New Work					
Waterway, AL and MS		Approp.	0	0	0	0	749,013,050
		Cost	0	0	0	0	749,013,050
7. Big South Fork National		New Work					
River and Rec. Area,		Approp.	0	0	0	0	112,588,920[9]
KY and TN		Cost	47,169	791	4,241	0	112,577,899[10]
8. Black Fox/Oaklands		New Work					
Springs, TN		Approp.	1,677,000	1,676,000	1,680,700	1,596,000	8,955,700
		Cost	538,451	1,248,025	3,189,928	2,115,739	8,495,465
9. Hamilton County, TN		New Work					
		Approp.	1,503,250	1,257,076	478,600	126,057	5,953,464[11]
		Cost	2,803,955	398,909	1,316,483	295,310	5,487,400[12]
10. Martins Fork Lake, KY		New Work					
		Approp.	-	-	-	-	20,479,911
		Cost	-	-	-	-	20,479,911
		Maint.					
		Approp.	773,500	654,465	711,151	639,000	14,238,456
		Cost	680,231	650,909	707,523	644,206	14,235,701
11. Middlesboro, Cumberland		New Work					
River Basin, KY		Approp.	-	-	-	-	817,830[13]
		Cost	-	-	-	-	817,830[13]
		Maint.					
		Approp.	61,500	71,785	50,000	50,000	2,638,451
		Cost	60,362	72,822	49,521	50,580	2,638,451
12. Tug & Levisa Forks of		New Work					
the Big Sandy & Cumber-		Approp.	10,736,710	12,011,300	7,456,940	10,664,000	375,604,775[14]
land River, WV, VA and KY		Cost	16,035,961	11,490,106	8,042,451	7,267,696	369,298,293[15]
16. Center Hill Lake,		New Work					
Ohio River Basin, TN		Approp.	-	-	-	-	53,412,022[16]
		Cost	-	-	-	-	53,412,022[17]
		Maint.					
		Approp.	4,974,200	5,629,947	4,993,828	5,241,000	120,089,851[18]
		Cost	4,918,695	5,678,972	4,977,694	5,127,370	119,913,229[19]

TABLE 23-A *(continued)* COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept 30, 2003
17.	Dale Hollow Lake Ohio River Basin, TN and KY	New Work					
		Approp.	-	-	-	-	28,317,746[20]
		Cost	-	-	-	-	28,317,746[21]
		Maint.					
		Approp.	4,436,000	4,111,988	4,744,947	4,433,000	104,883,962[22]
		Cost	4,436,057	4,117,903	4,533,147	4,543,553	104,782,593[23]
18.	J. Percy Priest Dam and Reservoir, Ohio River Basin, TN	New Work					
		Approp.	-	-	-	-	56,914,039[24]
		Cost	-	-	-	-	56,914,039[25]
		Maint.					
		Approp.	3,403,000	4,127,951	3,526,812	3,503,000	82,558,414[26]
		Cost	3,415,921	4,127,844	3,467,542	3,533,964	82,529,997[27]
19.	Laurel River Lake, Ohio River Basin, KY	New Work					
		Approp.	-	-	-	-	56,741,232
		Cost	-	-	-	-	56,741,232
		Maint					
		Approp.	1,793,000	1,262,082	1,362,474	1,354,000	27,797,499[28]
		Cost	1,788,169	1,283,774	1,356,396	1,341,716	27,775,656[29]
20.	Wolf Creek Dam and Lake Cumberland, Ohio River Basin, KY	New Work					
		Approp.	-	-	-	-	83,267,958[30]
		Cost					83,267,958[30]
		Maint.					
		Approp.	5,861,287	6,478,330	7,931,009	8,007,000	155,115,809[30]
		Cost	5,903,414	6,491,179	6,328,153	7,617,889	152,882,814[31]
		Rehab.					
		Approp	-	-	-	-	104,999,237[32]
		Cost					104,999,237[32]

1. Includes $9,707,354 for abandoned and/or replaced works under the old Cumberland River system. (Amount includes $826,253 for new work and $3,266,706 for maintenance on previous project.)
2. Includes $61,733 public works acceleration funds, and $102,966 contributed by the State of Kentucky and $6,750 contributed by metropolitan Nashville, TN.
3. Includes $298,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
4. Includes $955,889 for special recreation use fees, and $2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and $1,892,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
5. Includes $955,889 for special recreation use fees, and $2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and $1,892,000 funds provided
6. Includes $14,007,193 for new work and excludes $4,005,175 for maintenance on previous projects.
7. Includes $495,763 for maintenance and operation of dams and other improvements of navigable waters, and $764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
8. Includes $495,763 for maintenance and operation of dams and other improvements of navigable waters, and $764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
9. Includes $300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
10. Includes $300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.
11. Includes $1,363,331 contributed by Hamilton County, TN
12. Includes $899,257 contributed by Hamilton County, TN
13. Includes $33,876 Emergency Relief Funds.
14. Includes $22,748,266 contributed by the State of Kentucky.
15. Includes $22,100,033 contributed by the State of Kentucky.
16. Includes $35,896 public works acceleration funds, and

TABLE 23-A **COST AND FINANCIAL STATEMENT**
(continued)

$148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

17. Includes $35,896 public works acceleration funds, and $148,000 funds provided from the Productive Employment Appropriation Act(PL 98-8) of 1983.

18. Includes $292,280 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

19. Includes $292,280 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

20. Includes $51,789 public works funds and $150,000 contributed by the State of Tennessee, and $341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

21. Includes $51,789 public works funds and $150,000 contributed by the State of Tennessee, and $341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

22. Includes $339,480 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

23. Includes $1,083,678 funds for special recreation use fees, and $884,178 for maintenance and operation of dams and other improvements of navigable waters, and $482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

24. Includes $46,000 contributed by the Metropolitan Government, Nashville, TN.

25. Includes $46,000 contributed by the Metropolitan Government, Nashville, TN.

26. Includes $260,680 for special recreation use fees, and $1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and $40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

27. Includes $260,680 for special recreation use fees, and $1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and $40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

28. Includes $66,678 for maintenance and operations of dams and other improvements of navigable waters.

29. Includes $96,920 public works acceleration funds, and $880,000 contributed by the State of Kentucky.

30. Includes $82,048 public works acceleration funds, and $198,578 for maintenance and operation of dams and other improvements of navigable waters, and $278,780 funds for special recreation use fees, and $293,000 fund provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

31. Includes $82,048 public works acceleration funds, and $198,578 for maintenance and operation of dams and other improvements of navigable waters, and $278,780 funds for special recreation use fees, and $293,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

32. Includes $203,757 for claim paid on initial construction of switchyard.

TABLE 23-B AUTHORIZING LEGISLATION

See Section In Text	Date of AuthorizING Act	Project and Work Authorized	Documents
1.		**CUMBERLAND RIVER BELOW NASHVILLE**	
	Jul 13, 1892	Provision made for lock A	Annual Report, 1890, p. 2151
	Jun 25, 1910	Provision made for locks B to F, and for dredging below lock F.	H. Docs. 758, 60th Cong., 1st sess.; and 1481, 60th Cong., 2d sess.1
	Aug 30, 1935	Repairing dams A to F, inclusive, and surmounting same with movable crests	H. Doc. 38, 73d Cong., 1st sess.
	Jul 24, 1946	Provision of 9-foot channel by the construction of 3 moderate height dams below Nashville, via, Kuttawa (Eureka), Dover, and Cheatham.	H. Doc. 761, 79th Cong., 2d sess.
	Jun 19, 1952	Provision for hydroelectric power production as a function of Cheatham Dam.	
	Sep. 3, 1954	Construction of Barkley (Lower Cumberland) dam and reservoir project for navigation, flood control, hydroelectric power, and related purposes in lieu of Kuttawa and Dover navigation-only structures.	S. Doc 81, 83d Cong., 2d sess.
	Jul 14, 1960	Authorized change in alignment of Illinois Central Railroad.	H. Doc. 56, 86th Cong., 2d sess.
	Oct 12, 1996	Authorized construction of Kentucky Lock WRDA 96 for navigation only.	
1.		**CUMBERLAND RIVER ABOVE NASHVILLE**	
	Aug. 5, 1886	Provision made for locks and dams; the Secretary of War to determine the final plan of improvement. Dimensions of the locks fixed in accordance with reports of Mar. 30, 1887, and Nov. 25, 1890.	Annual Report 1884, p. 1663 Annual Report 1888, p. 1622, and Annual Report 1892, p. 1933.
	Mar 2, 1907	Adoption of the report of the Board of Engineers, dated Feb. 26, 1906, limiting the lock and dam construction to locks and dams 1 to 7, and 21.	H. Doc. 699, 59th Cong., 1st sess.
	Mar 2, 1919	Provision made for locks and dams 8 to 17.	Rivers and Harbors Committee Doc. 10, 63d Cong., 2d sess.
	Jun 5, 1920	Authorizes work to proceed in Tennessee without waiting for action of local interests in Kentucky.	
	Jul 3, 1930	Raising dam 1, 3 feet.	Rivers and Harbors Committee Doc. 26, 70th Cong., 2d sess.
	Jun 26, 1934[2]	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul 24, 1946	Construction of Old Hickory, Cordell Hull (Carthage), and Celina Dams above Nashville for navigation and the development of power resources.	H. Doc. 761, 79th Cong., 2d sess.

TABLE 23-B AUTHORIZING LEGISLATION
(continued)

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct 1, 1980	Design and construct flood control measures for communities in the Upper Cumberland River basins.	Sec. 202, PL 96-367
	Oct 17, 1996	Authorized ecosystem restoration at three wetlands and historic sites in Murfreesboro, TN.	WRDA 96
	Oct 12, 1996	Authorized hydropower update at Wolf Creek Dam	WRDA 96
3.		**TENNESSEE RIVER**	
	Jul 3, 1930	Authorized navigable depth of 9 feet from mouth about 650 miles to Knoxville, Tennessee to be obtained by construction of low dams.	H. Doc. 328, 71st Cong., 2d sess.
	May 18, 1933	Authorized TVA to construct such dams in the Tennessee River as will provide a 9 foot channel.	
	Oct 12, 1996	Authorized flood damage reduction by nonstructural methods in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized a study for a bank stabilization project on the Tennessee River in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized assistance to non-Federal interests for environmental activities in Jackson County, AL.	WRDA 96
13.		**OHIO RIVER BASIN, NASHVILLE DISTRICT**	
	Aug 28, 1937	Construct levees, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin. Project to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed $24,877,000 for construction.	Flood Control Committee Doc. 1, 5th Cong., 1st sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers and for initiation and partial accomplishment of plan, authorized $75million for reservoirs and $50,300,000 for local flood protection works.	Flood Control Committee Doc. 761, 75th Cong., 3d sess.
	Aug 18, 1941	Additional $45 million for prosecution of comprehensive plan for Ohio River Basin.	
	Dec 22, 1944	Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 762, 77th Cong., 2d sess.
	Jul 24, 1946	Additional $125 million for further prosecution of comprehensive plan.	H. Doc. 506, 78th Cong., 1st sess.
	May 17, 1950	Additional $100 million for prosecution of comprehensive plan for Ohio River Basin.	
	Dec 30, 1963	Additional $150 million for further prosecution of comprehensive plan for flood control and other purpose in Ohio River Basin.	

TABLE 23-B *(continued)* AUTHORIZING LELGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Jun 18, 1965	Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89th Cong., 1st sess.
	Aug 13, 1968	Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin.	S. 3710, 90th Cong., 2d sess.
	Jun 19, 1970	Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 15166 91st Cong., 2d sess.
	Mar 7, 1974	Authorized Big South Fork National River and Recreation Area, KY and TN. Total area not to exceed 125,000 acres.	H. R. 10203 93rd Cong. Water Resources Develop. Act of 1974 Amended by PL 94-587, 94th Cong.
	Mar 7, 1974	Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 10203 93rd Cong. River Basin Monetary Authorization Act of 1974.
4.		**TENNESSEE-TOMBIGBEE WATERWAY**	
	Jul 24, 1946	Construction of waterway to connect above rivers and provide a 9 foot channel and minimum bottom width of 170 feet in river and canal sections and 150 feet in the divide cut, with locks 110 by 600 feet clear inside dimensions.	H. Doc. 486, 79th Cong. 2d sess.
		Subsequent studies determined most practical plan consists of channel with bottom width of 300 feet (280 feet in divide cut), fewer locks with higher lifts resulted in reducing number of lifts from 18 to 10 and reduced length from 260 to 253 miles.	Page 1343, Part I, FY 1968 House Hearings

1. Contains latest published maps. Included in Public Works Administration Program Sept. 6, 1993.
2. Permanent Appropriation Repeal Act.

TABLE 23-C OTHER AUTHORIZED NAVIGATION PROJECTS (All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	Cost to Sept, 2003 Construction	Cost to Sept, 2003 Operation and Maintenance
Caney Fork River, TN	abandoned	1895	$ 27,828	-
Clinch River, TN and VA	abandoned	1923	53,949	7,873
Duck River, TN	abandoned	1887	13,000	-
Elk River, AL and TN	abandoned	1904	4,000	-
French Broad and Little Pigeon Rivers, TN	abandoned	1931	249,605	33,554
Holston River, TN	abandoned	1911	5,714	-
Little Tennessee River, TN	abandoned	1888	5,510	-
Obey River, TN	abandoned	1887	11,500	-
Red River, TN	abandoned	1884	5,000	-
South Fork of Cumberland River, KY	abandoned	1892	11,967	-

TABLE 23-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS (All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	Cost to Sept, 2003 Construction	Cost to Sept, 2003 Operation & Maintenance
Barbourville, KY	completed	1963	$2,088,147	-
Coal Creek and Tributaries (Lake City), TN	completed	1962	460,134	-
Corbin (Lynn Camp Creek), KY	completed	1969	567,703	-
Middlesboro (Yellow Creek), KY	completed	1949	26,309	-
Paint Rock River, AL	completed	1967	544,173	-
Pineville, KY	completed	1963	1,679,126	-

1. Includes 9,950 contributed in funds.

TABLE 23-F OTHER AUTHORIZED MULTIPLE-PURPOSE PROJECTS (Including Power)

Project	Status	For last Full Report see Annual Report	Cost to Sept, 2003 Construction	Cost to Sept, 2003 Operation and Maintenance
Barkley Dam and Lake Barkley, KY and TN	beneficial use	-	$162,056,539[1]	$183,193,485[2]
Celina Dam, KY	inactive	-	222,575	-
Cheatham Lock and Dam, TN	beneficial use	-	31,682,762	133,718,385[2]
Cordell Hull Lock and Dam, TN	beneficial use	-	79,874,492	93,967,456[2]
Old Hickory Lock and Dam, TN	beneficial use	-	52,266,412	155,054,944[2]

1. Includes $15,557,895 cost for Cross Creek.

2. Details given under "Cumberland River, TN and KY " See Table 23-H

TABLE 23-G DEAUTHORIZED PROJECTS

Project	Status	For last full report see Annual Report	Cost to Sept, 2003 Construction	Cost to Sept, 2003 Operation & Maintenance
Three Islands Reservoir, Ohio River Basin, TN	1970	Authorized: FC Act 1938, PL 761, 75 Cong., 3rd sess.; FC Act 1946, PL 525, 79th Cong., 2d sess. Deauthorized: 5 Aug 1977.	$111,855	-
Middlesboro, Yellow Creek Bell County, KY	-	Authorized: FC Act, Dec 22, 1944, PL 534, 78th Congress. Deauthorized:17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Cumberland River above Nashville, TN	-	Authorized: River & Harbor Act, Aug 5, 1886. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Hiwassee River, Polk and Bradley Counties, TN	1923	Authorized: River & Harbor Act Aug 14, 1876. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	123,065	-
Rossview Lake, Tennessee and Kentucky	-	Authorized: FC Act, Jan 28, 1938, PL 76175th Congress. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	6,779	-
Celina Lake, Kentucky and Tennessee		Authorized: Rivers and harbors Act of 1946. PL 79-522. Deauthorized: July 9, 1995, Section 1001 (B) (2) of PL 99-662.		

TABLE 23-H CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES (See Section 1 of Text)

Nearest town	Kuttawa, KY 11 miles.	Ashland City, TN 9 miles	Old Hickory, TN 3 miles	Carthage, TN 5 miles
Miles above mouth of river	30.6	148.7	216.2	313.5
Lock dimensions (feet)1	110 by 800	110 by 800	84 by 400	84 by 400
Lift at normal pool levels (feet)	57	26	60	59
Depths on guard-sills at minimum pool levels (feet)	11, upper; 13, lower	14, upper; 17, lower	14, upper; 13, lower	14, upper; 13, lower
Character of foundation	Rock	Rock	Rock	Rock
Dam:				
Type	Concrete gravity and earthfill	Concrete gravity	Concrete gravity and earthfill	Concrete gravity and earthfill
Height	157	75	98	93
Length, exclusive of lock section (feet)	9,959	800	3,605[2]	1,138[2]
Spillway:				
Gross length (feet)	804	480	325	291
Net length opening (feet)	660	420	270	225
Crest gates:				
Type	Tainter	Tainter	Tainter	Tainter
Number	12	7	6	5
Size (feet)	55 by 60	60 by 27	45 by 41	45 by 41
Operating levels at dam (feet, mean sea level):				
Maximum regulated	375	-	450[3]	508[3]
Normal operation:				
Full pool	359	385	-	508
Minimum pool	354	382	-	501
Minimum pool in advance of floods	346	-	442	499
Reservoir area (acres)	93,430	7,450	27,450	13,920
Reservoir capacity (acre-feet):				
Flood control	1,213,000[3,4]	-	125,000[5]	85,600[5,6]
Power drawdown	259,000	19,800[7]	63,000	20,500
Dead storage	610,000	84,200	357,000	204,800
Total	2,082,00	104,000	545,000	310,900
Canal:				
Length (mile)	1.75	-	-	-
Bottom width (feet)	400	-	-	-
Depth a minimum pool Level (feet)	11	-	-	-
Power Development				
Number of units	4	3	4	3
Generator rating (kilowatts)	32,500	12,000	25,000	33,333
Total installation (kilowatts)	130,000	36,000	100,000	100,000
Percent of project completion				
Year opened to navigation	1964	1952	1952	1973
Cost[9]	$ 162,056,571[10]	$31,682,762	$52,266,412	$79,874,492

TABLE 23-H *(continued)*

CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES
(See Section 1 of Text)

1. Clear width and length available for full width.
2. Exclusive of lock section.
3. Surcharge.
4. Normal operation (elv. 375-359) during nonflood season; flood control allowance to be increased to 1,472,000 acre-feet (elev. 375-354) during season of major floodflows.
5. Surcharge storage.
6. During flood season (3lev. 508-501); minimum 51,800 acre-feet (elev. 508-504) with normal operation during non-flood season.
7. Daily pondage allowance; run-of-river project.
8. Completed for full beneficial use.
9. Includes recreation facility costs.
10. Includes $15,557,895 cost for Cross Creek.

TABLE 23-I

TENNESSEE RIVER
(SEE SECTION 3 OF TEXT)

Project[1]	Miles Above Mouth	Miles from Nearest Town	Lift Dimensions: Width of Chamber (feet)	Length Available for Full Width (feet)	Lift: Normal (feet)	Lift: Maximum (feet)	Minimum on Guard Sills: Lower (feet)	Minimum on Guard Sills: Upper (feet)	Character of Foundation	Year Opened Navigation	Kind of Dam	Type of Construction	Cost of Each Lock and Dam
Kentucky	22.4	0.5 above Gilbertsville, KY	110	600	56	73.3	12.7	11.0	Limestone	1942	Fixed	Concrete and earthfill	2
Pickwick Landing:													
Auxiliary lock	206.7	4.4 above Hamburg, TN	110	600	55	63.0	12.8	10.0	Limestone	1937	Fixed	Concrete and earthfill	3
Main lock	206.7	4.4 above Hamburg, TN	110	1000	55	63.0	12.8	10.0	Limestone	1984	Fixed	Concrete and earthfill	3
Wilson:													
Auxiliary lock	259.4	2.9 above Florence, AL	60	292 300	94	100.0	11.0[4]	11.2	Limestone	1927	Fixed	Concrete and earthfill	$46,973,540[5]
Main lock	259.4	2.9 above Florence, AL	110	600	94	100.0	13.0	13.0	Limestone	1959	-	-	7
General Joe Wheeler:													
Auxiliary lock	274.9	18.4 above Florence, AL	60	400	48	51.5	13.2	14.7	Limestone	1934	Fixed	Concrete and earthfill	1,796,295[6]
Main lock	274.9	18.4 above Florence, AL	110	600	48	51.5	13.0	13.0	Limestone	1963	Fixed	Concrete and earthfill	7
Guntersville:													
Auxiliary lock	349.0	9.1 below Guntersville, AL	60	360	39	45.0	11.8	13.0	Limestone	1937	Fixed	-	3 & 7
Main lock	349.0	9.1 below Guntersville, AL	110	600	39	45.0	12.7	13.0	Limestone	1965	Fixed	Concrete and earthfill	7
Nickajack:													
Auxiliary lock	424.7	39.4 below Chattanooga, TN	110	600	39	41.0	13.0	13.0	Limestone	1967	Fixed	Concrete	7
Main lock	424.7	39.4 below Chattanooga, TN	110	800	39	41.0	13.0	13.0	Limestone		Fixed	Concrete	7
Chickamauga	471.0	6.9 above Chattanooga, TN	60	360	49	53.0	13.0	10.0	Limestone	1939	Fixed	-	3 & 7
Watts Bar	529.9	6.8 above Breedenton, TN	60	360	58	70.0	11.8	12.0	Shale	1941	Fixed	Concrete and earthfill	3
Fort Loudon	602.3	1.3 above Lenoir City, TN	60	360	72	80.0	11.8	12.0	Limestone	1943	Fixed	Concrete and earthfill	3
Melton Hill (Clinch R.)	23.1	22.1 above Kingston, TN	75	400	54	60.0	13.0	13.0	Limestone	1963	Fixed	Concrete	2

TABLE 23-I **TENNESSEE RIVER**
(continued) **(SEE SECTION 3 OF TEXT)**

1. H. Doc 328, 71 Cong., 2d sess, contains table, pp. 98 and 99, giving pertinent information concerning low dams contemplated under 1930 project. Annual Report for 1938, pp. 1218 and 1219, contains similar information pertaining to low dams in addition to existing locks and dams, including those constructed or under construction by Tennessee Valley Authority.
2. Lock and dam constructed by Tennessee Valley Authority.
3. Lock and dam constructed by Tennessee Valley Authority.
   Design for lock prepared with Corps forces and funds.
4. Tailwater in canal; flight of 2 locks.
5. Constructed by the Corps under authority of sec. 124, National Defense Act of June 3, 1916, (H. Doc. 1262, 64th Cong., 1st sess.).
   Actual cost of lock and dam.
6. Actual cost of lock only as constructed by the Corps; dams constructed by Tennessee Valley Authority.
7. Constructed by Tennessee Valley

TABLE 23-J TENNESSEE RIVER, TN, AL, AND KY TOTAL COST OF EXISTING PROJECTS TO SEPT 30, 2003 (See Section 3 of Text)

Funds	New Work	Channel Maintenance	Operation & Maintenance	Total
Regular	$2,244,236[1,2]	$15,102,641	$338,724,913	$356,071,790
Maintenance	-	-	11,665	11,665
Increase of compensation rivers and harbors, 1919 (certified claims)	-	5	-	5
Total	$2,244,236[1,2]	$15,102,646	$338,736,578	$356,083,460

1. In addition, surplus property valued at $54,336 was transferred from the project without reimbursement. Excludes $4,005,175 expended between 18900 and June 30,1935, on operation and care of works of improvement under provisions of appropriation for such purposes.
2. Excludes $14,007,192 previous construction cost.

TABLE 23-K OHIO RIVER BASIN (NASHVILLE DISTRICT) LOCAL PROTECTION PROJECTS

Location	Type of Protection	Estimated Cost Federal	Non-Federal	Total
Cumberland, KY	Channel Improvement	$520,000	$240,000	$760,000[1]

TABLE 23-L RESERVOIRS

Tributary Basin and Reservoir	Stream	Total Federal Cost
Center Hill Lake	Caney Fork	$53,412,022[1]
Dale Hollow Lake, TN and KY	Obey River	28,167,746[1,2]
J. Percy Priest Dam & Reservoir, TN	Stones River	56,868,039[1,3,4]
Laurel River Lake, KY	Laurel River	56,741,232[5]
Martins Fork Lake, KY	Martins Fork	20,479,911

1. Details of this project are in individual report.
2. Excludes $150,000 contributed by the State of Tennessee.
3. Excludes $46,000 contributed by Metro Gov't of Nashville, TN.
4. Formerly Stewarts Ferry Reservoir.
5. See "Other authorized multiple-purpose projects."

TABLE 23-M INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(See Section 14 of Text)

Project	Date of Inspection
Barbourville, KY	May 20, 2003
Corbin, KY	May 19, 2003
Harlan, KY	May 22, 2003
Middlesboro, KY (Yellow Creek)	May 22, 2003
Middlesboro, KY (Diversion Canal)	May 22, 2003
Pineville, KY	May 21, 2003
Wallsend, KY	May 21, 2003
Williamsburg, KY	May 19, 2003

TABLE 23-N FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205
P.L. 858, 80th Congress, as amended

Project	FY 03 Cost
Section 205 Coordination Account	$ 9,922
Little Limestone Cr., TN	99,303
Clark Spring Br. , Decatr, AL	5,876
Dallas Branch, Huntsville, AL	49,106
Emily Ave / Tim. St., TN	4,626
Little River, Hopkinsville, KY	73,770
Oak Grove, Christian Co., KY	37,050
Buena Vista Pipeline, Muscle Shoals, AL	14,915
Shoal Creek, Lawrenceburg, TN	7,054
Big and Little Moccasin Creeks, VA	11,654
Beaver Creek & Tribs, Bristol, VA	29,944
Beaver Creek & Tribs, Bristol, TN	23,048
Metro Center Levee, Nashville, TN	451,423
Mouse Creek, Cleveland, TN	37,509
Stoney Creek, VA	24,780
Tazwell, VA	17,899
South Fork Powell River, Wise County, VA	12,910
Richland Creek, Nashville, TN	83,647
Chilhowie, VA	43,424
Swords Creek, Russell Co., VA	10,329
Total	$1,048,189

TABLE 23-N *(continued)* FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency Bank Protection (Section 14 of the 1946 Flood Control Act, P.L. 526, 79th Congress)

Project	FY 03 Cost
Section 14 Coordination Account	$ 24,281
Blannahassett Island, French Broad River	451,098
Lakeshore Park, Knoxville, TN	36,051
North 1st Sewer, Nashville, TN	32,712
Rivers Landing Drive, New Hope, TN	8,170
Pennington Gap, VA	1,601
Ditto Landing, Phase II, Huntsville, AL	56,740
Red River Streambank Stabilization, TN	796,700
Gay Street, Nashville, TN	28,767
Damascus, VA	10,035
Danridge, TN	3,306
Sheffield Pak, Sheffield, AL	6,079
Terminal Road, Chattanooga, TN	3,822
Hurrican Creek, Waynesboro, TN	8,934
Total	$1,468,296

LOUISVILLE, KY DISTRICT

This district encompasses southwestern Ohio, all of Central Kentucky and portions of western and eastern Kentucky, the southern 3/4 of Indiana, and southeastern Illinois, all included in the drainage basin of the Ohio River and its tributaries (exclusive of Tennessee and Cumberland Rivers) from mile 438 (below Pittsburgh) immediately upstream from Foster, KY., to the mouth of the Ohio.

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in text and also appear at the end of this chapter.

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Navigation - Channels and Harbors

1. OPEN CHANNEL WORK, LICKING RIVER, KY

Location. The Licking River originates in southeastern Kentucky and flows generally northwesterly to its confluence with the Ohio River at Covington, KY, mile 470.2 below Pittsburgh, PA. The Licking River Basin includes the drainage area of the Licking River, and all other left bank tributaries of the Ohio River from Markland Locks and Dam (Ohio River Mile 531.5) upstream to Meldahl Locks and Dam (Ohio River Mile 436.2).

Existing project. There are no locks and dams on the Licking River. However, a navigable depth of 9 feet is maintained up to mile 7.0 on the Licking River.

Local Cooperation. None.

Terminal facilities. Facilities for bulk commodities, oil products, and coal are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: None.

Navigation - Locks and Dams

2. CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER

For report on this improvement, see the heading under Ohio River.

3. GREEN AND BARREN RIVERS, KY

Location. Green River rises in Casey County, KY, flows northwesterly 370 miles, and empties into the Ohio River about 8 miles above Evansville, IN. Barren River rises in Monroe County, KY, flows northwesterly 130 miles, and empties into Green River 1/2 mile above Lock 4 and 149.5 miles above the mouth of Green River.

Existing project. Six locks and dams on Green River and one on Barren River were constructed in pools of dams to provide a navigable depth of 9 feet and width of 200 feet from the Ohio River to mile 103 Green River, 3.2 miles upstream from Paradise, KY and a navigable depth of 5.5 feet from mile 103 Green River to Mammoth Cave, KY, mile 197.8 Green River, and from mouth of Barren River mile 149.5 Green River to Bowling Green, KY, mile 30.1, Barren River. Of these facilities, only Green River L&D 1 and 2 are still operational. Green River L&D 3, 4, 5, 6 and Barren River L&D 1 are maintained by the Corps in a caretaker status.

Fluctuations in stage vary considerably at different locks. At Lock 3, Green River, ordinary high stages are from 12 to 15 feet above pool level, and at Lock 1, Barren River, from 7 to 10 feet above pool. Maximum stages of record are 34 feet above normal pool stage at Lock 3, Green River, and 29 feet at Lock 1, Barren River, obtained during floods of 1937 and 1913, respectively. (See Table 24-B for authorizing legislation and Table 24-H for principal features of the locks and dams.)

The Louisville District has prepared a draft report regarding the disposal of Locks and Dams 3 through 6 on the Green River and Lock and Dam 1 on the Barren River. The report recommends filling the lock chambers at all of the sites and removal of the dam at Green River L&D 6. The draft report has been reviewed at HQUSACE and a final report is being prepared.

Local Cooperation. Fully complied with.

Terminal facilities. Coal handling facilities located on the Green River between miles 81.5 and 108.1 near South Carrollton, Rockport, Paradise and Rochester, Kentucky, are considered adequate for existing commerce.

Operations during fiscal year. New Work: None. Maintenance: Routine maintenance was performed.

Condition at end of fiscal year. Locks and Dams 1 and 2, Green River, are in good condition. Dam 3 on the Green and Dam 1 on the Barren are in fair condition and the locks at those locations are in poor condition. Lock 4, Green River, is in poor condition. Dam 4, Green River, failed May 24, 1965, when 120 feet washed out. Breach later widened, and repairs have been permanently deferred. Pool of Dam 1, Barren River, is maintained for local small boat use, but navigation through lock is suspended because of loss of lower pool. Operation activity was discontinued at Lock 4 Green River and Lock and Dam 1 Barren River in January 1974 and at Lock 3, Green River in September 1981. The residences and associated buildings and certain real estate at Lock 4 Green River and Lock and Dam 1 Barren River were disposed of in January 1975. Operation of Locks 5 and 6, Green River, was discontinued August 1951, as they were no longer used by river traffic. Controlling project depth in lower 103 miles of Green River is 9 feet; controlling depth from mile 103 to Bowling Green, KY, is 5.5 feet. Channel of Green River above Lock 3 is no longer maintained.

4. KENTUCKY RIVER, KY

Location. Formed by confluence of its North and Middle Forks about 4 miles east of Beattyville in east central Kentucky, (South Fork joins the main stream at that location), flows northwesterly and empties into Ohio River at Carrollton, KY, mile 545.8 below Pittsburgh, PA.

Existing project. Provides for 14 locks and fixed dams to give, in connection with improvement of Ohio River, slack water navigation of 6 feet minimum depth from Ohio River to places on the three forks that are short distances above Beattyville, KY. Length of 6-foot-depth project on main stem of Kentucky River is 258.6 miles to confluence of Middle and North Forks. Cost of completed new work is $6,205,819. River frequently rises to 35 feet or higher. Extreme height at Lock 1 due to flood backwater from Ohio River is 60.3 feet, while extreme floods reach height of 47.6 feet at Lock 4, and 35.5 feet at Lock 14. At some intermediate locks extreme height of floods exceeds 40 feet. All flood heights refer to upper pool gages. Existing project was adopted by 1879 River and Harbor Act (H. Ex. Doc. 47, 45th Cong., 3d Sess., and Annual Report, 1879, p. 1398). Operation and care of locks and dams were included in project July 1, 1935, under provision of Permanent Appropriations Repeal Act of June 26, 1934. (See Table 24-H for

principal features of the locks and dams.)

On December 19, 1976, the lock operation schedules for commercial traffic and recreational craft on the Kentucky River System were reduced from continuous 24-hour year-round operation to two-shift year-round operation of Locks 1 through 4, intermittent daily operation of Locks 5 through 10, and intermittent operation five days weekly of Locks 11 through 14. Since that time the hours for operation of Locks 5 through 14 have been reduced in several increments. On October 1, 1981, Locks 5 through 14 were closed to traffic and placed in caretaker status. On May 21, 1985 Locks 5 though 14 were leased to the Commonwealth of Kentucky and were operated on weekends during the summer boating seasons through October 15, 1989 when the lease expired. The Commonwealth of Kentucky continued operation again under a lease agreement signed in 1990 with several extensions that allow the Commonwealth to operate the Locks until 2019. In 2001 the last commercial operator in pool 4 ceased operations ending federal interest in operating Locks and Dams 1 through 4. The Commonwealth of Kentucky now operates and manages Locks and Dams 1through 4 under Department of the Army Lease for Public Park and Recreation, which was granted March 1, 2002.

The FY 1993, 1994, 1996, 2000 and 2001 Energy and Water Development Appropriation Acts provided a total of $14.75 million to the Corps to repair the Kentucky River Locks and Dams 5 through 14 to ensure water supply prior to and in preparation for a direct transfer of ownership to the Commonwealth of Kentucky. This construction work was all completed by December 2001. During fiscal year 2002 construction of a visitors pavilion and restrooms were also initiated at Lock and Dam 14 and the work was completed in September 2003. In December 1996 the Assistant Secretary of the Army (CW) signed the first quitclaim transfer deed for Lock and Dam 10 for direct transfer from the Corps to the Commonwealth. The Kentucky River Authority (KRA) currently manages the facility. The Corps continues efforts to transfer the remaining Locks and Dams 5 through 9 and 11 through 14 to the Commonwealth.

Although Lock and Dam 10 was transferred to the Commonwealth of Kentucky, FY 2001 authorization language directed the Corps to take all measures to further stabilize and renovate Lock and Dam 10 for the purpose of extending the design life of the structure. The Corps is currently performing a detailed evaluation of the existing facility that will ultimately recommend a long-term method to “stabilize and renovate” Lock and Dam 10. The results of this evaluation will be presented in a report, which is scheduled for completion in 2005. Since construction of the plan that will be recommended is several years away, the Corps and KRA are also investigating what needs to be done to assure near-term safety and stability.

Licenses. Federal Regulatory Commission License No. 539, to Kentucky Utilities Co., at Dam 7, Kentucky River, Annual charge, $4,400; total collections through September 30, 2003, $354,805.

Terminal facilities. Facilities for bulk commodities are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: None.

Condition at end of fiscal year. Existing project was completed in 1917. Work accomplished was rehabilitation of the five old State locks and dams and construction of new Locks and Dams 6 to 14 inclusive. Repairs have been made to deteriorated locks and dams as required to keep locks in operation and maintain pool levels above dams except in extreme dry weather, when some pools fall below normal levels, details in Annual Reports for 1963, 1964, and 1965. Channel work was performed as required to provide for existing river traffic. Controlling navigable depth in length of river covered by existing project was 6 feet at end of fiscal year.

5. OPEN CHANNEL WORK, OHIO RIVER

For report on this improvement, see this heading under Ohio River.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 24-C.

7. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

None.

Flood Control - Local Protection

8. BEARGRASS CREEK, KENTUCKY

Location. The project is located in eastern Jefferson County in the suburbs of Louisville, Kentucky, along the South Fork of Beargrass Creek and Buechel Branch.

Existing Project. The project consists of construction of eight detention basins, about 2,000 linear feet of channel improvement, and 1,400 linear feet of floodwall/levee on the South Fork of Beargrass Creek and Buechel Branch. The project will provide protection to 830 structures (combination of residential and commercial). Of those structures, 314 will be removed from the 100-year flood plain. The 100-year flood plain will be reduced an average of 1.5 feet, as a result of project implementation. The project was authorized by the Water Resource Development Act of 1999. Estimated cost of the new work is $12,338,000 of which $8,020,000 is federal cost and $4,318,000 is non-federal cost.

Local Cooperation. The non-Federal cost sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). A Preconstruction, Engineering and Design (PED) Phase cost sharing agreement with MSD was executed in January 1998. The Chief of Engineers report approved the project in May 1998. A Project Cooperation Agreement (PCA) with MSD was executed in September 2001.

Operations during fiscal year. Work this year included preparation of plans and specifications and subsequent award of the second contract.

Conditions at end of fiscal year. The project is about 35% complete. Design is complete for the first and second construction contracts. The first contract was

awarded 4th quarter FY2002 and the second contract was awarded 4th quarter FY2003.

9. COMBINED SEWER OVERFLOWS, INDIANPOLIS, IN

Location. Indianapolis, IN.

Existing Project. The existing project consists of providing the City of Indianapolis technical, planning and design assistance for implementation of their Long Term Control Plan. The Long Term Control Plan is designed to improve water quality in Marion County and modernize the City's 19th century sewer system that discharges raw sewage to local streams at 135 overflow points during wet weather events. Work was authorized under Section 219 of the Water Resources Development Act of 1992, as amended.

Local Cooperation. The non-federal cost sharing partner is the City of Indianapolis, Indiana. The Corps and the City of Indianapolis signed the Design Agreement in March 2003.

Operation during fiscal year. Preparation of Design Agreement for technical, planning and design assistance of CSO facilities. Preparation of a scope of work for the Fall Creek Reach Evaluation study.

Condition at end of fiscal year. City of Indianapolis has requested changes to the Scope of Work. Information is being obtained to incorporate these changes in order to initiate design assistance.

10. DUCK CREEK, OH

Location. The project area is located in the City of Cincinnati and the Village of Fairfax in Hamilton County, Ohio. The project encompasses 3.2 miles of the stream and begins approximately 2 miles upstream of the confluence of Duck Creek with the Little Miami River.

Existing project. The project consists of approximately 7,100 feet of concrete flood wall, 3,300 feet of earth levee, 8,500 feet of riprapped stream bank, 1,200 feet of channel relocation, 1,100 feet of culvert, demolition of an abandoned highway bridge, widening of a railroad bridge, a pump station, and automatic road closure, and an emergency access road. Estimated cost of new work is $36,891,000 of which $32,691,000 is Federal and $4,200,000 is non-Federal. The project was originally authorized by the Water Resources Development Act of 1996 and reauthorized by the Water Resources Development Act of 2000.

Local Cooperation. The non-Federal sponsors are the City of Cincinnati and the Village of Fairfax. The Project Cooperation Agreement (PCA) was executed in December 1997.

Operations during fiscal year. Work this year included completion of the Phase 1 contract for channelization and demolition of an abandoned highway bridge and continuation of the Phase 3 contract involving the construction of a concrete arch culvert, floodwalls and stone protection within the Village of Fairfax, Ohio.

Condition at end of fiscal year. The project is about 40 percent complete overall with design approximately 85 percent complete.

11. HOLES CREEK, OH

Location. Project area is located on Holes Creek in West Carrollton, Montgomery County, Ohio. West Carrollton is situated in the southwestern portion of Ohio and is a suburb of Dayton. Holes Creek drains 28.2 square miles and empties into the Great Miami River at river mile 72.6.

Existing project. Project consists of approximately 4,300 feet of channel widening (80-foot bottom width) with associated bank protection. The existing box culvert type Conrail bridge will be replaced with a 70-foot clear span structure. Project will provide protection to 428 structures in West Carrollton and Moraine. Estimated total cost (including additional work) is $13,500,000 Federal and $1,480,000 non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the Miami Conservancy District (MCD). MCD formed the Holes Creek/Owl Creek Conservancy Subdistrict to act as formal sponsor for this project. The Subdistrict entered into the Project Cooperation Agreement with the Government in September 1996. Funds were provided to the Subdistrict by Montgomery County, the City of West Carrollton, the City of Moriane, and Miami Township.

Operations during fiscal year. Work this fiscal year included completion of modifications to the second construction contract, and design on additional required features.

Conditions at end of fiscal year. Additional work (including a levee and property relocations) are required to provide the project outputs. A technical report and plans and specifications will be developed followed by construction of the new features.

12. LOUISVILLE WATERFRONT PARK, LOUISVILLE, KY

Location. Louisville, Jefferson County, Kentucky, on the left bank of the Ohio River at river mile 603.

Existing Project. The existing project consists of developing a master plan for the development of the Ohio River Shoreline. The proposal includes a marina facility, boat-launching facilities, playgrounds, and walking trails. The design was authorized by the Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations. The current language permits the Corps to prepare the master plan and continue design. In order to move into the construction phase authorization is needed in the next Water Resources Development Act.

Local Cooperation. The non-Federal cost sharing partner is the Louisville Waterfront Development Corporation. The master plan was approved July 22, 2002. A design agreement can now be executed.

Operations during fiscal year. Work this year consisted of attempts to negotiate a Design agreement.

Conditions at end of fiscal year. The Louisville Waterfront Development Corporation did not sign the Design agreement and intends to pursue only the Big 4 bridge part of the project with full federal funding.

13. MILL CREEK, OH

Location. Project is located along the 18-mile length of Mill Creek and three-fourths mile length of East Fork.

Existing project. 17.5 miles of channel improvement, 2 miles of levees, three pumping plants, modification of 29 bridges, and the addition of two pumping units at the present Mill Creek Barrier Dam, located near the Ohio River, are included in the project. Acquisition and development with appropriate landscaping of 620 acres along the creek will be provided for high-density urban oriented recreational use.

Local Cooperation. Section 3, Flood Control Act of 1936 as amended, applies. An assurance agreement covering local cooperation requirements for the project consistent with Section 221 of the 1970 Flood Control Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 was executed by the Millcreek Valley Conservancy District February 6, 1975, and for the Secretary of the Army March 28, 1975. A recreation cost-sharing contract was executed by the Conservancy District February 25, 1975, and approved by the Secretary of the Army May 28, 1975. A Contributed Funds Agreement for the General Reevaluation Report was executed in August 1998. An Operations and Maintenance Agreement for the completed portions of the project was also executed in August 1998.

Operations during fiscal year. The U.S. Army Corps of Engineers has continued work on a General Reevaluation Report that would provide a new course of action for completing the project. Additional planning and engineering studies have been performed and the Corps is analyzing 5 with project plans. In addition construction is underway for repairs to one previously constructed section of the project in order to turn it over to the local sponsor for assumption of full maintenance on that portion of the total project. During the 2003 flood season $678,000 in benefits were realized.

Condition at end of fiscal year. Construction of channel and levee-Sections 1,2,3,4A, and 7A, Phase 1, are complete. Original channel modification project is about 52 percent complete overall. The General Reevaluation Report is approximately 50% complete.

14. OHIO ENVIRONMENTAL INFRASTRUCTURE SECTION 594 PROGRAM

Location. The project location includes the entire state of Ohio, which includes portions of the Louisville, Huntington, Buffalo, and Pittsburgh Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects: Under the Section 594 Authority, we have 3 projects selected and in progress in Highland and Clark counties, OH.

Highland County – Hillsboro Water Treatment Plant Project: Design PCA signed September 2002 and design completed in FY 2003.

Clark County – Springfield, OH Southern Interceptor Sewer Project: PCA for design/construction was signed in September 2002.

Clark County – Springfield, OH #2 Southern Interceptor Sewer Project: PCA execution anticipated in FY04 for construction.

Local Cooperation. Project Cooperation Agreements are required for each project.

Operations during fiscal year. Design was completed for Hillsboro Water Treatment Plant.

Conditions at end of fiscal year. Work continues on one project and one new project was identified.

15. OHIO RIVER FLOOD PROTECTION (INDIANA SHORELINE), IN

Location. The six existing local flood protection projects are located along the Indiana shore from Ohio River mile 492 in Lawrenceburg downstream to mile 792 in Evansville. They are in the communities of Evansville, Tell City, Cannelton, New Albany, Jeffersonville-Clarksville, and Lawrenceburg.

Existing project. Each of the six local flood projects was constructed by the Corps and have been locally operated and maintained. All six projects were constructed to protect against the 1937 flood plus three feet of freeboard. Rehabilitation measures are necessary at each of the six sites in order to maintain their integrity and to insure that they continue to provide the benefits for which they were designed. Rehabilitation would consist of slip lining (or where necessary replacement) of all pipes and culverts which are part of the flood protection facilities, replacing aging pump station equipment, restoring expansion joints and closures, and repairing, as needed, floodwalls and other structures. Estimated cost of new work is $7,390,000 of which $5,542,500 is Federal and $1,847,500 is non-Federal.

Local Cooperation. The following Project Cooperation Agreements (PCA) have been executed with the communities: Lawrenceburg PCA - September 1998, Evansville - November 1998, Tell City PCA - June 1998, Cannelton PCA - September 1999, New Albany – November 1999 and Jeffersonville-Clarksville – November 1999.

Operations during fiscal year. Construction is complete at Tell City, Lawrenceburg, Evansville and Cannelton.

Conditions at the end of fiscal year. Project is about 60 percent overall with design 100 percent complete. Federal funds of $650,000 were included as a Congressional Add to the energy and Water Development Appropriations Act of 2004 (PL108-37) for the purpose of initiating construction of the New Albany and Jeffersonville-Clarksville projects. The Corps of Engineers will use those funds, and the non-Federal sponsors' proportionate shares, to begin rehabilitation of critical structures and equipment by late FY2004 or early FY2005.

16. OHIO RIVER GREENWAY PUBLIC ACCESS, IN

Location. The Ohio River Greenway is a seven-mile linear corridor that extends from the City of Jeffersonville

through the Town of Clarksville to the City of New Albany, Indiana, along the Ohio River Shoreline. The project extends from the Ohio River Mile 602 to Ohio River Mile 609. The corridor adjoins the McAlpine Locks and Dam project and the Falls of the Ohio National Wildlife Conservation Area on the Indiana side of the river.

Existing project. The project features consist of a vehicular parkway, pedestrian and multi-use paths, a bridge, and two levee cuts for additional access to the river. The project was authorized by the Water Resources Development Act of 1996. Estimated cost for the project is $35,000,000 of which $17,500,000 is federal cost and $17,500,000 is non-federal cost.

Local Cooperation. There are four non-federal sponsors: The Ohio River Greenway Development Commission, the City of New Albany, the Town of Clarksville, and the City of Jeffersonville. The Project Cooperation Agreement was executed 2 June 2003.

Operation during fiscal year. Work this year included execution of the PCA, completion of plans and specifications for the 1st construction contract and contract award in June 2003.

Condition at end of fiscal year. The project was approved for construction by the ASA(CW) in April 2000. The project is 10% complete overall.

17. POND CREEK, LOUISVILLE, KY

Location. The project is located in the central and eastern portions of the 126 square mile Pond Creek watershed in southern Jefferson County, Kentucky.

Existing project. The project consists of constructing a 1500 acre-feet detention basin storage facility along Northern Ditch. An existing abandoned rock quarry adjacent to Fishpool Creek will be converted to a detention basin. Approximately 2.4 miles of the Pond Creek channel will be enlarged as well as 1.5 miles of Northern Ditch. A multi-purpose maintenance road/recreation trail will be constructed along the length of the Pond Creek channel improvement. In addition, three inactive settling basins owned by the local sponsor will be converted into an environmental restoration site. Estimated cost for the project is $20,800,000 of which $15,300,000 is Federal and $5,500,000 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). MSD has included all funds necessary for their cost share of the project in their capital budget plan. The Project Cooperation Agreement (PCA) was executed in March 1998.

Operations during fiscal year. Work this year includes construction of Phase III Melco Basin and preparation of contract documents for the final phase of the project, Phase IV Channel Improvements.

Conditions at end of fiscal year. The project is about 80 percent complete. Design is 98 percent complete. The first two phases of the construction project are completed. The Melco Basin is under construction and will be completed in FY 04.

18. POND CREEK, KENTUCKY, FLOODPLAIN EVACUATION.

Location. Metropolitan Louisville, Jefferson County, Kentucky.

Existing project. Prepare a study to evaluate the purchase and demolition of residences that lie in the Pond Creek Drainage Basin within 100-year floodplain that experience significant flooding. The property would be allowed to revert to wetlands and riverine habitat. Additional improvements could also be evaluated such as removal of fill material and planting of native trees, shrubs, and grasses. The Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations for fiscal year 2001 provided the initial funding for the project. Additional funds were appropriated in the Energy and Water Development Appropriations Act of 2002.

Local Cooperation. The non-federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). Once a Decision Document is approved and a viable project is identified, a Design Agreement will be executed with a non-federal sponsor.

Operations during fiscal year. Completion of a Decision Document to identify flood prone structures in the Pond Creek watershed and evaluate the feasibility of removing those structures from the floodplain.

Conditions at end of fiscal year. There were no economically feasible alternatives identified in the study. In February 2003, the Commander and District Engineer recommended no further Federal action on the project.

19. SALYERSVILLE, KY

Location. Project is located along the banks of the Licking River from approximately mile 266 and 271 in Magoffin County, Kentucky along the Mountain Parkway about 75 miles southeast of Lexington, Kentucky.

Existing Project. The most cost-effective and feasible plan to provide the authorized level of protection (1978 flood protection) is called the "Cut-Thru Plan" and includes two channel cut-thrus, a barrier dam at the upstream cut-thru, and an 0.8-mile reach of channel improvement connecting the two cut-thrus. Estimated total cost of new work is $8,541,000 of which $7,730,000 is Federal and $811,000 is non-Federal.

Local Cooperation. The local sponsor qualifies for an "ability to pay" reduction pursuant to Section 103(m) of the 1986 Water Resource Development Act. Based on current costs and economics, the local sponsor share would be 9.5 percent of the total project cost. The Project Cooperation Agreement (PCA) was executed in August 1995. The construction contract was awarded in September 1996 and completed in July 1998.

Operations during fiscal year. Construction was completed in FY 99.

Conditions at the end of fiscal year. Project is complete, except for pending real estate actions on two tracts of land.

20. SOUTHWESTERN JEFFERSON COUNTY, KY

Location. In Jefferson County, KY, on left bank of Ohio River from mile 616 to 628.6.

Existing project. Construction of 68,500 feet of levee, 1,550 feet of concrete wall, four pumping plants, and other necessary appurtenances. Project provides protection for 24,100 acres against Ohio River floods equal to 1937 flood of record with 3-foot freeboard. Cost of new work is $70,049,492, of which $60,207,439 is Federal, and $9,842,053 is non-Federal. Project was authorized under Flood Control Act of August 1968. Recreation as a project purpose has been deferred.

Local Cooperation. Section 3 Flood Control Act of 1936 as amended applies. In addition, local interests agree to administer project land and water areas for recreation and fish and wildlife enhancement; and to pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation and fish and wildlife enhancement; and bear all costs of operation, maintenance and replacement of lands and facilities for recreation and fish and wildlife enhancement. Jefferson County Fiscal Court expressed intent to fulfill requirements by resolution dated April 4, 1967. Formal assurances of local cooperation for the flood protection portion of the project was executed by resolution of Jefferson County Fiscal Court, adopted September 17, 1971, and assurances for the recreation portion of the project was executed by similar resolution, adopted September 14, 1971. Authorization-of-entry for levee and floodwall sections 1,2,3,4,4A,5 and Pond Creek Pump Plant have been furnished. Project was transferred to local interest on September 8, 1989.

Operations during fiscal year. New Work: Project is 100 percent complete. During the 2003 flood season, no benefits were realized.

21. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE SECTION 531 PROGRAM

Location. The project location comprises a 27 county region in southern and eastern Kentucky, which includes portions of Louisville, Huntington, and Nashville Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects. Under the Section 531 Authority, to date we have 3 projects physically complete. These projects all lie within Menifee, Floyd, and Laurel counties. We also have 8 wastewater related designs in progress in the counties of Bath, Jackson, Magoffin, Pulaski, Leslie, Perry, and Laurel.

Bath County – Preston, KY Decentralized Wastewater Treatment System project: PCA executed in FY03 for design and construction.

Jackson County – McKee Utility Improvement Project: PCA executed September 2000. Design continued in FY 2003.

Magoffin County – Salyersville/Magoffin County Sewer line Extension Project: PCA executed June 2000. Design continued in FY 2003.

Pulaski County – Science Hill Sewer Project: PCA executed September 2001. Design continued in FY 2003.

Leslie County – Hyden Sewer Project: PCA executed September 2001. Design continued in FY 2003.

Perry County – Vicco Wastewater Treatment and Collection Project: PCA executed November 2001. Design continued in FY 2003.

Laurel County – Northland Estates Sewer Project: PCA executed November 2001. Design continued in FY 2003.

Laurel County - Wood Creek Wastewater Treatment Project: PCA executed September 2003.

Work is authorized under Section 531 of the Water Resources Development Act of 1996 (P.L. 104-303).

Local Cooperation. Project Cooperation Agreements have been executed for Pulaski County, Leslie County, Menifee County, Floyd County, Laurel County, Magoffin County, Perry County and Jackson County.

Operations during fiscal year. Work this year included completion of a PCA with Bath County. Design continued on all projects.

Condition at end of fiscal year. Three projects are physically complete. One additional PCA was signed resulting in one new design during fiscal year and seven designs were continued in FY 03.

22. WABASH RIVER, NEW HARMONY, IN

Location. The project is located in Posey County in Southwestern Indiana along the left bank of the Wabash River. The town is about 120 miles southwest of Louisville, Kentucky, and seven miles south of I-64.

Existing Project. The project consists of providing erosion control along the left bank of the Wabash River at New Harmony, Indiana. This will be accomplished by placing stone beginning at a point 950 meters (3117 feet) upstream of the State Highway 66 bridge and continuing upstream for a distance of 1470 meters (4823). To comply with environmental commitments, wildlife supporting hardwood seedlings will be planted along the project right -of-way. Cost of the new work was $3,239,025 of which $2,429,269 is Federal and $809,756 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost sharing partners are the Town of New Harmony, Indiana and the Department of Natural Resources (IDNR). Both cost-sharing partners included all funding necessary for their cost share of the project in their FY 99 and FY 00 budgets. A Project Cooperative Agreement (PCA) was executed in January 2000. The sponsor has completed real estate acquisition.

Operations during fiscal year. Work this year included financial closeout and turnover of the project to the customer. As built drawings and operation and

maintenance manuals were completed and provided to the customer..

Conditions at the end of fiscal year. The project is 100 percent complete. Project fiscal closeout and turnover to customer was completed in August 2003.

23. WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, IN

Location. Project is located along the White River in the City of Indianapolis, IN.

Existing project. Project consists of infrastructure improvements such as public access parking, walkways, pedestrian bridges, landscaping, lighting, and water features. The project also includes continuous public access along both sides of the White River waterfront through the construction of walkways, bike paths, landscaped promenades, and the rebuilding and reconfiguring of the existing concrete slopewalls. Estimated cost of new work is $113,804,500 of which $52,475,000 is Federal and $61,329,500 is non-Federal.

Local Cooperation. The non-Federal sponsors are the White River State Park (State of Indiana) and the City of Indianapolis. All lands for the project have been acquired by the sponsors. The Project Cooperation Agreement (PCA) was executed in December 1997. Amendments to the PCA were executed in June 1999 to add the Upper Canal feature to the Project and in February 2001 to add the Beveridge Paper feature.

Operations during fiscal year. Work this year included substantial completion of one construction contract, and completion of plans and specifications and award of the final construction contract.

Condition at end of fiscal year. Project is about 95 percent complete overall with design 100 percent complete and construction about 95 percent complete.

24. WHITE RIVER INDIANAPOLIS (NORTH), IN

Location. The project is located in metropolitan Indianapolis, Indiana, along the northern reaches of the White River within Marion County.

Existing project. The project is located along 3 miles of the White River in the City of Indianapolis, IN, and consists of a combination of levees and floodwalls, rehabilitation of an existing pump station, two mitigation sites, and a flood warning system. Estimated cost of the project is $19,000,000 of which $14,250,000 is Federal and $4,750,000 is non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the City of Indianapolis, Department of Public Works.

Operations during fiscal year. Work this fiscal year included substantial completion of the Phase 1 contract for rehabilitation of the existing Warfleigh Pump Station. In addition, work progressed on the Phase 3A contract for construction of the 7600 foot Warfleigh section of the floodwall/levee. Design activities also continued on the remaining sections of floodwall and earthen levee.

Conditions at the end of fiscal year. The project is 35 percent complete. Construction is authorized and funding provided. The flood warning system is complete. The contract for rehabilitation of the existing pump station is scheduled for physical completion in the second quarter of FY2004. The Warfleigh section of the levee is scheduled for completion in Spring 2004. A construction contract for the Monon-Broad Ripple section of the floodwall is tentatively scheduled for award by the end of FY2004, pending acquisition of real estate.

Flood Control - Reservoirs

25. BARREN RIVER LAKE, KY

Location. Dam is on Barren River, 79.5 miles above its confluence with Green River and 10 miles northeast of Scottsville, KY. A flood control pool reservoir extends upstream about 40 miles in Barren and Allen Counties, KY. (See U.S. Geological Survey map of Lucas, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rolled earth and rockfill, 146 feet high and 3,970 feet long, with gate-controlled outlet works and uncontrolled open-cut spillway. Total storage capacity is 815,200 acre-feet (768,000 for flood control and 46,600 for water supply storage). For further details, see page 1125 of Annual Report for 1962. Cost of the completed project is $27,479,717 including $2,335,055 Federal funds and $108,418 non-Federal funds for construction of recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1938.

Local Cooperation. None required by authorizing act. Under provision of Water Supply Act of 1958, contract with City of Glasgow for water supply storage was approved by Secretary of Army on October 4, 1965. Terms require City to pay $23,433, which is project cost allocated to water storage plus capitalized prepayment of proportionate share of operation, maintenance, and major replacement costs. A contract, with the Commonwealth of Kentucky for development of additional campsites, shoreline protection and breakwater extension at Barren River Lake State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: Replaced tower bypass valves and hydraulic components. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $6,833,000 were prevented. Visitor expenditures were $36,306,815.

Condition at end of fiscal year. Construction started in March 1960 and all major construction and relocation items were completed in October 1964. Project was placed in operation in March 1964. Land acquisition is complete.

26. BROOKVILLE LAKE, IN

Location. Dam site is on East Fork of Whitewater River, 2.4 miles above confluence with West Fork, and about 1-1/2 miles north of Brookville, Indiana. The reservoir lies in Franklin and Union Counties, Indiana. (See U.S. Geological Survey map of Brookville, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earthfill, 182 feet high and 3,004 feet long, with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 359,600 acre-feet (214,700 for flood control, 89,300 for water supply, and 35,500 for conservation). A minimum pool of 20,100 acre-feet is maintained. Cost of completed new work is $45,402,565 of which $37,905,073 is Federal cost and $7,497,492 is non-Federal contribution for water supply storage. Project was authorized by 1938 Flood Control Act.

Local Cooperation. None required by authorizing act. Contract with State of Indiana for water supply storage under provisions of Water Supply Act of 1958 was approved by Secretary of Army, August 5, 1965. Under terms of contract, State paid initial costs allocated to water supply feature of project plus capitalized prepayment of proportionate share of operation and maintenance costs.

Operation during fiscal year. New work: Repaired eroded concrete in stilling basin. Maintenance: Routine maintenance was performed. During 2003 flood season no flood damages were prevented.. Visitor expenditures were $13,920,518.

Condition at end of fiscal year. Construction was started in November 1965 and project was placed in operation January 1974. Construction and land acquisition are complete.

27. BUCKHORN LAKE, KY

Location. Dam is on Middle Fork of Kentucky River, 43.4 miles above mouth, and 0.5 mile upstream from Buckhorn, Perry County, KY. Reservoir extends upstream about 34 miles and lies in Leslie and Perry Counties, Kentucky. (See U.S. Geological Survey map of Buckhorn, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill type, with gate controlled outlet works. Total storage capacity is 168,000 acre-feet, of which 157,600 are for flood control. For further details, see page 1120 of Annual Report for 1962. Cost of completed new work is $12,466,206 including $386,707 for construction of recreation facilities under the completed projects program. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. Department of Parks of the Commonwealth of Kentucky has undertaken management of certain lands and recreational facilities in accordance with license granted by Secretary of the Army on June 29, 1962.

Operations during fiscal year. New work: Modern restrooms were constructed at the Trace Branch and Confluence recreation areas with Construction, General funding provided as a Congressional Add to the Energy and Water Development Appropriations Act of 2002 (PL 107-66). Maintenance: Routine maintenance was performed. Operation for flood control during 2003 flood season prevented damages of $4,569,000. Visitor expenditures were $8,090,783.

Condition at end of fiscal year. Construction started in September 1956 and project was placed in operation in August 1960. All construction and land acquisition is complete for original project. A contractor began construction of a shower house and Class A campground facilities at the Trace Branch recreation area in late FY2003. These facilities, funded with the FY2002 Construction General appropriations, will be completed in summer 2004.

28. CAESAR CREEK LAKE, OH

Location. Dam site is on Caesar Creek, about 3.0 miles above its confluence with Little Miami River, in Warren County, OH, about 3.5 miles southeast of Waynesville, OH, and 10.5 miles northeast of Lebanon, OH. Reservoir lies in Warren, Clinton, and Green Counties, OH. (See U.S. Geological Survey map of Oregonia, OH.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earth and rockfill dam, four saddle dams, outlet works and an uncontrolled saddle spillway. Total storage capacity of reservoir is 242,200 acre-feet, of which 148,500 acre-feet are reserved for flood control storage. Cost of new work is $62,881,010 Federal and $5,037,000 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1983 Flood Control Act.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance and major capital replacements required for the water supply facilities.

Operations during fiscal year. New work: Repaired broken sewer force main. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $9,925,000 were prevented. Visitor expenditures were $33,115,710.

Condition at end of fiscal year. Construction was started in January 1968 and the project was placed in operation January 1978. Land acquisition is complete. All relocation and construction features are complete.

29. CAGLES MILL LAKE, IN

Location. Dam is on Mill Creek, 2.8 miles above its confluence with Eel River, in Putnam County, IN, and about 25 miles east of Terre Haute, IN. Reservoir extends upstream about 11 miles and is in Putnam and Owen Counties, IN. (See U.S. Geological Survey map of Poland, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill embankment. Total storage capacity is 228,100 acre-feet, of which

201,000 acre-feet are for flood control. For details, see Annual Report for 1962, page 1136. Cost of new work is $4,369,997, which includes $4,256,903 Federal funds, and $113,094 contributed funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required. State of Indiana has undertaken development and management of recreation facilities for use of the public in reservoir area in accordance with license granted by Secretary of the Army on January 17, 1952. A contract with the Indiana Department of Natural Resources for expanding the boat ramp and parking area at Site 3, Lieber State Park, under the cost sharing category of the completed projects program was signed by the State of Indiana on August 26, 1981 and approved by the Deputy Chief of Engineers on March 26, 1982.

Operations during fiscal year. New Work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $11,717,000 were prevented. Visitor expenditures were $9,399,835.

Condition at end of fiscal year. Construction started in July 1948 and completed in June 1953. Recreation facilities constructed under the cost-sharing category of the completed projects program are complete.

30. CARR CREEK LAKE, KY

Location. Dam site is 8.8 miles above mouth of Carr Fork, a tributary of North Fork of Kentucky River, 16 miles upstream from Hazard, KY. The reservoir lies entirely within Knott County. (See U.S. Geological Survey maps of Carrie and Vicco, KY.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. Dam is rock and earth fill with impervious core, 720 feet long and 130 feet high, with uncontrolled open cut spillway through left abutment. Outlet works has two control gates and 8-foot diameter conduit to stilling basin. Total storage capacity is 47,700 acre-feet (31,600 for flood control and 4,300 for water quality control). A higher-level seasonal pool for recreation is provided. Cost of completed work is $51,854,826 including $76,724 for recreation facilities under the completed projects program. Project was authorized by the 1962 Flood Control Act.

Local Cooperation. None required for reservoir project. Division of Flood Control and Water Usage of Commonwealth of Kentucky gave assurance that encroachments on downstream channel capacity will be prevented. Under the terms of a new lease, the State of Kentucky assumed operation of the Irishman Creek Beach and Campground in 1996. This establishes a State Park at the lake and also provides the impetus for additional resort development. Project name was changed from Carr Fork Lake, KY to Carr Creek Lake, KY effective February 16, 1997 by Public law 104-303, October 12, 1996.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $12,498,000 were prevented. Visitor expenditures were $12,698,890.

Condition at end of fiscal year. Project was placed in operation January 1976. Construction started in January 1966 is complete.

31. CAVE RUN LAKE, KY

Location. Dam site is on Licking River, about 4 miles upstream from U.S. Highway 60 near Farmers, KY, and 7 miles southwest of Morehead, KY. Reservoir will be in Rowan, Bath, Morgan, and Menifee Counties, KY. (See U.S. Geological Survey maps of Salt Lick and Morehead, KY.)

Existing project. Plan provides for construction of a reservoir for flood control and allied purposes. Dam is rolled earthfill, with gate controlled outlet works and uncontrolled open spillway. Total storage capacity is 614,700 acre-feet (438,500 for flood control and 28,300 for water quality control). Cost of new work is $81,159,541 of which $6,900,000 is U.S. Forest Service cost. Project was authorized by Flood Control Acts of June 22, 1936 and June 28, 1938.

Local Cooperation. None required.

Operations during fiscal year. New work: Replaced tower roof. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $12,400,000 were prevented. Visitor expenditures were $12,682,185.

Condition at end of fiscal year. Project has been in operation since February 1974. Construction was started in June 1965 and is complete. Land acquisition is complete. All relocation and construction features are complete.

32. CECIL M. HARDEN LAKE, IN

Location. Dam is on Raccoon Creek, 32.4 miles above its confluence with Wabash River, and 25 miles northeast of Terre Haute, IN. At flood control pool, reservoir extends upstream about 15 miles in Parke and Putnam Counties, Indiana. (See U.S. Geological Survey Map of Mansfield, IN.)

Existing project. A rolled earth dam and reservoir, for flood control and allied purposes. Total storage capacity is 132,800 acre-feet of which 116,600 acre-feet area for flood control. For details, see Annual Report for 1962, page 1132. Cost of completed new work is $6,987,807 made up of $6,260,134 for the initial project and $373,678 Federal cost and $353,995 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from Mansfield Lake to Cecil M. Harden Lake by Public Law 93-521, December 14, 1974.

Local Cooperation. State of Indiana has undertaken management of lands and recreational facilities in accordance with license granted by Secretary of the Army

on April 19, 1961. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operation during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $12,400,000 were prevented. Visitor expenditures were $30,547,689.

Condition at end of fiscal year. Construction started in October 1956 and all major items of work were completed December 1961. Land acquisition is complete. Project has been in operation since August 1960. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are completed.

33. CLARENCE J. BROWN DAM & RESERVOIR, OH

Location. Dam site is just east of Springfield, Clark County, OH, at mile 7.3 of Buck Creek, a tributary of Mad River. (See U. S. Geological Survey maps of New Moorefield and Springfield, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, 6,620 feet long and 72 feet high, with gated outlet works and open cut spillway with concrete chute through right abutment. Total storage capacity of reservoir is 63,700 acre-feet (32,900 for flood control and 20,800 for water quality control). Federal cost of completed project is $22,083,660. Project was authorized by 1962 Flood Control Act. Project name was changed from Buck Creek Dam and Reservoir to Clarence J. Brown Dam and Reservoir by Public Law 90-46, July 4, 1967.

Local Cooperation. Assurances from City of Springfield, Springfield Conservancy District, and Clark County, Ohio, covering protection against detrimental channel encroachment below dam to mouth of Buck Creek, were accepted March 5, 1964.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season no damages were prevented. Visitor expenditures were $19,410,548.

Condition at end of fiscal year. Construction started in September 1966. Land acquisition and all major project features were completed in November 1973. The project was placed in operation in January 1974.

34. GREEN RIVER LAKE, KY

Location. Dam site is 305.7 miles above mouth of Green River in Taylor County, KY, about 8 miles south of Campbellsville. Reservoir lies in Taylor and Adair Counties. (See U.S. Geological Survey map of Cane Valley, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill, 141 feet high and 2,350 feet long. Outlet works is slide gate-controlled and spillway open and uncontrolled. Total storage capacity is 723,200 acre-feet (560,600 for flood control and 64,500 for low-flow augmentation). Cost of completed new work is $33,462,330, consisting of $33,105,184 initial project funds, $40,001 for water supply, and $317,145 Federal funds for construction of recreation facilities under the completed projects program. Existing project was authorized under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required by authorizing act. Taylor County, by lease approved by Secretary of Army February 15, 1968, undertook operation and maintenance of Smith Ridge public access area. In May 1980, the lease was amended to turn back responsibility for maintenance and operation of the site to the Corps. Under provision of Water Supply Act of 1958, contract with City of Campbellsville for water supply storage was approved by Secretary of Army April 23, 1969. Terms require city to repay, with interest and annual charges for operation, maintenance and major replacement, the investment cost of $85,765 allocated to its water supply storage space. The Department of Parks of the Commonwealth of Kentucky, by lease approved by Secretary of Army, October 4, 1971, has undertaken the management of the Lone Valley public access area.

Operations during fiscal year. New work: Replaced motor control center in tower. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $6,611,000 were prevented. Visitor expenditures were $30,306,692.

Condition at end of fiscal year. Construction began in August 1965 and all major construction and relocation items were completed in 1972. Project has been in operation since February 1969. Project including all land acquisition complete in 1973. Construction of sanitary dump station for boats at Dam Site in conformance with EPA and State standards and rehabilitation of sewage treatment facilities, washhouses and restrooms at Smith Ridge site is complete.

35. J. EDWARD ROUSH LAKE, IN

Location. Dam site is on Wabash River, about 2 miles from Huntington, IN, and 411.4 miles above mouth. Reservoir is in Huntington and Wells Counties, IN. (See U.S. Geological Survey maps of Majenica and Mt. Etna, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam consists of a rolled earth embankment 4,700 feet long and 89 feet high, a concrete spillway and outlet section 155 feet long, and a concrete gravity section 310 feet long. Spillway is controlled by three gates, and outlet works by six sluices. Project also provides local flood protection for Markle, IN. Total storage capacity of reservoir is 153,100 acre-feet, of which 149,000 acre-feet is reserved for flood control storage. Cost for new work is $19,621,777 made up of $19,428,355 Federal cost for the initial project and $193,422 non-Federal contributed funds for low flow augmentation storage, and $155,354 non-Federal contribution in kind for recreation facilities under the

completed projects program. Project was authorized by Flood Control Act of 1958. Project name was changed from Huntington Lake, IN to J. Edward Roush Lake, IN effective 16 February 1997 by Public law 104-303, 12 October 1996.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana has met this obligation. Contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army May 17, 1974, provided for that agency to design and construct certain additional recreational facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost shared category of the completed projects program.

Operations during fiscal year. New work: Replaced motor control center in tower. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $46,534,000 were prevented. Visitor expenditures were $4,732,316.

Condition at end of fiscal year. Land acquisition and all major construction complete. Project was placed in operation January 9, 1969. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

36. MISSISSINEWA LAKE, IN

Location. Dam site is 7.1 miles above mouth of Mississinewa River, which flows into Wabash River about 2 miles upstream from Peru, IN. At flood control pool level, reservoir extends upstream about 28 miles, in Wabash, Grant, and Miami Counties, IN. (See U.S. Geological Survey map of Peoria, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam 137 feet high and 8,100 feet long, gate-controlled outlet works, and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 368,400 acre-feet, of which 345,100 acre-feet are reserved for flood control storage. Cost for completed new work is $52,394,600 made up of $23,791,816 Federal cost for the initial project, $239,200 non-Federal contributed funds for low flow augmentation storage. $174,392 Federal cost and $174,392 non-Federal contribution in kind for recreation facilities under the completed projects program, and $27,924,800 for major rehabilitation. Project was authorized by the Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to 1 percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work: None. Maintenance: Construction contract for placement of 2600 feet of concrete cut-off wall in the right embankment 150' to 180' depth to rock foundation to remediate poor foundation conditions was continued. The initial contract amount was $29,800,000 and has a three-year performance period. After preliminary construction activity on roads, construction of the cut-off wall test section began April 4, 2002. During initial excavations the contractor experienced sudden and complete loss of bentonite slurry used to support the excavation. He then moved to the far end of the 100-foot test section and attempted another excavation with the same result. The contractor was issued a stop work order on May 17, 2002. Analysis of the problem has shown the upper layer of rock foundation contains excessive voids requiring pre-treatment with grout to enable the cut-off wall excavation to then proceed with minimal slurry loss. The grouting program was initiated on July 10, 2002, completed November 17, 2003, and will add up to $20,000,000 to the contract cost. Cut-off wall excavation in the test section resumed October 2002 and was completed in February 2003. Construction of the cut-off wall resumed August 4, 2003 and continues. Project completion date is May 2005. Total cost of cut-off wall is now estimated at $55,000,000. The project is on the HQUSACE High Priority List. During the 2003 flood season estimated damages of $31,443,000 were prevented. Visitor expenditures were $8,229,109.

Condition at end of fiscal year. Project was placed in operation in May 1968. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete. Construction continued on cut-off wall contract and construction was 46% complete at the end of September 2003. Because of the uncertainty regarding the conditions under which the embankment is performing, the Mississinewa Lake will be operated with restricted reservoir elevations until construction of the cut-off wall is complete.

37. MONROE LAKE, IN

Location. Dam is on Salt Creek, a tributary of White River, 25.9 miles above mouth, and 2 miles east of Harrodsburg, Monroe County, IN. At flood control pool level, reservoir will extend upstream 44 miles in Monroe, Brown, and Jackson Counties. (See U.S. Geological Survey map of Clear Creek, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth core and rock shell, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 441,000 acre-feet (258,800 for flood control and 159,900 for low flow augmentation.) Cost of completed new work is $16,570,774 consisting of $7,032,484 Federal funds, $7,797,604 non-Federal contributed funds for low-flow regulation storage and $870,343 Federal cost and $870,343 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by 1958 Flood Control Act, modifying comprehensive plan for Ohio River Basin.

Local Cooperation. Section 3, 1944 Flood Control Act applies. Local interests must contribute 54.1 percent of project cost, this being the proportion allocated to low-flow regulation feature, plus a capitalized amount representing that part of average annual maintenance and

operation cost allocated to low-flow regulation. State of Indiana assumed this cost-sharing obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work. None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $2,040,000 were prevented. Visitor expenditures were $35,961,411.

Condition at end of fiscal year. Project is complete and was placed in operation in February 1965. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

38. NOLIN LAKE, KY

Location. Dam is on Nolin River 7.8 miles above its confluence with Green River, about 70 air miles southwest of Louisville, KY. Reservoir extends upstream about 57 miles and is in Edmonson, Grayson, Hart, and Hardin Counties, KY. (See U.S. Geological Survey maps of Nolin Reservoir and Dickeys Mill, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rockfill-earth core type with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 609,400 acre-feet, of which 545,600 acre-feet is for flood control. For further details of project, see Annual Report for 1962, page 1124. Cost of new work is $17,193,278 including $2,594,274 for construction of recreation facilities. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required for authorized project. State of Kentucky contributed $18,195 for increased width of dam for public road. Kentucky assumed responsibility of the Brier Creek site to establish a State Park in 1996. Improvements are planned by Kentucky.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $2,469,000 were prevented. Visitor expenditures were $44,835,856.

Condition at end of fiscal year. Construction started in January 1959. Project was completed and placed in operation in March 1963.

39. OHIO RIVER BASIN (Louisville District)

Location. Works covered by this project are a series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Louisville District.

Existing project. Individual projects considered in comprehensive plan within the Louisville District. (See Table 24-B for authorizing legislation and Table 24-I for cost and listing of projects in the basin plan.)

Operations during fiscal year. No costs were incurred except for the projects for which individual reports are given.

40. PATOKA LAKE, IN

Location. Dam site is in Dubois County, IN, 118.3 miles above mouth of Patoka River, and 50 miles west-northwest of New Albany, IN. Reservoir extends into Dubois, Orange, and Crawford Counties. (See Geological Survey map of Cuzco, IN.)

Existing project. Reservoir for flood control and allied purposes. Dam is earth and rock fill, 1,550 feet long and 85 feet high, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 301,600 acre-feet (121,000 for flood control and 167,500 for water supply and water quality control). Cost of new work is $76,243,085 of which $56,060,640 is Federal cost for other construction, and $20,182,445 is non-Federal contribution for water supply storage and recreation facilities. Project was authorized by 1965 Flood Control Act, and emergency measures and snagging and clearing the Patoka River downstream of Patoka Lake to ensure effective operation of the project for flood control was directed by 1981 Appropriation Act for Energy and Water Development.

Local Cooperation. Local interests are required to reimburse the Federal Government for costs allocated to water supply storage presently estimated at 29.316 percent of the joint-use facilities cost, exclusive of interests, plus $287,000 for the cost of operating and maintaining water supply storage for a period of 50 years, plus $42,000 for the cost of major capital replacements required for water supply storage space for a period of 50 years. Local interests are also required to pay, contribute in kind, or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation. Present laws of the State of Indiana require that agency to make cash contributions during construction of the project. Local interests must also agree to prevent encroachments on channel of Patoka River from dam to mouth, and to pay allocated initial and annual maintenance and operation costs for water supply storage. Formal assurances of local cooperation, executed by the Indiana Natural Resources Commission, were accepted August 27, 1970. Contracts with State of Indiana for water supply and recreation were approved by the Secretary of the Army November 2, 1970.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $4,680,000 were prevented. Visitor expenditures were $218,903,069.

Condition at end of fiscal year. Construction was started in July 1972. Engineering studies are complete. Real Estate relocation work is complete. All major features are complete. Permanent impoundment was started in February 1978 and the project was placed in operation about August 1980.

41. ROUGH RIVER LAKE AND CHANNEL IMPROVEMENT, KY

Location. Dam is on Rough River, 89.3 miles above its confluence with Green River, 160.3 miles above Ohio River, and about 60 miles southwest of Louisville, KY. Reservoir extends upstream about 30 miles and is in Breckinridge, Hardin, and Grayson Counties, KY. Channel improvement work is on Rough River, Barnett Creek, and West Fork of Barnett Creek. (See U.S. Geological Survey maps of McDaniels and Falls of Rough, KY.)

Existing project. Reservoir is for flood control and allied purposes. Dam is rolled earthfill type, with gate-controlled outlet works. Storage capacity is 334,380 acre-feet, of which 314,210 acre-feet is for flood control. Project also includes channel clearing of lower Rough River, and channel improvement on Barnett Creek, a tributary of Rough River. For further details, see page 1126 of Annual Report for 1962. Cost of completed new work is $10,643,001 including $890,008 Federal funds and $22,612 non-Federal funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Modification of previously approved plan to include channel improvement items was authorized by the 1944 Flood Control Act.

Local Cooperation. None required for construction of reservoir unit. Provisions of Section 3, Flood Control Act of 1936, are applicable to channel improvements. Assurances were obtained from Ohio County for channel improvement. Department of Parks, Commonwealth of Kentucky, has undertaken management of certain lands and recreation facilities in accordance with license granted by Secretary of the Army on August 18, 1961. A contract with the Commonwealth of Kentucky to improve and pave road at the Below Dam Area - State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. Deficiencies in the dam at Rough River have been identified through Dam Safety Assurance Program activities. Deficiencies existing at the dam are as follows: Embankment – a sinkhole formed on the downstream face of the dam in fall 2002. Indications are it resulted from the lack of a filter between the interior of the dam and a buried downstream rock toe. Stilling Basin – preliminary analysis show the stilling basin is inadequate resulting in expensive periodic repairs using Operation and Maintenance funds. Basin needs to be extended as much as double its present length. Spillway – Preliminary analysis show that the spillway is inadequate. Work was initiated to prepare a Dam Safety Assurance Evaluation Report (DSAER) to define scope of corrective actions needed for the deficiencies and obtain authorization and funding to accomplish them. During the 2003 flood season estimated damages of $10,677,000 were prevented. Visitor expenditures were $52,775,379.

Condition at end of fiscal year. Construction started in November 1955 and reservoir was placed in operation in June 1959. Land acquisition and all major items of construction and relocation are complete. Preparation of the DSAER continued and is expected to be completed March 2004.

42. SALAMONIE LAKE, IN

Location. Dam site is 3.1 miles above mouth of Salamonie River, which enters Wabash River about 6 miles upstream from Wabash, IN. Reservoir extends upstream about 27 miles at flood control pool and lies in Wabash and Huntington Counties, IN. (See U.S. Geological Survey maps of Lagro and Majenica, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam with a maximum height of 133 feet and length of 6,100 feet, gate-controlled outlet works with a 16-foot-diameter conduit and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 263,600 acre-feet, of which 250,500 acre-feet is for flood control storage. Cost for new work is $17,039,321 made up of $16,244,356 Federal cost for the initial project and $163,867 non-Federal contributed funds for low-flow augmentation storage and $315,549 Federal cost and $315,549 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe, and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work: Repaired sluice gate. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $38,584,000 were prevented. Visitor expenditures were $13,618,971.

Condition at end of fiscal year. Land acquisition and all major construction and relocation contracts are complete. Reservoir was placed in operation in spring 1967. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

43. TAYLORSVILLE LAKE, KY

Location. Dam site is in Spencer County, KY, 60.0 miles above the confluence of Salt River and Ohio River, 4 river miles above Taylorsville and 36.9 river miles above Shepherdsville, KY. (See U.S. Geological Survey map of Taylorsville, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is an earth and rock fill structure, 164 feet high and 1,280 feet long. Outlet works are slide gate controlled and spillway is uncontrolled open cut. Total storage capacity is 291,670 acre-feet (211,230 for flood control, winter months), and 52,245 for water quality and fish and wildlife. Cost of completed new

work is $87,004,456, including $82,991,363 federal funds and $4,013,093 non-federal funds. Project was authorized by 1966 Flood Control Act.

Local Cooperation. Local interests must agree to administer project land and water areas for recreation; pay, contribute in kind, or repay (which may be through user fees) with interest one-half of the separable first costs of the project allocated to recreation; bear all costs of operation, maintenance, and replacement of recreation lands and facilities under P.L. 89-72. Local interests must also agree to prevent encroachments on flow-carrying capacities of stream channels below the reservoir to the extent needed to provide reasonably effective reservoir operation. Commonwealth of Kentucky has indicated intent to fulfill requirements for recreation cost sharing and has assumed responsibility for channel encroachments and pollution control. The Commonwealth furnished assurance agreements covering prevention of encroachment on capacity of stream channels in April and May 1973 and executed the recreation cost sharing contract in April 1973. On April 2, 1980, the U.S. District Court for the Western District of Kentucky ruled that the 1973 recreation cost sharing contract between the Commonwealth and the United States that provided for repayment after completion was invalid under the Kentucky Constitution which prohibits one General Assembly from obligating future appropriations that would be binding on a subsequent legislature. In response to the Court's ruling, the Commonwealth and the United States entered into a new contract providing for cash contributions. Contract was approved by the Secretary of the Army June 11, 1980. The contract was found to be valid and enforceable by the Court July 14, 1980.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $1,140,000 were prevented. Visitor expenditures were $23,179,135.

Condition at end of fiscal year. Engineering and design studies are complete. Land acquisition is 100 percent complete. Construction was started in June 1974. All major construction items are complete. The dam gates were closed in January 1983 for permanent impoundment. Dedication ceremony was May 28, 1983. Two sections of county road were washed out by heavy rainfall. Both sections were originally upgraded for project operation prior to washout. The repairs were completed by the Corps in 1996-97 at a cost of $700,000.

44. WABASH RIVER BASIN

Location. Works covered by this project are located in the Wabash River Basin, a drainage area of 33,100 square miles, covering parts of Indiana, Illinois, and Ohio.

Existing project. One local protection project and five reservoir projects were authorized for this basin plan. (See Table 24-B for authorizing legislation and Table 24-J for project list and total cost of basin plan.)

45. WEST FORK OF MILL CREEK LAKE, OH

Location. Dam is on West Fork of Mill Creek 6.5 miles above its junction with Mill Creek and 2 miles northeast of Mount Health, OH, and 10 miles north of downtown Cincinnati. Reservoir extends upstream about 3 miles and is in Hamilton County, OH. (See U. S. Geological Survey map of Glendale, OH.)

Existing project. An earth embankment dam and a reservoir for flood control and allied purposes. Total storage capacity of reservoir is 11,300 acre-feet, of which 9,850 acre-feet is for flood control. For further details, see page 1119 of Annual Report for 1962. Cost of completed new work is $4,722,463 made up of $3,092,941 Federal cost for the initial project, $520,800 non-Federal cost for sewer relocation and dam, $50,000 non-Federal contributed funds in fulfillment of project authorization and $529,361 Federal cost and $529,361 non-Federal contribution in kind for recreation facilities under the completed projects program. Existing project selected for construction under additional authorization for Ohio River Basin in 1946 Flood Control Act.

Local Cooperation. Local interests were to release necessary land under their control and give assurance that future channel encroachment below dam site would be prevented. For enlargement of reservoir to include a conservation pool, local interests would contribute one-half additional cost of such pool, including one-half cost of relocation of sanitary sewer, and agree to hold the United States free from damages resulting from its provision. Board of County Commissioners of Hamilton County, Ohio, adopted a resolution October 8, 1947, signifying willingness to fulfill requirements including provision of conservation pool. Assurances were executed on same date. A contract with the United States for relocation of sanitary sewer outside reservoir area in order to include conservation pool in project was accepted by Hamilton County, in which the United States paid one-half cost of such relocation work. Hamilton County Commissioners furnished $50,000, required as a local contribution toward additional cost of providing conservation pool. Hamilton County Park District has undertaken development and management of recreation facilities in reservoir area for use of the public in accordance with the license granted by Secretary of the Army on October 31, 1951. Contract for cost shared recreation development under the completed works program was executed by the Board of Park Commissioners, Hamilton County Park District, Ohio, in September 1975 and approved by the Chief of Engineers in December 1975.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $1,090,000 were prevented. Visitor expenditures were $25,741,397.

Condition at end of fiscal year. Construction started in March 1949 and reservoir was placed in operation in December 1952. Project is complete. Cost shared recreation development under the completed projects program is complete.

46. WILLIAM H. HARSHA LAKE, OH

Location. Dam site is on East Fork of Little Miami

River between Batavia and Williamsburg, OH, about 6.0 miles above Batavia and 32.6 miles above mouth of the Little Miami River. Entire project lies in Clermont County, OH. (See U.S. Geological Survey map of Batavia, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, outlet works, an uncontrolled saddle spillway, and a dike to close a saddle north of spillway. Total storage capacity of reservoir is 294,800 acre-feet, of which 210,600 acre-feet is reserved for flood control storage. Cost of completed new work is $52,023,157 and a estimated $3,485,840 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from East Fork Lake to William H. Harsha Lake effective January 4, 1981, by Public Law 96-383, October 6, 1980.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance, and major capital replacements required for the water supply facilities.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of $1,462,000 were prevented Visitor expenditures were $24,527,899.

Condition at end of fiscal year. Construction was started in May 1970. Project is complete and reservoir was placed in operation in February 1978.

47. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to maintain and operate local protection projects in accordance with regulations prescribed by Secretary of the Army. Inspections were made to determine extent of compliance and to advise interests as necessary to measures required to correct deficiencies. (See Table 24-K for the latest dates of inspection performed on the local protection projects, channel improvements, and bank revetments).

Fiscal year costs were $281,297. Total costs to September 30, 2003, were $6,200,922.

48. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 24-E.

49. FLOOD CONTROL WORKS UNDER SPECIAL AUTHORIZATION

Environmental restoration activities pursuant to Section 1135, 1986 Water Resources Act, as Amended. Costs for fiscal year were $90,507 for five planning & design analysis; $2,035 for one project under construction; $95 for one terminated study; $992 for one preliminary restoration plan; and $16,175 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Flood control activities pursuant to Section 205, 1948 Flood Control Act, Public Law 858, 80th Congress, as amended. Cost for fiscal year were $5,103 for planning and design analysis; $717,710 for fifteen feasibility reports; $97,894 for plans and specifications on two projects; $1,210,761 for two projects under construction; $54,059 for four projects completing construction; $70,187 for terminated studies on four projects; and $20,687 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Emergency bank protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Congress). Costs for fiscal year were $172,692 for nine planning and design analyses; $18,788 for one project completing construction; $60,908 for six study terminations; and $20,307 for coordination activities.

Reflects federal cost only, for full cost see table 24-L.

Aquatic Ecosystems Restoration (Section 206). Cost for fiscal year was $227,718 for seven planning and design analyses; $11,427 for one feasibility report; $330 for three study terminations; $19,127 for coordination activities; and $49,814 for six preliminary restoration plans.

Clearing and Snagging (Section 208). Cost for fiscal year was $466 for two study terminations.

EMERGENCY MANAGEMENT

Emergency flood control; activities pursuant to Public Law 99, 84th Congress, and antecedent legislation. The Louisville District participated in the following emergency management activities.

Rough River Lake Dam . Heavy rains (6.4 inches) from the remnants of Hurricane Isidore fell on the district in late September 2002 causing lake levels to rise extremely fast. As part of a routine inspection when lake levels rise this fast, depressions were observed on the downstream face of the Rough River Lake Dam. Rough River Lake is a flood control lake owned and operated by the Corps of Engineers. The District Emergency Operations Center (EOC) raised its activation level to Level II and deployed Dam Safety personnel and the District Deputy Commander to the dam to investigate the situation. Lake and Dam Safety personnel continued to monitor and investigate the situation for the next two weeks. It was finally determined the dam was stable and the depressions were not catastrophic.

Illinois Earthquake. An earthquake with a magnitude of 2.9 occurred on January 3, 2003, with an epicenter located six miles from New Haven, Illinois. District EOC personnel coordinated and worked with Illinois, Indiana and Kentucky Emergency Management Agencies to

ascertain the extent of any damages and to determine if any response efforts were necessary. No significant damage occurred and no further activity was required.

Lower Ohio River Flooding. Heavy rains fell once again across the district during late February 2003. This caused several streams in Kentucky and subsequently the lower Ohio River to rise above flood stage. The EOC raised the level of activation and began monitoring the situation. Close coordination occurred with and information was provided to the Kentucky and Indiana Emergency Management Agencies during this event. The EOC also contacted and coordinated with the local flood protection projects along the Ohio to assist them in preparing for the high water. This was to ensure their projects were ready and functioning properly so flood fight operations could begin if necessary.

Illinois and Tennessee Tornados. A series of severe thunderstorms and tornadoes struck across Illinois, Indiana and Tennessee during May 6 through May 11, 2003. Tennessee received a Presidential Declaration first. The majority of the damage in Tennessee occurred in the Memphis District Area of Operation and by agreement between MVD and LRD, MVD took the lead in Tennessee. Subsequently the State of Illinois, a MVD responsibility, received a declaration. Since MVD was already responsible for Tennessee, LRD assumed the lead for Illinois. Mr. Steve Rager, District Emergency Manager, was deployed by HQ USACE as the ESF#3 Team Leader. The Louisville District was assigned as the Lead District. Temporary Housing was the only mission that was assigned. The St. Paul Housing PRT was the next PRT in priority to be deployed and was assigned to LRL for command and control for the mission. The Louisville District together with the St. Paul District PRT installed twenty-six travel trailers to serve as temporary housing until the affected residents could rebuild their destroyed homes.

Ms. Denise LaDue with the Emergency Management and Security Branch was deployed to Tennessee in late June in support of the debris clean up mission from these same tornadoes. This effort was an experiment between the Corps and FEMA to determine if Corps personnel could serve as Public Assistance Officers for debris matters. Ms. LaDue was trained and sent out to supervise FEMA and Corps personnel involved in the debris removal mission and more directly to assist the local governments in their debris removal mission. Ms. LaDue's outstanding performance caused FEMA to declare the experiment a success and it is now a part of their response plans. Ms. LaDue is the first of an elite cadre that will be performing this mission.

Indiana Flooding. Heavy rains fell across northern and central Indiana during the early days of July 2003. The District EOC once again raised its activation level. The state of Indiana is the responsibility of the Louisville District in accordance with ER 500-1-28, the Response Planning Guide, and subsequent LRD guidance. Flood fighting activities, assets and personnel belonging to the Detroit and Chicago Districts were placed under the operational control of the Louisville District Commander. Mr. Dan Frank with the Emergency Management and Security Branch was deployed to the Indiana EOC to serve as the District LNO. The GIS element of the branch produced several inundation maps to help the state and locals determine where to flood fight and where to evacuate parts of the community. A total of 120,000 sand bags were provided to the state of Indiana along with eight 6-inch pumps that were provided to the City of Ft Wayne. Four other 6-inch pumps were staged at J.E. Roush Lake for possible future use. These pumps were the property of the Chicago District and they greatly assisted in the flood fighting effort. The three Corps lakes in the Upper Wabash River basin received record rainfalls and either reached or approached record pools. As a result, Mr. Don Robison with Engineering Division was assigned to the EOC to serve as the Dam Safety Mission Manager. Dam Safety personnel were deployed to each of the three lakes to monitor the dams. J.E. Roush's pool rose to within one-tenth of an inch from flowing over the top of the gate. This elevation was an extreme record pool. Mr. Steve Holmstrom with Engineering Division was also assigned to the EOC to serve as the H&H Mission Manager.

Middle Wabash River Flooding. Heavy rains fell over central Indiana on 29 August. The EOC raised its activation level in support of this event. The EOC deployed Mr. Troy O'Neal and Mr. Jeff Schaefer with Engineering Division to Martinsville and Anderson, Indiana, respectively to assist the locals in their flood fighting efforts. The GIS element of the Branch furnished inundation maps to assist the locals in their flood fighting efforts and evacuation plans.

Hurricane Isabel. Hurricane Isabel, a Category 4 storm, struck the east coast of the United States in late September 2003. Six states were affected and received major damage. Mr. Steve Rager, District Emergency Manager, was deployed by HQ USACE four days ahead of the storm to FEMA Region III HQ to serve on the Executive Level Planning Team and to prepare the six states for a worst-case scenario. Plans were written, personnel were deployed and supplies were staged as a result of the efforts of this team. The team was also credited as having reduced the amount of grief the public suffered from the storm by being better prepared. Mr. Rager was redeployed by HQ USACE to the State of Maryland to serve as the EFS#3 Team Leader. Maryland missions included providing ice, water, debris removal, harbor reconstruction and beach restoration. In addition to this effort, the Branch GIS element headed by Mr. Terry Siemsen performed an extremely great service. The GIS element executed their normally assigned mission of providing hurricane damage models and the planners and responders were much better prepared. These models are used across the entire Corps of Engineers. These models helped FEMA Region III and Region IV determine required supplies, where to stage the supplies, number of personnel needed, and plan for debris removal requirements.

Mr. Kevin Jasper with Planning, Project and Programs Management deployed to Virginia to serve as the Debris Subject Matter Expert to assist the State of Virginia in their debris removal efforts. Mr. Jasper was the second Louisville District person to perform this mission that Ms. LaDue initiated.

Critical Project Security Program (CPSP): Infrastructure Security Assessments have been conducted at all eleven **critical** USACE facilities in the Louisville District: Smithland L&D, L&D #52, John T. Myers L&D, Newburgh L&D, Cannelton L&D, McAlpine L&D, Markland L&D, West Fork Lake, Brookville Lake, Mississinewa Lake, and C.J. Brown Dam & Reservoir. The assessment reports for these projects have been approved by LRD and HQUSACE.

HQUSACE has funded the **critical** projects listed below for upgraded security, as identified in RAM-D reports: Smithland ($1,694,000); Markland L&D ($2,622,000); McAlpine L&D ($3,523,000); Cannelton L&D ($1,841,000); Newburgh L&D ($1,998,000); John T. Myers L&D ($1,995,000); L&D 52 ($1,289,000); West Fork Lake ($669,000).

Design charrettes have been conducted at the eight Phase I funded projects listed above. The follow-up 35% design packages have been completed for these projects, and the Independent Technical Review (ITR) team has completed its review of all those projects. The ITR has also completed their review of the 95% design which was submitted for Smithland and Markland. The IDIQ contractor is currently completing their designs for McAlpine, John T. Myers, Newburgh and Cannelton Locks & Dams. Those 95% designs will be forwarded for review as soon as they are received. The 95% designs for Locks & Dam 52 and West Fork Lake have not yet been awarded to the contractor. Requests for proposals were submitted to the District's IDIQ contractor for design/build delivery orders at all eight Phase I projects. The IDIQ has provided proposals for all eight projects, and several delivery orders have been awarded for physical, electrical and electronic security improvements. We have received approval to proceed with procurement and construction of fencing and lighting improvements at Smithland and Markland Locks & Dams. Our IDIQ contractor has initiated procurement of those materials at both sites, and the actual construction of fencing and lighting improvements has begun at Smithland. The current expenditures for the Critical Project Security Program design and initial construction totals approximately $1,672,000. Negotiations for the remaining improvements noted below are currently in progress: West Fork Lake (all security improvements); Locks & Dam 52 (all security improvements); Markland L&D (highway bridge improvements).

Force Protection Infrastructure Security Assessments have been completed at 14 of the district's 19 remaining non-critical USACE Facilities.

Costs for fiscal year 2003 were: $260,146 for Disaster Preparedness; $808,759 in reimbursable funds for emergency operations; $17,485 for inspection of non-federal flood control works; and, $489,008 for emergency levee rehab for non-federal flood control works under PL 84-99.

General Investigations

50. SURVEYS

Fiscal year costs was $354,625 for one navigation study; $217,144 for eight flood damage prevention studies; $237,762 for seven special studies; $24,264 for one review of authorized projects; and $148,647 for four miscellaneous activities.

Reflects Federal cost only, for full cost see Table 24-M.

51. PRECONSTRUCTION ENGINEERING AND DESIGN

Fiscal year costs were $888,364 for one Navigation project; $705 for two flood control projects.

Reflects Federal cost only, for full cost see Table 24-M.

52. COORDINATION WITH OTHER AGENCIES

Fiscal year total cost was $7,994 for one coordination with other agencies project and $89,220 for six planning assistance to states projects.

Reflects federal cost only, for full costs see Table 24-M.

53. COLLECTION AND STUDY OF BASIC DATA

Fiscal year total cost was $134,277 for six flood plain management projects; and $4,740 for one hydrologic study.

TABLE 24-A CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003	
	Navigation - Channels and Harbors							
1	Open Channel Work, Licking River	New Work						
		Approp.	$ 0	$ 0	$ 0	$ 0	$ 0	
		Cost	$ 0	$ 0	$ 0	$ 0	$ 0	
		Maint.						
		Approp.	0	0	0	0	187,816	
		Cost	0	0	0	0	187,816	
3	**Navigation - Locks and Dams**							
	Green and Barren Rivers, KY	New Work						
		Approp.	0	0	0	0	13,808,222	1
		Cost	0	0	0	0	13,808,222	1
		Maint.						
		Approp.	1,681,014	1,305,186	1,428,205	1,938,658	53,683,360	2,3
		Cost	1,681,016	1,305,039	1,422,384	1,939,630	52,165,337	
4	Kentucky River, KY	New Work						
		Approp.	0	1,996,000	390,875	0	6,563,624	62
		Cost	0	104,780	999,214	925,077	6,205,819	
		Maint.						
		Approp.	2,953,554	1,944,654	1,071,921	76,265	85,364,826	4,5,45
		Cost	2,952,266	1,943,526	1,069,220	86,112	85,364,790	4,5,46
		Minor Rehab.						
		Approp.	0	0	0	0	556,956	
		Cost	0	0	0	0	556,956	
	Flood Control, Local Protection							
8	Beargrass Creek	New Work						
		Approp.	0	70,000	377,500	2,549,000	2,996,500	63
		Cost	0	68,367	357,076	2,559,558	2,985,001	64
9	Duck Creek	New Work						
		Approp.	1,825,000	362,700	1,611,400	7,220,700	13,235,800	55
		Cost	1,720,169	545,925	1,633,199	6,779,924	12,765,705	56
10	Holes Creek, OH	New Work						
		Approp.	2,935,915	201,000	78,408	786,067	8,172,265	51
		Cost	2,584,891	424,950	528,428	679,855	8,061,982	52
11	Indianapolis CSO	New Work						
		Approp.	0	0	16,000	244,000	260,000	67
		Cost	0	0	14,948	29,965	44,913	
12	Louisville Waterfront Park	New Work						
		Approp.	0	100,000	20,000	0	120,000	
		Cost	0	60,504	55,936	3,265	119,704	
13	Mill Creek, OH	New Work						
		Approp.	2,237,734	361,000	1,874,700	4,568,000	107,898,376	6
		Cost	1,968,526	517,123	1,835,349	4,709,388	107,865,763	7
14	Ohio Environmental Infrastructure	New Work						
		Approp.	0	620,000	1,510,000	277,000	2,407,000	
		Cost	0	566,417	828,461	130,037	1,524,915	

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003	
15	Ohio River Flood Protection (Indiana Shoreline), IN	New Work						
		Approp.	544,370	214,146	(1,446)	(5,304)	4,270,866	57
		Cost	1,354,457	1,270,049	121,359	2,301	4,265,606	58
16	Ohio River Greenway	New Work						
		Approp.	0	607,000	625,000	954,000	2,186,000	68
		Cost	0	601,034	606,384	778,023	1,985,441	
17	Pond Creek, KY	New Work						
		Approp.	1,667,000	4,185,000	378,000	858,152	8,848,336	53
		Cost	1,694,191	4,004,512	627,813	737,958	8,516,749	54
18	Pond Creek Floodplain Evacuation	New Work						
		Approp.	0	75,000	37,000	(1,152)	110,848	
		Cost	0	13,599	76,940	20,309	132,309	
19	Salyersville, KY	New Work						
		Approp.	0	0	(700,000)	0	8,480,019	10
		Cost	137,610	68,640	4,321	0	8,416,441	11
20	Southwestern Jefferson County, KY	New Work						
		Approp.	(6500)	0	(7,600)	(121,012)	60,090,108	
		Cost	3,612	0	(33,950)	(87,300)	60,089,801	
21	Southern & Eastern, KY	New Work						
		Approp.	564,000	1,000,00	0	1,428,000	3,937,000	59
		Cost	642,397	292,850	713,889	170,169	2,051,412	60
22	Wabash River New Harmony, IN	New Work						
		Approp.	(823,209)	1,407,609	137,593	(17,561)	3,034,433	8
		Cost	61,229	2,577,710	360,864	17,834	3,034,433	9
23	White River, Indpls Central Waterfront, IN	New Work						
		Approp.	7,849,000	9,980,000	9,000,000	4,227,000	49,056,000	69
		Cost	10,630,509	7,591,011	6,678,694	3,739,984	42,330,885	
24	White River, Indpls (North), IN	New Work						
		Approp.	155,000	983,700	1,551,200	4,857,300	7,547,200	65
		Cost	128,835	565,646	1,758,846	3,769,595	6,222,922	66
	Flood Control - Reservoirs							
25	Barren River Lake, KY	New Work						
		Approp.	0	0	0	0	27,479,200	12
		Cost	0	0	0	0	27,479,717	12
		Maint.						
		Approp.	2,197,732	2,478,457	2,413,729	2,626,968	43,783,193	13,14,15
		Cost	2,201,002	2,472,913	2,406,559	2,591,726	43,735,123	13,14,15
26	Brookville Lake, IN	New Work						
		Approp.	0	0	0	0	45,402,565	16
		Cost	0	0	0	0	45,402,565	16
		Maint.						
		Approp.	811,685	699,618	764,500	642,960	14,800,014	47
		Cost	811,022	699,959	657,157	748,055	14,797,041	47

TABLE 24-A CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003	
27	Buckhorn Lake, KY	New Work						
		Approp.	0	0	700,000	0	12,466,206	17
		Cost	0	0	346,586	125,006	12,237,798	17
		Maint.						
		Approp.	1,584,708	1,653,171	1,487,094	1,291,101	27,362,080	18
		Cost	1,585,222	1,652,161	1,445,706	1,313,846	27,342,327	18
28	Caesar Creek Lake, OH	New Work						
		Approp.	0	0	0	0	62,881,010	
		Cost	0	0	0	0	62,881,010	
		Maint.						
		Approp.	1,380,026	1,252,042	1,202,171	1,270,437	21,788,997	48
		Cost	1,380,586	1,252,043	1,176,978	1,291,562	21,784,909	48
29	Cagles Mill Lake, IN	New Work						
		Approp	0	0	0	0	4,369,997	19
		Cost	0	0	0	0	4,369,997	20
		Maint.						
		Approp.	666,441	653,388	705,525	640,416	14,335,700	
		Cost	667,216	652,421	677,173	662,271	14,328,236	
30	Carr Creek Lake, KY	New Work						
		Approp.	0	0	1,000,000	0	51,854,826	21
		Cost	0	0	5,252	1,026	50,861,104	21
		Maint.						
		Approp.	1,608,858	1,367,678	1,643,629	0	25,452,341	22
		Cost	1,610,528	1,369,048	1,626,096	0	25,434,808	22
31	Cave Run Lake, KY	New Work						
		Approp.	0	0	0	0	81,159,541	23
		Cost	0	0	0	0	81,159,541	23
		Maint.						
		Approp.	984,129	887,116	872,413	744,165	16,732,120	49
		Cost	984,815	885,737	843,419	771,040	16,728,621	49
32	Cecil M. Hardin Lake, IN	New Work						
		Approp.	0	0	0	0	6,987,807	24
		Cost	0	0	0	0	6,987,807	24
		Maint.						
		Approp.	757,175	791,012	693,058	650,789	17,594,317	
		Cost	756,606	790,491	665,957	676,239	17,588,814	
33	Clarence J. Brown Dam & Reservoir, OH	New Work						
		Approp.	0	0	0	0	22,083,660	
		Cost	0	0	0	0	22,083,660	
		Maint.						
		Approp.	839,262	770,716	842,097	981,257	14,966,362	61
		Cost	845,135	770,717	806,573	1,005,017	14,954,599	61
34	Green River Lake, KY	New Work						
		Approp.	0	0	0	0	33,462,330	25
		Cost	0	0	0	0	33,462,339	25
		Maint.						
		Approp.	2,171,248	2,484,281	2,582,226	2,145,346	39,059,768	26
		Cost	2,148,069	2,507,644	2,552,101	2,151,679	39,035,617	26

TABLE 24-A CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003	
35	J. Edward Roush Lake, IN	New Work						
		Approp.	0	0	0	0	19,621,777	27
		Cost	0	0	0	0	19,621,777	28
		Maint.						
		Approp.	852,598	850,326	689,183	805,401	16,192,579	
		Cost	850,706	853,814	659,676	778,369	16,135,399	
36	Mississinewa Lake, IN	New Work						
		Approp.	0	312,000	11,262,000	16,350,800	52,304,600	29
		Cost	0	307,007	11,243,752	16,348,887	52,279,446	29
		Maint.						
		Approp.	1,750,914	803,680	739,138	662,738	16,748,507	
		Cost	1,747,364	804,439	730,674	672,343	16,745,997	
37	Monroe Lake, IN	New Work						
		Approp.	0	0	0	0	16,570,774	30
		Cost	0	0	0	0	16,570,774	30
		Maint.						
		Approp.	689,483	676,347	651,559	643,789	16,635,510	31
		Cost	689,478	675,422	629,000	665,872	16,634,028	31
38	Nolin Lake, KY	New Work						
		Approp.	0	0	0	0	17,193,278	32
		Cost	0	0	0	0	17,193,278	33
		Maint.						
		Approp.	2,379,432	2,210,711	2,062,665	2,085,062	45,858,852	34
		Cost	2,383,913	2,205,983	2,044,604	2,100,068	45,851,024	34
39	Ohio River Basin Louisville District	New Work						
		Approp.	0	0	0	0	1,526,142	
		Cost	0	0	0	0	1,526,142	
40	Patoka Lake, IN	New Work						
		Approp.	266,500	2,676,000	(16,308)	0	76,629,008	35
		Cost	238,642	2,683,093	4,458	0	76,243,085	36
		Maint.						
		Approp.	657,069	578,774	690,063	608,299	12,568,275	
		Cost	672,789	577,686	669,626	628,977	12,567,426	
41	Rough River Lake & Channel Improvement, KY	New Work						
		Approp.	0	0	0	0	10,643,001	37
		Cost	0	0	0	0	10,643,001	37
		Maint.						
		Approp.	2,393,004	2,358,397	2,098,460	2,511,657	44,717,091	38
		Cost	2,329,678	2,381,912	2,125,338	2,448,593	44,636,029	38
42	Salamonie Lake, IN	New Work						
		Approp.	0	0	0	0	17,039,321	39
		Cost	0	0	0	0	17,039,321	40
		Maint.						
		Approp.	730,832	667,980	573,391	546,848	13,967,854	
		Cost	730,918	667,519	556,276	555,858	13,958,661	

TABLE 24-A CONTINUED **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003
43	Taylorsville Lake, KY	New Work					
		Approp.	0	0	0	0	87,004,456 [41]
		Cost	0	0	0	0	87,004,456 [42]
		Maint.					
		Approp.	1,066,621	834,249	808,328	755,318	16,337,264
		Cost	1,047,179	857,795	786,951	765,365	16,325,900
45	West Fork of Mill Creek Lake, OH	New Work					
		Approp.	0	0	0	0	4,722,463 [43]
		Cost	0	0	0	0	4,722,463 [43]
		Maint.					
		Approp.	363,362	357,116	414,779	1,104,124	10,972,192
		Cost	363,362	356,422	393,553	489,144	10,335,293
46	William H. Harsha Lake, OH	New Work					
		Approp.	0	0	0	0	52,023,157 [44]
		Cost	0	0	0	0	52,023,157 [44]
		Maint.					
		Approp.	814,294	719,366	780,330	767,739	15,131,622 [50]
		Cost	814,342	718,866	753,229	792,328	15,128,608 [50]

1 Includes $85,000 public works funds.
2 Includes $2,000 emergency relief funds, $204,444 “maintenance and operation of dams and improvements of navigable waters” and $3,842,667 expended from 1888 to 30 June 1936, for operation and care from permanent indefinite appropriation.
3 Includes $725,715 from Productive Employment Appropriation Act (PL 98-8) of 1983.
4 Includes $316,871 under “maintenance and operation of dams and other improvements of navigable waters”, and $6,405,372 expended between July 5, 1885 and June 30, 1937 on operation and care from permanent indefinite appropriation.
5 Includes $149,700 from Productive Employment Appropriation Act (PL 98-8) of 1983.
6 Includes $52,734 in contributed funds.
7 Includes $66,479 in contributed funds.
8 Includes $717,663 in contributed funds.
9 Includes $717,664 in contributed funds.
10 Includes $550,019 contributed funds.
11 Includes $541,992 contributed funds.
12 Includes $2,224,948 Code 711 funds, $110,107 Code 713 Federal funds and $108,418 Code 713 non-Federal funds.
13 Includes $100,000 Supplemental funds.
14 Includes $326,900 Special Recreation Use Fees.
15 Includes $668,025 "maintenance & operation of dams and other improvements of navigable water".
16 Includes $7,497,492 contributed funds and $100,706 Code 711 funds.
17 Includes $61,451 public work acceleration executive 1963 funds, $143,088 Code 711 funds, and $243,619 Code 712 funds.
18 Includes $52,240 Special Recreation Use Fees and $336 “maintenance and operation of dams and other improvements of navigable water.”
19 Includes $35,814 Code 711 funds, $113,321 Code 713 funds, and $113,094 contributed funds.
20 Includes $35,814 Code 711 funds, $113,321 Code 713 funds, and $113,094 contributed funds.
21 Includes $76,724 Code 711 funds.
22 Includes $51,854 Special Recreation Use Fees.
23 Includes $6,900,000 of U.S. Forest Service Funds.
24 Includes $19,683 Code 711 funds, $353,995 Code 713 funds, & $353,995 non-Federal contributions in kind for recreation facilities.
25 Includes $133,413 Code 711 funds, $183,732 Code 713 funds, and $40,001 contributed funds.
26 Includes $114,280 Special Recreation Use Fees and $664,025 under "maintenance and operation of dams and other improvements of navigable water".
27 Includes $155,354 Code 713 funds and $193,422 contributed funds.
28 Includes $155,354 Code 713 funds and $193,422 contributed funds.
29 Includes $215,000 Code 711 funds, $174,392 Code 713 funds, $239,200 contributed funds and $174,392 non-Federal contribution in kind for recreational facilities.
30 Includes $1,185 Code 711 funds, $869,158 Code 713 funds, $7,797,604 contributed funds and $870,343 non-Federal contribution in kind for recreational facilities.
31 Includes $54,460 from Productive Employment Appropriation Act (PL 98-8) of 1983.
32 Includes $21,897 public works acceleration executive 1963 funds and $2,594,274 Code 711 funds.
33 Includes $21,897 public works acceleration executive 1963 funds and $2,594,274 Code 711 funds.
34 Includes $204,920 Special Recreation Use Fees and $52,000 Supplement Funds, $527,225 "maintenance and operation of dams and other improvements of navigable water".
35 Includes $20,568,369 contributed funds.
36 Includes $20,182,445 contributed funds.

[37] Includes $196,306 public works acceleration executive 1963 funds and $867,396 Code 711 funds, $22,612 Code 713 funds, and $22,612 contributed funds.

[38] Includes $236,640 Special Recreation Use Fees and $668,025 under "maintenance and operation of dams and other improvements of navigable water".

[39] Includes $315,549 Code 713 funds, $163,867 contributed funds, and $315,549 non-Federal contribution in kind for recreation facilities.

[40] Includes $315,549 Code 713 funds, $163,867 contributed funds, and $315,549 non-Federal contribution in kind for recreation facilities.

[41] Includes $4,013,093 contributed funds.

[42] Includes $4,013,093 contributed funds.

[43] Includes $529,361 Code 713 funds, $50,000 contributed funds, $529,361 non-Federal contribution in kind for recreation facilities, and $520,000 non-Federal cost for sewer relocation and dam.

[44] Includes $58,571 for preconstruction planning, engineering and design completed before FY 1953.

[45] Includes $57,000 contributed funds.

[46] Includes $45,194 contributed funds.

[47] Includes $3,511 "maintenance and operation of dams and other improvements of navigable water."

[48] Includes $5,476 "maintenance and operation of dams and other improvements of navigable water."

[49] Includes $8,126 "maintenance and operation of dams and other improvements of navigable water."

[50] Includes $8,764 "maintenance and operation of dams and other improvements of navigable water."

[51] Includes $418,970 contributed funds.

[52] Includes $312,498 contributed funds.

[53] Includes $964,000 contributed funds.

[54] Includes $638,282 contributed funds.

[55] Includes $1,228,000 contributed funds.

[56] Includes $764,307 contributed funds.

[57] Includes $999,135 contributed funds.

[58] Includes $999,135 contributed funds.

[59] Includes $914,090 Code 511 funds and $3,022,910 Code 772 funds.

[60] Includes $555,698 Code 511 funds and $781,789 Code 772 funds.

[61] Includes $573 “maintenance and operation of dams and other improvements of navigable water”.

[62] Includes $390,875 contributed funds.

[63] Includes $637,000 contributed funds.

[64] Includes $274,077 contributed funds.

[65] Includes $1,678,300 contributed funds.

[66] Includes $805,686 contributed funds.

LOUISVILLE, KY DISTRICT
AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	GREEN AND BARREN RIVERS, KY (See Section 3 of Text)	
Aug 11, 1888	Purchase of original improvement	H. Doc 111, 49th Cong., 2d Sess., Ann. Rept. 1887, p.1903
Mar 3, 1893 [1]	Construction of Lock 2, Green River	Annual Report, 1891, p. 2439
Jul 13, 1892	Construction of Lock 5, Green River	
Jul 13, 1902	Construction of Lock 6, Green River	Annual Report, 1891, p. 2478
Mar 3, 1905 [2]	Appropriated $5,000 for continuing improvements of Green River above mouth of Big Barren River, with provision "That the Secretary of War may, in his discretion, expend such portion of said amount as may be necessary for removal of snags in Nolin River."	
Mar 3, 1909	Construct new Lock 1 and new Lock and Dam 2, Green River	S. Doc. 82, 83d Cong., 2d Sess.
Jul 3, 1930 [2]	Construct new locks at Dam 5, Green River and Dam 1, Barren River; modification of Dam 5, Green River, widens bends in Bear Creek, KY	Rivers and Harbors Committee Doc. 2, 71st Cong., 1st Sess., and H. Doc. 685, 69th Cong., 2d Sess.
Jun 26, 1934 [3]	Operation and care of locks and dams with War Department Appropriations for rivers and harbors	
Aug 30, 1935 [2]	Improvement of Nolin River	H.D. 480, 72d Cong., 2d Sess.
Sep 3, 1954	Channel enlargement of lower 103 miles of Green River revocation of authorities for improvement of Bear Creek and Nolin River	S.D. 82, 83d Congress, 2d Sess.
	KENTUCKY RIVER (See Section 4 of Text)	
1879	Existing project was adopted	H. Ex, Doc 47, 45th Cong., 3d Sess., Ann. Rept. 1879, p.1398
Jun 26,1634 [3]	Operation and care of locks and dams	
Aug 26,1999	Appropriated $2,000,000 for work on lock and dam #10	Public Law 106-377, 106th Congress, 1st Session
Dec 21, 2000	Authorization to stabilize and renovate lock and dam #10	Public Law 106-553, 106th Congress 1st Session
	OHIO RIVER BASIN (Louisville Dist.) (See Section 39 of Text)	
Aug 28, 1937	Construct levee, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin, projects to be selected by Chief of Engineers with approval of Secretary of War, at a cost not to exceed $24,877,000 for construction	Flood Control Committee Document 1, 75th Congress, 1st Session
Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable in discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized $75 million for reservoirs and $50.3 million for local protection works, individual projects to be selected and approved by Chief of Engineers, subject to provision that authorization shall include diversion of Cache River above Cairo, Illinois, and protection of area north of Cairo drainage district by levees at an estimated cost of $2 million	Flood Control Committee Document 1, 75th Congress, 1st Session
Aug 18, 1941	Additional $45 million for further prosecution of comprehensive plan for Ohio River Basin	
Dec 22, 1944	Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin, including plan of improvement for flood control and other purposes in Kentucky River Basin	H. Doc. 504, 78th Congress, 2d Session
	Flood protection works at Taylorsville, KY at an estimated cost of $129,350	S.D. 105, 78th Cong., 1st Sess.
	Channel improvement of lower Rough River and Barnett Creek at an estimated cost of $360,000	H.D. 535, 78th Congress 2d Session
Jul 24, 1946	Additional $125 million for further prosecution of comprehensive plan, including plan of improvement for flood control in Wabash River Basin, Illinois, and Indiana, at an estimated cost of $9,629,000	H.D. 197, 80th Congress 1st Session
	Also, West Fork of Mill Creek at an estimated cost of $1,527,000.	H.D. 198, 80th Cong., 1st Session

TABLE 24-B AUTHORIZING LEGISLATION
CONTINUED

Acts	Work Authorized	Documents
May 17, 1950	Additional $100 million for prosecution of comprehensive plan for Ohio River Basin, including necessary bank stabilization measures at New Harmony Bridge, Indiana, at an estimated cost of $500,000.	
Jul 3, 1958	Flood control Act of 1958 modified comprehensive plan to provide for Monroe Reservoir on Salt Creek, White River Basin, Indiana, at an estimated cost to the United States of $4,350,000; cost to local interests, $5,141,000.	H.D. 192, 85th Congress, 1st Session
Oct 23, 1962	Flood Control Act of 1962 deleted Jessamine Creek Reservoir on Kentucky River, Kentucky, from comprehensive plan for Ohio River Basin	H.D. 423, 87th Congress, 2d Session
Dec 30, 1963	Additional $150 million for further prosecution of comprehensive plan for Ohio River Basin	Pub. Law 88-253, 88th Cong., 1st Session
Jun 18, 1965	Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 89-42, 89th Cong., 1st Session
May 12, 1967	Additional $38 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-17, 90th Cong., 1st Session
Aug 13, 1968	Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-483, 90th Cong., 2nd Session
Jun 19, 1970	Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 91-282, 91st Cong., 2nd Session
Mar 7, 1974	Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin Fifty-four local protection projects and one reservoir project in comprehensive plan for Ohio River Basin were deauthorized August 5, 1977, under Section 12, Water Resources Development Act of 1974 Two additional local protection projects in comprehensive plan for Ohio River Basin were deauthorized November 6, 1977, under Section 12, Water Resources Development Act of 1974	Public Law 93-251, 93rd Congress, 2nd Session
Nov 13, 1995	Directed use of $1,000,000 of funds appropriated in PL 104-46 for construction of the Ohio River Flood Protection, Indiana Project.	Public Law 104-46, 104th Congress, 2nd Session
	WABASH RIVER BASIN (See Section 44 of Text)	
Aug 13, 1968	Construction of five multipurpose reservoirs and one local protection project in Wabash River Basin, IL & IN, with provision that construction of Big Walnut Lake, IN, project must be approved by the President. Authorization of $50 million for initiation of partial accomplishment of project	S.D. 96, 90th Congress, 2nd Session
Dec 29, 1981	Two multiple purpose reservoirs in Wabash River were deauthorized.	Public Law 97-128, 97th Congress, 2nd Session
May 1, 1997	Two Additional reservoir projects were deauthorized	Public Law 99-662, 99th Congress, 2nd Session Public Law 100-676 100th Congress, 2nd Session
	MIAMI RIVER BASIN, PLEASANT RUN, VICINITY FAIRFIELD, OH	
Nov 17, 1986	Three dry bed reservoirs and a channel improvement were authorized in Section 401 of the Water Resource Development Act of 1986.	Public Law 99-662, 99th Congress, 2nd Session
	HAZARD, KENTUCKY	
Nov 17, 1988	Approximately 6 miles of channel improvement were authorized in Section 3 of the Water Resources Development Act of 1988.	Public Law 100-676, 100th Congress, 2nd Session
Nov 28, 1990	Flood control measures to prevent a January 1957 flood reoccurrence in the vicinity of Hazard, Kentucky at a total cost of $30,000,000 was authorized for design and construction in Section 108 of the Water Resource Development Act of 1990.	Public Law 101-640, 101st 2nd Session

TABLE 24-B CONTINUED

Acts	Work Authorized	Documents
	HOLES CREEK, OHIO	
Nov 17, 1986	The project for flood control, Miami River, Little Miami River, Interim Report No2, West Carrollton - Holes Creek, Ohio: Report of the Chief of Engineers dated December 23, 1981, at a total cost of $8,910,000, with an estimated first Federal Cost of $6,230,000 and an estimated first non-Federal cost of $2,680,000.	Public Law 99-662, 99th Congress, 2nd Session
Aug 17, 1999	Holds the total amount projected as the non-federal share as of September 30, 1996 in the Project Cooperation Agreement executed on that date; and 100% of the amount of any increases in the cost of the locally preferred plan over the cost estimated in the Project Cooperation Agreement.	Public Law 106-53 106th Congress, 1st Session
	SALYERSVILLE, KENTUCKY	
Nov 17, 1986	Flood control measures to prevent a December 1978 flood reoccurrence in the vicinity of Salyersville, Kentucky at a total project cost of $7,000,000 was authorized for design and construction in section 401(e)(1) of the Water Resource Development Act of 1986. With respect to the project, Congress has determined that the benefits exceed the cost of such flood control measures.	Public Law 99-662, 99th Congress, 2nd Session
Nov 5, 1990	Provided $400,000 to construct the Salyersville, Kentucky cut-through as authorized by PL 99-662 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 101-514, 101st Congress, 2nd Session
Aug 17, 1991	Provided $600,000 to continue construction of the Salyersville, Kentucky cut-through as authorized by PL 99-662 section 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 102-104, 102nd Congress, 1st Session
Sep 12, 1996	Additional $3,000,000 to continue construction of the Salyersville, Kentucky cut-through.	H.D. 3816, 104th Congress, 2nd Session
	FRANKFORT, SOUTH FRANKFORT, KENTUCKY	
Nov 28, 1990	Flood protection in accordance with Plan R-1 of the Louisville District Commander's Re-evaluation Report, dated June 1990 and a executed LCA no later than October 1991 was authorized in Section 102 of the Water Resources Development Act of 1990.	Public Law 101-640, 101st Congress, 2nd Session
	POND CREEK, JEFFERSON COUNTY, KENTUCKY	
Sep 25, 1996	Provide $10,993,000 to construct the Pond Creek, Jefferson County, Kentucky project for flood control in accordance with the Report of the Chief of Engineers dated June 28, 1994. The major components of the Recommended Plan include detention basin storage and channel enlargement, in addition to wetland restoration and recreation.	Public Law 104-303, 104th Congress, 2nd Session
	DUCK CREEK, CINCINNATI, OHIO	
Sep 25, 1996	Provide $11,960,000 to construct the Duck Creek, Cincinnati, Ohio flood damage reduction project in accordance with the Chief of Engineers Report dated June 24, 1994. The project consists of floodwalls/ levees and channel relocation.	Public Law 104-303, 104th Congress, 2nd Session
Jan 24,2000	Modified to authorize the Secretary to carry out the project at a Total cost of $36,323,000 and non-Federal share of the cost Of the project shall not exceed $4,200,000.	Public Law 406-541, 106th Congress, 2nd Session

TABLE 24-B AUTHORIZING LEGISLATION CONTINUED

Acts	Work Authorized	Documents
	NEW HARMONY, INDIANA	
Sep 25, 1996	Provide $2,100,000 for streambank erosion protection along the Wabash River at the town of New Harmony, Indiana.	Public Law 104-303, 104th Congress, 2nd Session
	WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, INDIANA	
Sep 12, 1996	Provide $7,000,000 for construction of recreation facilities and rehabilitation of existing flood protection features in downtown Indianapolis along the White River.	H.D. 3816, 104th Congress, 2nd Session
Aug 17, 1999	Authorized to undertake the riverfront alterations described in the Central Indianapolis Waterfront Concept Plan, dtd Feb 1994 for the Canal Development(Upper Canal feature) and the Beveridge Paper feature, at a total cost not to exceed $25,000,000 of which$12,500,00 is the estimated Federal cost and $12,500,000 is the estimated non-federal cost.	Public Law 106-553, 106th Congress, 1st Session
	BEARGRASS CREEK, KENTUCKY	
Aug 17, 1999	The project for flood control, Beargrass Creek, Kentucky: Report of the Chief of Engineers dtd May 12, 1998 at a total cost of $11,171,300 with an estimated Federal cost of $7,261,500 and an estimated non-federal cost of $3,909,800.	Public Law 106-553, 106th Congress, 1st Session

[1] Deficiency act.
[2] Authorization for Nolin River and Bear Creek revoked by Act of Sep. 3, 1954
[3] Permanent Appropriations Repeal Act.

TABLE 24-C **OTHER AUTHORIZED NAVIGATION PROJECTS**
(See Section 6)

Name of Project	Status	For Last Full Report See Annual Report	Cost to Sep 30, 2003 Construction	Cost to Sep 30, 2003 Operation and Maintenance
Licking River	Completed	1901	$ 13,045	$ 139,108
Rough River, KY	Completed	1951	105,500	101,196
Tradewater River, KY	Completed	1858	18,568	33,331
White River, IN	Completed	1909	119,312	0

TABLE 24-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project and Status [1]	For Last Full Report See Annual Report	Cost to Sep 30, 2003 Construction	Cost to Sep 30, 2003 Operation and Maintenance
Local Protection:			
Completed:			
Boone County, KY (Ohio River, Rabbit Hash)	1977	$ 392,443	-
Brevoort Levee, IN (Wabash River)	1954	1,240,299	-
Brookport, IL	1958	597,493	-
Cannelton, IN	1959	2,068,391	-
Canoe Creek, Henderson, KY [2]	-	1,206,852	-
Chaplin River, Perryville, KY [2]	-	832,700	-
Cincinnati, OH	1957	10,150,935	-
Covington, KY	1965	7,862,937	-
Dayton, KY	1987	13,177,345	-
Delphi, IN (Wabash River)	1953	144,563	-
England Pond Levee, IL (Wabash River)	1972	734,498	-
English, IN (Little Blue River) [2]	1965	372,353	-
Evansville, IN	1997	43,906,502	-
Frankfort, KY (North Frankfort) (Kentucky River) [3] [8]	1979	2,960,970	-
Frankfort, South Frankfort, KY	1998	11,164,720	
Gill Township Levee, IN (Wabash River)	1948	561,200	-
Golconda, IL	1960	565,333	-
Grassy Creek, Jackson County, IN (Muscatatuck River) [2]	1953	70,304	-
Harrisburg, IL	1959	870,015	-
Hawesville, KY	1955	969,318	-
Indianapolis, IN (Fall Creek Section) (White River)	1953	1,788,840	-
Indian Creek, Corydon, IN [2]	1964	300,143	-
Jackson, KY (Kentucky River)	1957	130,952	-
Jeffersonville-Clarksville, IN	1959 & 1996	4,836,361	-
Lawrenceburg, IN	1953	2,473,414	-
Lebanon Junction, KY (Salt River) [2]	1967	130,417	-
Levee Unit No. 5, Wabash River, IN	1987	7,517,464	-
Levee Unit No. 8, White River, IN	1952	700,534	-
Louisville, KY [4]	1975	26,721,438	-
Lyford Levee Unit, IN (Wabash River)	1944	267,391	-
Mason J. Niblack Levee, IN (Wabash River) [5]	1987	4,337,617	-
Mill Creek, Jefferson County, KY [2]	1973	292,710	-
Mount Carmel, IL (Wabash River)	1972	1,980,675	-
Muncie, IN (White River)	1956	887,835	-
Neon-Fleming, KY (Kentucky River)	1963	86,532	-
New Albany, IN	1957	5,375,471	-
New Harmony Bridge, IL & IN (Wabash River) [2] [7]	1959	297,624	-
Newburgh, IN (Ohio River) [6]	1974	52,061	-
Newport, KY	1959	7,512,987	-
Paducah, KY	1959	4,761,551	-
Panther Creek, KY (Green River) [2]	1970	254,031	-
Portland, IN (Salamonie River) [2]	1962	237,657	-
Reevesville, IL (Cache River)	1954	600,300	-
Rochester & McCleary's Bluff Levee, IL (Wabash River)	1972	1,079,236	-
Rosiclaire, IL	1954	622,544	-
Saline River & Tributaries, IL	1981	7,826,219	-
Shawneetown, IL [7]	-	91,000	-
Sturgis, KY	1972	1,826,778	-
Taylorsville, KY (Salt River)	1952	378,050	-
Tell City, IN	1956	932,229	-
Terre Haute (Conover Levee), IN (Wabash River) [7]	1965	14,913	-
Town Creek, Harrodsburg, KY [2]	1967	56,505	-
Triplett Creek, Morehead, KY (Licking River) [2]	1972	893,094	-

TABLE 24-E CONTINUED **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

Project and Status [1]	For Last Full Report See Annual Report	Cost to Sep 30, 2003 Construction	Cost to Sep 30, 2003 Operation and Maintenance
Uniontown, KY	1956	1,070,926	-
Vincennes, IN (Wabash River) [7]	1964	3,308,941	-
West Terre Haute, IN (Wabash River)	1977	1,095,704	-
Whitewater River, Hagerstown, IN [2]	-	641,398	-
Active:			
Greenfield Bayou, IN (Wabash River)	-	157,935	-
Indianapolis, IN (Warfleigh Section) (White River)	1976	153,410	-
Louisville, KY [9]	-	415,000	-
Miami River Basin, Pleasant Run, Vicinity Fairfield, OH [9] (Great Miami River)	-	514,964	-
West Fork Mill Creek, OH (Winton Road) [9]	-	477,649	-
Inactive:			
Blue River, Salem, IN	-	15,000	-
Cache River, Upper Basin, Ill	-	44,000	-
Columbus, IN	-	283,000	-
Fairfield, OH	-	-	-
Hazard, KY	-	-	-
Kentucky River National Recreation Area	-	-	-
Licking River, KY	-	-	-
Mount Vernon, IN	-	30,000	-
Southwest Ohio Urban Waterfront Development	-	-	-
Vincennes, IL (Wabash River)	1964	-	-
Wabash River, York Township, Clark County, IL	-	-	-
West Fork Drakes Creek, TN & KY	-	58,000	-
Whitewater River & Tributaries, IN & OH	-	112,000	-
Reservoirs:			
Active:			
Inactive:			
Eagle Creek Lake, KY	1975	702,471	-

[1] All projects are on Ohio River unless otherwise noted.
[2] Authorized by the Chief of Engineers under Section 205, 1984 Flood Control Act, as amended.
[3] Cost includes $161,098 cash contribution consisting of $105,118 from the City of Frankfort, KY and $55,980 from the Commonwealth of Kentucky.
[4] Cost includes $1,716,301 cash contributions from the City of Louisville, KY.
[5] Cost shown are for levee and pump plants.
[6] The Water Resources Development Act of 1974 modified the Newburgh Locks & Dam project to include the bank protection works at Newburgh Locks & Dam project to include the bank protection works at Newburgh, IN.
[7] Partially completed to form a useful unit. Remaining portions of project inactive.
[8] Partially completed to form a useful unit. Remaining portions of project are active and inactive.
[9] Advance Engineering and Design funded with General Investigations Appropriation.

TABLE 24-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Flood Control - Local Protection:				
Adams Levee, IN (Wabash River)	-	1978	$ -	-
Alton, IN	-	1977	-	-
Anderson, IN (White River)	1940	1986	5,724	-
Aurora, IN	-	1977	35,420	-
Bellevue, KY	-	1977	19,023	-
Bonpas Creek, IL (Wabash River)	-	1981	-	-
Bromley, KY	-	1977	-	-
California (Cincinnati), OH	-	1977	16,465	-
Carrollton, KY	-	1977	9,713	-
Caseyville, KY	-	1986	-	-
Cave-in-Rock, IL	-	1977	-	-
Cincinnati, OH (Unit 2)	-	1977	-	-
Cincinnati, OH (Unit 4)	-	1977	-	-
Cleves, OH	-	1977	6,343	-
Clinton, IN	-	1977	6,848	-
Cloverport, KY	-	1986	-	-
Concordia, KY	-	1986	-	-
Deer Creek, Prairie Levee, IN	-	1977	-	-
Derby, IN	-	1977	-	-
Elizabethtown, IL	-	1977	-	-
Evansville, Howell II	-	1992	-	-
Falmouth Lake	-	1998	944,386	-
Fletcher & Sunshine Gardens Levee, IN	-	1977	3,361	-
Frankfort, KY (Benson Creek) (Kentucky River)	1979	1992	-	-
Gallatin County Streambank Erosion, Area 1, Ohio River	-	2002	-	-
Grandview, IN	-	1977	8,497	-
Honey Creek Levee, IN	-	1977	-	-
Island Levee, IN (Wabash River)	-	2002	355,963	-
Leavenworth, IN	-	1977	-	-
Levee Unit 1, Eel River, IN	-	1977	-	-
Levee Unit 2, Eel River, IN	-	1977	-	-
Levee Unit 2, East Fork White River, IN	-	1977	-	-
Levee Unit 3, East Fork White River, IN	1938	1977	275	-
Levee Unit 1, IL (Wabash River)	1973	1986	60,000	-
Levee Unit 1, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Wabash River, IL	-	1977	-	-
Levee Units 3 and 4, Wabash River, IL	1938	1977	216	-
Levee Unit 6, Wabash River, IL	-	1977	9,922	-
Levee Unit 17, Wabash River Basin, IN	-	1977	-	-
Levee Unit 1, White River, IN	-	1977	-	-
Levee Unit 7, White River, IN	-	1977	-	-
Levee Unit 9, White River, IN	-	1977	-	-
Levee Unit 10, White River, IN	-	1977	-	-
Lewisport, KY	-	1990	-	-
Louisville, KY (Partial)	-	1986	-	-
Louisville Lake	-	1998	2,355,395	-
Ludlow, KY	-	1977	14,503	-
Madison, IN	-	1977	-	-
Mauckport, IN	-	1977	-	-
Marion, IN (Wabash River)	1979	1986	209,975	-
McGinnis Levee, IN	1950	1977	71,049	-
Metropolis, IL	-	1986	10,575	-

TABLE 24-G CONTINUED **DEAUTHORIZED PROJECTS**

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Flood Control - Local Protection (Cont'd.)				
Milton, KY	-	1977	-	-
Moscow, OH	-	1977	-	-
New Amsterdam, IN	-	1977	-	-
New Harmony, IN	-	1977	-	-
New Richmond, OH	-	1977	7,104	-
Newport-Wilder, KY	-	1990	-	-
Orleans, IN	1972	1977	13,158	-
Owensboro, KY	-	1990	-	-
Patriot, IN	-	1977	-	-
Prestonville, KY	-	1977	-	-
Raccoon Creek Levee, IN	-	1977	-	-
Rising Sun, IN	-	1977	-	-
Rockport, IN	-	1977	-	-
Rome, IN	-	1977	-	-
Russell and Allison, IL	-	1992	52,088	-
Shawneetown, IL	-	1986	25,367	-
Shoals, IN (East Fork White River)	1938	1977	-	-
Shufflebarger Levee, IN	1950	1977	64,487	-
Smithland, KY	-	1992	-	-
Sugar Creek Levee, IN	1961	1977	28,061	-
Terre Haute, IN	-	1977	-	-
Tolu, KY	-	1986	-	-
Tri Pond Levee, IL	1972	1977	65,510	-
Troy, IN	-	1977	-	-
Utica, IN	-	1978	-	-
Vevay, IN	-	1977	-	-
Vincennes, IN (Partial)	1964	1986	-	-
Westport, KY	-	1977	-	-
Wilders, KY	-	1990	-	-
Flood Control - Reservoirs				
Big Blue Lake, IN	1980	1981	1,079,867	-
Big Pine Lake, IN (Wabash River)	1977	2002	1,270,590	-
Big Walnut Lake, IN (Wabash River)	1980	2002	1,009,188	-
Booneville Lake, KY (Kentucky River)	1976	2002	1,038,595	-
Camp Ground Lake, KY (Salt River)	1983	2002	235,615	-
Clifty Creek Lake, IN	1979	1981	1,016,358	-
Downeyville Lake, IN (Wabash River)	-	1992	-	-
Helm Lake, IL	1976	1981	41,616	-
Lafeyette Lake, IN (Wabash River)	1977	2002	1,200,920	-
Lincoln Lake, IL	1979	1981	1,331,844	-
Metomora Lake, IN	-	1977	-	-
Mining City Lake, KY (Green River)	-	2002	350,747	-
Red River Lake, KY (Taylorsville Lake, Floyd's Fork, KY	-	2002	-	-
Navigation				
McAlpine Lock & Dam, KY & IN, Alteration of Railroad Bridge	-	2002	-	-

TABLE 24-H

NAVIGATION LOCKS AND DAMS
PRINCIPAL FEATURES - GREEN & BARREN RIVERS AND KENTUCKY RIVER NAVIGATION SYSTEMS

Lock and Dam	Miles above Mouth of River	Distance from Nearest Town	Width of Chamber	Lock Dimensions Greatest Length Available For Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation (feet msl)	Depth of Miter Sills Upper (feet)	Depth of Miter Sills Lower (feet)	Character of Foundation	Percent Complete	Year Opened to Navigation	Cost of Lock and Dam
CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER - For report on this improvement see this heading under Ohio River.												
GREEN AND BARREN RIVERS, KY (See Section 3 of Text)												
Green River												
New 1	9.1	Spottsville, KY	84.0	600.0	11.8	349.1	12.1	11.3	Shale and Coal	100	1956 [2]	$5,101,978 [3]
New 2	63.1	0.3 miles below Calhoun, KY	84.0	600.0	14.3	363.4	15.0	11.7	Shale	100	1956 [4]	4,799,271 [5]
3	108.5	0.3 miles below Rochester, KY	35.8	137.5	17.0	380.4	7.3	5.6	Rock	100	1836 [6]	121,377
4	149.0	Woodbury, KY	35.8	138.0	16.4	396.8	7.1	6.5	Rock	100	1839 [7]	125,718
5	168.1	0.3 miles below Glenmore, KY	56.0	360.0	15.2	412.0 [8]	12.0	9.3	Piles and Rock	100	1934 [9]	1,020,868 [10]
6	181.7	2.8 miles above Brownsville, KY	36.0	145.0	9.2	421.1	8.0	8.8	Gravel	100	1905 [9]	168,415
Barren River												
1	15.0 [11]	0.3 miles above Greencastle, KY	56.0	360.0	15.2	412.0	12.0	9.3	Gravel	100	1841 [12]	871,565 [13]
TUCKY RIVER, KY (See Section 4 of Text)												
tucky River												
1	4.0	3.8 miles above Carrolton, KY	38.0	145.0	8.2 [14]	430.0	8.2	4.8	Rock and Clay	100	1839 [15]	-
2	31.0	Lockport, KY	38.0	145.0	13.9	443.9	7.6	6.1	Rock	100	1839 [15]	-
3	42.0	Gest, KY	38.0	145.0	13.2	457.1	8.6	6.5	Rock	100	1844 [15]	1,350,385 [16]
4	65.0	1.0 mile below Frankfort, KY	38.0	145.0	13.2	470.3	6.4	6.3	Rock	100	1844 [15]	-
5	82.2	2.8 miles below Tyrone, KY	38.0	145.0	15.0	485.3	10.0	6.4	Rock	100	1844 [15] [17]	-
6	96.2	21.6 miles below High Bridge, KY	52.0	147.0	14.0	499.3	9.4	6.4	Rock and Piles	100	1894 [17]	314,847
7	117.0	0.8 mile below High Bridge, KY	52.0	147.0	15.3	514.6	9.1	6.8	Rock	100	1897 [17]	290,788
8	139.9	4.7 miles above Camp Nelson, KY	52.0	146.0	18.7	533.6	10.6	6.0	Rock	100	1900 [17]	275,463
9	157.5	Valley View, KY	52.0	148.0	17.3	550.6	10.0	6.6	Rock	100	1907 [17]	237,646
10	176.4	1.0 mile below Ford, KY	52.0	148.0	17.0	567.6	9.0	6.0	Rock	100	1907 [17]	221,500
11	201.0	17.2 miles below Irvine, KY	52.0	148.0	18.0	585.6	10.0	6.0	Rock	100	1906 [17]	296,593
12	220.0	Ravenna, KY	52.0	148.0	17.0	602.6	9.6	6.0	Rock	100	1910 [17]	425,693
13	239.9	2.2 miles below Willow, KY	52.0	148.0	18.0	620.6	9.6	6.0	Rock	100	1915 [17]	461,476
14	249.0	Heidelberg, KY	52.0	148.0	17.0	63.6	8.6	6.0	Rock	100	1971 [17]	392,902

1 At normal pool Dam 48, Ohio River, Elev. 337.3, Green River datum (Elev. 338.0 Ohio River datum)

2 New Lock 1 placed in operation May 25, 1956, old Dam 1, completed 1835-40, replaced with new cellular concrete masonry dam constructed 1970-71 with O&M funds at cost of $822,000.

3 Does not include $179,110 cost of old Lock and Dam 1.

4 New Lock and Dam 2, placed in operation June 18, 1956.

5 Does not include $295,696 cost of old Lock and Dam 2.

6 Operation discontinued September 30, 1981.

7 Breaching of dam on May 24, 1965, stopped through traffic to Bowling Green, KY.

8 With moveable A-frame crest 3 feet high.

9 Operation discontinued August 1, 1951.

10 Does not include $179,434 cost of old Lock and Dam 5. Transferred to State, December 1996.

11 Distance from mouth of Green River is 164.5 miles. Lock closed to navigation as the result of loss of pool at Green River Lock and Dam 4 on May 24, 1965.

12 Piles in old gravel dam completed in 1934.

13 Includes $729,269 for new large lock completed in 1934.

14 At normal pool McAlpine Dam, Ohio River Elev. 421.8 Kentucky River datum (Elev. 420 Ohio River datum).

15 Reconstruction completed by United States in 1882.

16 Built by State of Kentucky. Cost given is for repairs by United States to Locks and Dams 1 through 5. Original construction costs to State were: L&D 1, $220,300; L&D 2, $151,983: L&D 3 $135,857; L&D 4, $131,607; and L&D 5, $137,436.

17 Lock was closed to traffic and placed in caretaker status in September 1982.

TABLE 24-I

LOUISVILLE, KY DISTRICT
OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 39 of Text)

LOCAL PROTECTION Project and Status [1]	Type of Construction	Estimated Cost Federal	Non-Federal [2]	Total
Completed:				
Barnett Creek, KY (Rough River) [3 4]	Channel improvement	$ 144,000	$ 18,000	$ 162,000
Boone County, KY	Bank Protection	392,443	83,000	475,443
Brookport, IL [5 6]	Wall and levee	597,493	8,500	605,993
Cannelton, IN [5 7]	Wall and levee	2,068,391	29,105	2,097,496
Cincinnati, OH [5 8]	Wall and barrier dam	10,150,935	1,309,146	11,460,081
Covington, KY [5 9]	Wall and levee	7,862,937	1,051,102	8,914,039
Dayton, KY	Wall and levee	13,117,345	2,013,000	15,130,345
Delphi, IN (Wabash River) [5 10]	Levee	144,563	17,164	161,727
England Pond Levee, IL (Wabash River) [11]	Levee	734,498	107,000	841,498
Evansville, IN [4]	Wall and levee	43,906,502	5,500,000	49,406,502
Frankfort, KY, North Frankfort (Kentucky River) [5]	Wall and levee	2,960,970	272,100	3,233,070
Frankfort, KY (Kentucky River) South Frankfort [5]	Wall	8,373,540	2,791,180	11,164,720 [36]
Golconda, IL [5 12]	Wall and levee	565,333	10,900	576,233
Harrisburg, IL [5 10]	Wall and levee	870,015	20,000	890,015
Hawesville, KY [5 13]	Levee	969,318	42,593	1,011,911
Jackson, KY (Kentucky River) [5 8]	Cutoff channel	130,952	3,000	133,952
Jeffersonville-Clarksville, IN [7]	Wall and levee	4,226,361	590,888	4,817,249
Lawrenceburg, IN [5]	Wall and levee	2,473,689	284,725	2,758,414
Louisville, KY [5 14]	Wall and levee	25,005,137	1,716,301	26,721,438
Mason J. Niblack Levee, IN (Wabash River) [4 5]	Levee and pump plants	4,337,617	109,200	4,446,817
New Albany, IN [5 8]	Wall and levee	5,375,471	740,000	6,115,471
New Harmony Bridge, IL & IN (Wabash River) [5 7]	Bank Protection	297,624		297,624
Newport, KY [5 7]	Wall and levee	7,512,987	298,506	7,811,493
Paducah, KY [5 7]	Wall and levee	4,761,551	232,000	4,993,551
Perryville, KY, Chapin River	Channel Improvement	823,700	11,000	834,700
Reevesville, IL (Cache River) [5 15]	Levee	600,300	40,000	640,300
Rochester and McCleary's Bluff Levee, IL (Wabash River) [11]	Levee	1,079,236	100,000	1,179,236
Rough River, KY [3 4]	Channel improvement	654,000	5,000	659,000
Southwest Jefferson County	Wall and Levee	60,077,183	9,917,000	69,994,183
Sturgis, KY (Tradewater River) [11]	Levee	1,826,778	93,000	1,919,778
Taylorsville, KY (Salt River) [5 16]	Levee	378,050	63,309	441,359
Tell City, IN [5 14]	Wall and levee	932,229	32,707	964,936
Uniontown, KY	Levee	1,070,926	72,153	1,143,079
Vincennes, IN [5 17] (Wabash River)(completed portion) [5]	Wall and levee	3,308,941	285,000	3,593,941
West Terre Haute, IN (Wabash River)	Levee	1,095,704	150,000	1,245,704
Active:				
Salyersville, KY	Channel Improvement	9,348,600	981,400	10,330,000
Inactive:				
Hazard, KY	Channel Improvement	-	-	-

TABLE 24-I **OHIO RIVER BASIN**

CONTINUED **TOTAL COST OF BASIN PLAN**

(See Section 39 of Text)

LOCAL PROTECTION Project and Status [1]	Type of Construction	Estimated Cost Federal	Non-Federal [2]	Total
Deauthorized:				
Adams Levee, IN (Wabash River) [32]	Levee	$ 292,000	$ 14,000	$ 306,000 [27]
Alton, IN [30]	Levee	255,000	40,000	295,000
Aurora, IN [31]	Wall and levee	4,300,000	1,190,000	5,490,000
Bellevue, KY [30]	Wall and levee	1,570,000	400,000	1,970,000
Bonpas Creek, IL (Wabash River) [5] [33]	Channel Improvement	1,080,000	630,000	1,710,000 [28]
Bromley, KY [30]	Wall and levee	1,250,000	925,000	2,175,000
California (Cincinnati), OH [31]	Wall and levee	1,750,000	720,000	2,470,000
Carrollton, KY [30]	Wall and levee	2,220,000	97,000	2,317,000
Caseyville, KY [5] [34]	Levee	396,000	35,000	431,000
Cave-in-Rock, IL [30]	Levee	661,000	125,000	786,000
Cincinnati, OH (Unit 2) [30]	Wall and levee	16,800,000	2,900,000	19,700,000
Cincinnati, OH (Unit 4) [30]	Wall	14,900,000	621,000	15,521,000
Cleves, OH [30]	Levee	1,240,000	67,000	1,307,000
Clinton, IN (Wabash River) [30]	Levee	77,000	9,000	86,000
Cloverport, KY [5] [34]	Wall and levee	728,000	193,000	921,000
Concordia, KY [5] [34]	Levee	590,000	55,000	645,000
Deer Creek Prairie Levee, IN (Wabash River) [30]	Levee	213,000	10,000	223,000 [24]
Derby, IN [30]	Wall and levee	553,000	67,000	620,000
Elizabethtown, IL [30]	Wall and levee	559,000	153,000	712,000
Fletcher and Sunshine Gardens Levee, IN (Wabash River) [30]	Levee	548,000	26,000	574,000 [24]
Frankfort, KY (Kentucky River) Benson Creek [5]	Wall and Levee	3,340,000	1,150,000	4,490,000 [22]
Grandview, IN [30]	Levee	580,000	133,000	713,000
Greenfield Bayou Levee, IN (Wabash River) [5] [35]	Levee	4,600,000	1,087,000	5,687,000 [23]
Honey Creek Levee, IN [30]	Levee	653,000	32,000	685,000
Island Levee, IN (Wabash River) [5] [35]	Levee	4,630,000	528,000	5,158,000 [23]
Leavenworth, IN [30]	Wall and levee	1,470,000	266,000	1,736,000
Levee Unit 1, Eel River, IN [30]	Levee	204,000	40,000	244,000
Levee Unit 1, Little Wabash River, IL [30]	Levee	2,850,000	164,000	3,014,000 [27]
Levee Unit 1, White River, IN [30]	Levee	2,180,000	116,000	2,296,000 [27]
Levee Unit 17, IN [30]	Levee	1,580,000	118,000	1,698,000 [28]
Levee Unit 2, Eel River, IN [30]	Levee	2,090,000	715,000	2,805,000
Levee Unit 2, Little Wabash River, IL [30]	Levee	3,410,000	136,000	3,546,000 [28]
Levee Unit 2, White River, IN [30]	Levee	724,000	73,000	797,000 [27]
Levee Unit 6, Wabash River, IL [30]	Levee	1,160,000	56,000	1,216,000
Levee Unit 7, White River, IN [30]	Levee	1,490,000	88,000	1,578,000 [27]
Lewisport, KY [5] [35]	Wall and levee	610,000	243,000	853,000 [24]
Ludlow, KY [30]	Wall and levee	2,540,000	745,000	3,285,000
Madison, IN [30]	Levee	3,820,000	360,000	4,180,000
Mauckport, IN [30]	Levee	506,000	105,000	611,000
McGinnis Levee, IN (Wabash River) [30]	Levee	1,820,000	104,000	1,924,000
Metropolis, IL [5] [34]	Wall and levee	3,070,000	431,000	3,501,000
Milton, KY [30]	Wall	2,480,000	41,000	2,521,000
Moscow, OH [30]	Levee	1,170,000	372,000	1,542,000
New Amsterdam, IN [30]	Levee	476,000	13,000	489,000
New Harmony Bridge, IL & IN (Wabash River) [37]	Bank Protection	664,376	99,000	763,376 [25]
New Harmony, IN (Wabash River) [30]	Levee	616,000	25,000	641,000
Wilder, KY [35]	Wall and levee	10,800,000	959,000	11,759,000 [26]

[1] All projects are on an Ohio River unless otherwise noted. [2] Latest cost estimate revision 1954 unless otherwise noted.

[3] Part of Rough River Reservoir and Channel Improvement Project, KY.

[4] Details of this project are in individual report.

[5] Also see "Other authorized flood control projects."

[6] See Annual Report for 1958 for details.

[7] See Annual Report for 1959 for details.

[8] See Annual Report for 1957 for details.

[9] See Annual Report for 1965 for details.

[10] See Annual Report for 1953 for details.

[11] See Annual Report for 1972 for details.

[12] See Annual Report for 1960 for details.

[13] See Annual Report for 1955 for details.

[14] See Annual Report for 1962 for details.

[15] Substitute project for Belknap, Karnak, and Ullin, IL, complete. See Annual Report for 1954 for details.

[16] See Annual Report for 1952 for details.

[17] See Annual Report for 1956 for details.

[18] Latest cost estimate revision 1988.

[19] Latest cost estimate revision 1986.

[20] Latest cost estimate revision 1984.

[21] Latest cost estimate revision 1983.

[22] Latest cost estimate revision 1976.

[23] Latest cost estimate revision 1978.

[24] Latest cost estimate revision 1960.

[25] Latest cost estimate revision 1971.

[26] Latest cost estimate revision 1977.

[27] Latest cost estimate revision 1961.

[28] Latest cost estimate revision 1973.

[29] Latest cost estimate revision 1989.

[30] Deauthorized Aug 05, 1977 under Section 12, Water Resources Development Act of 1971 (P.L. 93-251).

[31] Deauthorized Nov 06, 1977 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

[32] Deauthorized Oct 03, 1978 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

[33] Deauthorized May 06, 1981 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

[34] Deauthorized Nov 17, 1986 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

[35] Deauthorized Jan 01, 1990 under Section 1001 (b)(1), Water Resources Development Act of 1986 (P.L. 99-662).

[37] Deauthorized Jul 19, 1992.

TABLE 24-I
CONTINUED

OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 39 of Text)

RESERVOIRS

Tributary Basin Reservoirs	Status	Stream	Estimated Cost [1] Federal	Non-Federal	Total
Great Miami River:					
Brookville Lake, IN [2]	Complete	East Fork of Whitewater River	$ 37,905,073	$ 7,497,492 [3]	$ 45,402,565
Metamora Lake, IN	Deauthorized	West Fork of Whitewater River	35,300,000		35,300,000 [4]
Green River:					
Barren River Lake, KY [2]	Complete	Barren River	27,371,299	108,418 [5]	27,479,717
Green River Lake, KY [2]	Complete	Green River	33,238,597	223,733[13]	33,462,330
Mining City Lake, KY	Deauthorized	Green River	69,100,000		69,100,000 [4]
Nolin Lake, KY [2]	Complete	Nolin River	17,193,278		17,193,278
Rough River Kentucky [2]	Complete	Rough River	10,620,389	22,612	10,643,001
Kentucky River:					
Booneville Lake, KY	Deauthorized	South Fork of Kentucky River	60,700,000		60,700,000 [8]
Buckhorn Lake, KY [2]	Complete	Middle Fork of Kentucky River	11,766,206		11,766,206
Carr Fork Lake, KY [2]	Complete	North Fork of Kentucky River	50,854,826		50,854,826
Eagle Creek Lake, KY	Inactive	Eagle Creek	27,800,000	-	27,800,000 [14]
Red River Lake, KY	Deauthorized	Red River	38,551,692	1,794,308	40,346,000
Licking River:					
Cave Run Lake, KY [2]	Complete	Licking River	81,162,282		81,162,282 [7]
Falmouth Lake, KY	Deauthorized	Licking River	125,000,000		125,000,000 [8]
Little Miami River:					
Caesar Creek Lake, OH [2]	Complete	Caesar Creek	62,893,882	5,037,000 [9]	67,930,882
William H. Harsha Lake, OH [2]	Complete	East Fork of Little Miami River	52,023,157	3,485,840 [9]	55,508,997
Mill Creek:					
West Fork of Mill Creek Lake, OH [2]	Complete	West Fork of Mill Creek	3,622,302	1,100,161[10]	4,722,463
Wabash River:					
Cagles Mill Lake, IN [2]	Complete	Mill Creek	4,256,903	113,094 [5]	4,369,997
Cecil M. Harden Lake, IN [2]	Complete	Raccoon Creek	6,633,812	353,995 [5]	6,987,807
Monroe Lake, IN [2]	Complete	Salt Creek	7,902,827	8,667,947[11]	16,570,774
Patoka Lake, IN [2]	Complete	Patoka River	53,095,790	20,568,369	73,664,159

[1] Latest cost estimate revision 1989 unless otherwise noted.
[2] Details of this project given in individual report.
[3] Cash contributions for water supply storage.
[4] Latest cost estimate revision 1954.
[5] For Code 713 recreation development.
[6] Latest cost estimate revision 1975.
[7] Includes $6,900,000 United States Forest Service cost.
[8] Latest cost estimate revision 1979.
[9] Reimbursement for water supply storage.
[10] Includes $520,800 for non-Federal cost for sewer relocation and dam, $50,000 for contributed funds in fulfillment of project authorization, and $529,361 for Code 713 recreation development.
[11] Includes $7,797,604 cash contribution for storage for low-flow regulation and $870,343 non-Federal contribution in kind for recreational facilities.
[12] Includes $14,180,677 cash contribution for water supply storage, and $6,387,692 for initial recreation development.
[13] For $183,732 Code 713 recreation development and $40,001 contributed funds.
[14] Latest cost estimate 1974

TABLE 24-J

WABASH RIVER BASIN
TOTAL COST OF BASIN PLAN
(FLOOD CONTROL)
(See Section 44 of Text)

Projects	Type of Construction or Stream	Status	Estimated Cost Federal	Non-Federal	Total
LOCAL PROTECTION					
Marion, IN	Wall and Levee	Inactive	$ 3,900,000	$ 854,000	$ 4,754,000 [2]
RESERVOIRS					
Big Blue Lake, IN	Big Blue River	Deauthorized	87,200,000	53,836,000 [3]	141,036,000 [4]
Big Walnut Lake, IN	Big Walnut Creek	Deauthorized	81,800,000	45,069,000 [5]	126,869,000 [4]
Downeyville Lake, IN	Flatrock and Little Flatrock Rivers	Inactive	74,200,000	64,448,000 [6]	138,648,000 [1]
Helm Lake, IN	Skillet Fork	Deauthorized	25,171,000	14,829,000 [7]	40,000,000 [8]
Louisville Lake, IL	Little Wabash River	Deauthorized	113,000,000	14,435,000 [9]	127,435,000 [10]

[1] Latest cost revision 1984 unless otherwise noted.

[2] Latest cost estimate revision 1977.

[3] Includes $38,190,000 reimbursable by non-Federal interests for water supply and $15,656,000 reimbursable for initial recreation facilities.

[4] Latest cost estimate revision 1979.

[5] Includes $26,663,000 reimbursable by non-Federal interests for water supply and $18,406,000 reimbursable for initial recreation facilities.

[6] Includes $53,084,000 reimbursable by non-Federal interests for water supply, $8,749,000 reimbursable for initial recreation facilities.

[7] Includes $12,696,000 reimbursable by non-Federal interests for water supply and $2,133,000 reimbursable for initial recreation facilities.

[8] Latest cost estimate revision 1975.

[9] Includes $8,402,000 reimbursable by non-Federal interests for water supply and $6,033,000 reimbursable for initial recreation facilities.

[10] Latest cost estimate revision 1982.

TABLE 24-K

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 47 of Text)

Projects	Date of Inspection
Local Protection Projects	
Bardstown, KY	Mar 2003
Brevoort Levee, IN	Jul 2003
Brookport, IL	Sep 2003
Cache River Levee, IL	Aug 2003
Cannelton, IN	Nov 2002
Cincinnati, OH	Jun 2003
Covington, KY	Jul 2003
Dayton, KY	Jul 2003
Delphi, IN	May 2003
England Pond Levee, IL	Jul 2003
Evansville, IN	May 2003
Frankfort, KY, North Frankfort	Mar 2003
Gill Township Levee, IN	Jul 2003
Golconda, IL	Aug 2003
Harrisburg, IL	Aug 2003
Hagerstown, IN	Jun 2003
Hawesville, KY	Nov 2002
Indianapolis, IN	Jun 2003
Jeffersonville-Clarksville, IN	Jul 2003
Lawrenceburg, IN	Jul 2003
Lebanon Junction, KY	Jul 2003
Levee Unit No. 5, Wabash River, IN	Sep 2003
Levee Unit No. 8, Wabash River, IN	Jul 2003
Louisville, KY	Jun 2003
Lyford Levee, IN	May 2003
Mason J. Niblack Levee, IN	Jul 2003
Mount Carmel, IL	Jul 2003
Muncie, IN	Jun 2003
New Albany, IN	Apr 2003
Newport, KY	Jul 2003
Paducah, KY	Sep 2003
Perryville, KY	Mar 2003
Reevesville, IL	Aug 2003
Rochester-McClearys Bluff Levee, IL	Sep 2003
Rosiclare, IL	Aug 2003
Rushville, IN	Jun 2003
Shawneetown, IL	Aug 2003
Southwestern Jefferson County, KY	Jun 2003
Sturgis, KY	Aug 2003
Taylorsville, KY	Jul 2003
Tell City, IN	Nov 2002
Terre Haute (Conover Levee), IN	Nov 2003
Uniontown, KY	Aug 2003
Vincennes, IN	Sep 2003
West Terre Haute, IN	Nov 2003
Channel Improvements	
Canoe Creek, Henderson, KY	Aug 1998
Cypress Creek, McLean County, KY	Sep 1998
Eel River, Brazil Waterworks, IN	May 2003
English, IN (Little Blue River)	Jun 1994
Grassy Creek, Jackson County, IN	Sep 1995
Harrodsburg, KY (Town Creek)	Apr 2003
Indian Creek, Corydon, IN	Nov 2003
Jackson, KY (North Fork Kentucky River)	Sep 1998

TABLE 24-K
CONTINUED

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(See Section 47 of Text)

Projects	Date of Inspection
Channel Improvements Con't.	
Lancassange Creek, Clark Co, IN	Apr 2003
Lick Creek, Hartford City (Blackford County), IN	Oct 2002
Mill Creek, Jefferson County, KY	Apr 2003
Muscatatuck River, Crothersville, IN	Oct 2002
Neon-Fleming, KY (North Fork Kentucky River)	Nov 2002
Nicholasville (Town Fork) Vicinity, KY	Apr 2003
Panther Creek, Curdsville, KY	Sep 1998
Plum Creek, Spencer County, KY	Apr 2003
Portland, IN (Salamonie River)	Oct 2002
Rough River, Hartford, Ohio County, KY	Nov 1999
Salamonie River, Wells County, IN	Oct 2002
Saline River and Tributaries, IL	Jun 1998
Tripplett Creek, Morehead, KY	Nov 2002
Troublesome Creek, Hindman, KY	Sep 1998
Wabash River, Adams County, IN	Nov 1999
Whitesburg, KY (North Fork Kentucky River)	Aug 1998
Bank Revetments	
Crooked Creek, City Garage, Madison, IN	Oct 1999
Crooked Creek, John Paul Park, Madison, IN	Oct 1999
Eagle Creek, Indianapolis, IN	Jun 2003
East Fork White River, Brownstown, (Jackson County), IN	Mar 2003
Eighteen Mile Island, Oldham County, KY	Jun 1993
Great Miami River, Sidney, OH	Aug 1995
Green River, Calhoun, KY (River Mile 63.6)	Sep 1995
Green River, Calhoun, KY (River Mile 63.4)	Sep 1998
Indian Creek, Burton Lane, Morgan County, IN	Oct 1999
Licking River, Butler, KY	Aug 1995
Lusk Creek, Golconda, IL	Jul 2002
Little Miami River, Indian Hill, OH	Nov 1999
Little Miami River, Milford, OH	Apr 1995
Nameless Creek, Warren County, IN	Jun 1995
North Fork, Kentucky River, Whitesburg, KY	Oct 2002
Great Miami River, Ice Jam Flooding, Port Jefferson, OH	Nov 1999
Ohio River, Brandenburg, KY	Apr 2003
Ohio River, Carrolton, KY	Feb 2003
Ohio River, Cloverport, KY	Nov 2002
Ohio River, Daviess County, KY	Sep 1998
Ohio River, Fort Massac State Park, IL	Nov 1999
Ohio River, Hawesville, KY	Sep 1998
Ohio River, Lewisport, KY	Nov 2002
Ohio River, Madison, IN	Oct 1999
Ohio River, Moscow, OH	Jan 2000
Ohio River, Mount Vernon, IN	May 1995
Ohio River, Newburgh, IN	Aug 1998
Ohio River, Ohio Street, Evansville, IN	Nov 1999
Ohio River, Otter Creek Park, KY	Jun 1993
Ohio River, Owensboro, KY	Sep 1998
Ohio River, Owensboro Riverport Authority, KY	Feb 1995
Ohio River, Rabbit Hash, Boone County, KY	Nov 1999
Ohio River, Rockport/Rockport Landing, IN	Aug 1998
Ohio River, Sellersburg, IN	Nov 2002
Ohio River, SR 66, Cannelton, IN	Nov 2002
Ohio River, Troy, IN	Nov 2002

TABLE 24-K
CONTINUED

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(See Section 47 of Text)

Projects	Date of Inspection
Bank Revetments Con't	
Ohio River, Upper River Road, Jefferson County, KY	Jul 1991
Ohio River, Vanderburg County, IN	Aug 1998
Patoka River, Jasper, IN	Oct 1993
Patoka River, Winslow, IN	Jul 1995
South Fork of Wildcat Creek, County Road 7 East, Tippecanoe County, IN	Apr 1995
Stoner Creek, North Middletown, KY	Jul 1994
Wabash River, near Merom, IN	Jun 1995
Wabash River, New Harmony, IN	Aug 1998
Wabash River, Terre Haute STP Outfall	Oct 1999
Wabash River, Vigo County, County Road 83 West	Oct 1999
Wabash River, Vigo County, Little Road	Oct 1999
White River, Morgan County, Blue Bluff Road, IN	Oct 1999
White River, Petersburg (Pike County), IN	Jul 1995
Whitewater River, Levee Road, near Brookville, IN	Apr 1995
Wastewater Treatment Plant, Great Miami River, Ross, OH	Apr 1995

TABLE 24-L

FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

(See Section 49 of Text)

	Fiscal Year Cost		
	Federal	**Non-Fed**	**Total**
Environmental Restoration (Section 1135)			
Barren, KY RA [6]	95	-	95
Cane Ridge, IN RA [1]	51,348	-	51,348
Coordination Accounting Fund [8]	16,175	-	16,175
Green River Headwater [4]	2,035	-	2,035
Hovey Lake Wildlife Area, IN [1]	6,121	-	6,121
Monroe Lake, IN RA [1]	17,032	-	17,032
Mt. Etna/Mt. Hope Wetlands Salamonie Lake, IN [1]	2,976	-	2,976
Preliminary Restoration Plan [7]	992	-	992
White River Muncie, IN [1]	13,030	-	13,030
Flood Control (Section 205)			
Amberley Creek, Cincinnati, OH [2]	33,058	37,635	70,693
Banklick Creek, Kenton County, KY [2]	103,303	-	103,303
Canoe Creek, Henderson, KY [1]	5,103	-	5,103
City Dam, Brevoort Levee, IN [5]	12,843	-12,843	0
College Corner, OH [2]	38,830	-	38,830
Coordination Account [8]	20,687	-	20,687
Cow Creek & McPherran Branch, IN [2]	65,399	-	65,399
Deshee River, Brevoort Levee, IN [5]	-1,989	1,989	0
Duck Creek, Elwood, IN [6]		24	24
Dugan Run, Urbana, OH [2]	32,457	-	32,457
Elizabethtown, KY [2]	23,580	-	23,580
Feather Creek, Clinton, IN [3]	10,306	-	10,306
Flatrock River, Rushville, IN [5]	-87	-	-87
Hinkston Creek Mt. Sterling, KY [2]	29,545	-	29,545
Knox County Kelso Creek, IN [2]	42,191	-	42,191
Lamotte Creek, Palestine, IL [2]	80,821	-	80,821
Licking River Flood Warning System, KY [4]	249,014	267,475	516,489
Little Duck Creek, OH [2]	16,027	-	16,027
Mississenewa River, Marion, IN [2]	71,258		71,258
North Fork, Kentucky River, Jackson, KY [5]	43,292	10,223	53,515
North Fork Kentucky River Whitesburg, KY [6]	16,236	-	16,236
North Panther Creek, Daviess County, KY [2]	22,241	-	22,241
Owl Creek, West Carrolton, OH [2]	49,846	-	49,846
Pankey Branch, Harrisburg, IL[2]	68,368	-	68,368
Pleasant Creek, Greenwood, IN [2]	40,784	9,032	49,816
Rolling Fork River, Lebanon Junction, KY [4]	961,748	339,573	1,301,320
Salt Lick, KY [6]	39,869		39,869
White River, Anderson, IN [3]	87,589	487	88,076
Whitewater River, Connersville, IN [6]	14,082	-	14,082
Emergency Bank Protection (Section 14)			
Big Vermillion River, Eugene Covered Br., IN [6]	4,065	-	4,065
Blue Lick, KY [1]	60,322	-	60,322
Cincinnati Water Works, OH [6]	14,151	-	14,151
Clear Creek Mapleturn Utilities, IN [1]	17,276	-	17,276
Coordination Account [8]	20,307	-	20,307
Copeland Low Water Bridge, Breathitt Co., KY [6]	14,835	-	14,835
Crooked Creek, Madison, IN [1]	15,571	-	15,571
Green River Muhlenburg County, Park, KY [6]	12,890	-	12,890
Hodgenville, KY [1]	4,610	-	4,610
Little Miami River Anderson Township, OH [1]	36,153	-	36,153
Mill Creek Rd 55 OW, Park Co., OH [1]	246	-	246
North Fork Kentucky River, Vocational School, KY [5]	-85	-	-85
Ohio River, Perry County, IN [5]	18,872	5,351	24,223
Rockport, IN [1]	872	-	872

TABLE 24-L
CONTINUED

FLOOD CONTROL WORK5
UNDER SPECIAL AUTHORIZATION
(See Section 49 of Text)

	Fiscal Year Cost		
	Federal	**Non-Fed**	**Total**
Rough River, Hartford, KY [1]	10,035	-	10,035
Southern Ditch, Louisville, KY [1]	6,213	-	6,213
Water Wells, Sellersburg, IN [6]	14,722	-	14,722
White River, Knox County, Hwy 358, KY [1]	21,642	-	21,642
Snagging & Clearing (Section 208)			
Jackson County, IN [6]	283	-	283
Madisonville, KY [6]	183	-	183
Aquatic Ecosystem Restoration (Section 206)			
Banta Tibbs Landfill RA [6]	111	-	111
Beargrass Creek Louisville, KY Wetlands [1]	71,689	-	71,689
Bloomington IN Wetlands RA [1]	7,777	-	7,777
Chapman Lake, IN Wetlands RA [1]	36,641	-	36,641
Coordination Account Fund [8]	19,127	-	19,127
East Fork White River RA [1]	33,042	-	33,042
Freeman Lake Wildlife Refuge [7]	19,000	-	19,000
Goose Pond, Miami Oxbow [7]	155	-	155
Kenton County, Sewer District No. 1 [7]	13,448	-	13,448
Lake Maxinkuckee, Culver, IN [6]	139	-	139
Lexington Road Park Greenway [7]	12,238	-	12,238
Log Creek Church Rd, Pike Co, IN [2]	11,427	-	11,427
Lost River Valley, Bowling Green [1]	12,177	-	12,177
Lower Beargrass Creek [7]	3,973	-	3,973
Ohio River Garvin Brown [1]	11,581	-	11,581
Pitcher Lake Oxbow Restoration [7]	1,000	-	1,000
Troy, OH Wetlands RA [6]	80	-	80
Yellowbank WMA KY RA [1]	54,811	-	54,811

[1] Planning and Design Analysis (PDA).
[2] Feasibility Report.
[3] Plans and Specifications.
[4] Construction Funds Received or Construction Underway.
[5] Construction Completed.
[6] Study Terminated.
[7] Preliminary Restoration Plan.
[8] Coordination Account.

TABLE 24-M

GENERAL INVESTIGATIONS

(See Sections 50, 51, 52, & 53 of Text)

Projects	Fiscal Year Cost Federal	Non-Fed	Total
SURVEYS			
Navigation Studies			
Ohio River Mainstem, Uniontown, KY, IL, IN	$ 354,625	-	354,625
Flood Damage Prevention Studies			
Butler Co., OH	2	-	2
Licking River Watershed, Cynthiana, KY	32,079	75,023	107,102
Metro Louisville, Mill Creek, KY	33,314	-	33,314
Mississinewa River, Marion, IL	36	-	36
North Fork Licking River, KY	904		904
Ohio River & Trib Recon St. (Metro Louisville S.W.)	83,950	112,137	196,086
Polk Run Creek, OH	26,978	-	36,978
Williamstown Lake, KY	29,881	-	29,881
Special Studies			
Columbus Waterfront Development, IN	13,055	-	13,055
Covington Waterfront Development, KY	111,197	-	111,197
Metropolitan Louisville, Jefferson Co., KY	24,090	-	24,090
Ohio River Madison, OH	2,311	-	2,311
Ohio Riverfront Study, Cincinnati, OH	32,359	-	32,359
Vicennes Waterfront Development, IN	25,015	-	25,015
White River Central Waterfront, IN	29,735		29,735
Review of Authorized Projects			
Green River L&D #6	24,264	-	24,264
Miscellaneous Activities			
Federal Energy Regulatory Commission	7,870	-	7,870
Intra-Agency Water Resources Development	21,094	-	21,094
N. American Waterfowl Management Plan	2,105	-	2,105
Special Investigation, KY	117,577	-	117,577
PRECONSTRUCTION ENGINEERING AND DESIGN			
Navigation Project - Lock and Dams			
John T. Myers Locks and Dam	888,364	-	888,364
Flood Control Projects - Local Protection			
Paducah, KY	693	-	693
Wabash River, New Harmony, IN	12	-	12
COORDINATION WITH OTHER AGENCIES			
Coordination with other Agencies and Non-Federal Interest			
Coop w/other Water Agencies	7,994	-	7,994
Planning Assistance to States			
PAS-IN-Indianapolis Three Dam Study	88	7,121	7,209
PAS-OH- Colerain Twp H&H IS	52	5,409	5,461
PAS Negotiation Funds	15,036	-	15,036
PAS-KY-Jefferson County	1,935	-	1,935
PAS-KY-Union County	58,461	58,551	117,012
PAS-OH-City of Middleton	13,648	-	13,648

TABLE 24-M
CONTINUED

GENERAL INVESTIGATIONS

(See Sections 50, 51, 52, & 53 of Text)

Projects	Fiscal Year Cost Federal	Non-Fed	Total
COLLECTION AND STUDY OF BASIC DATA			
Flood Plain Management Services			
Flood Plain Management Services	57,646	-	57,646
Quick Responses	5,983	-	5,983
SS-Johnson County Kansas	759	-	759
SS-Fall Creek, Indianapolis	47,158	-	47,158
SS-Hazard ND FPI	36	-	36
Technical Service, General	22,695	-	22,695
Hydrologic Studies			
Hydrologic Studies	4,740	-	4,740

HUNTINGTON, WV DISTRICT

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in the text and also appear at the end of this chapter.

The Huntington District includes central and south-eastern Ohio, all of West Virginia except the northern panhandle and northeastern portion, the eastern portion of Kentucky, a portion of midwestern Virginia, a very small portion of northwestern North Carolina, embraced in the drainage basin of the Ohio River and its tributaries from approximate river mile 127 (below Pittsburgh, PA) to approximate river mile 438, immediately upstream from Foster, KY. The drainage area of the Huntington District is approximately 44,914 square miles.

Improvements

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NAVIGATION

1. CONSTRUCTION OF LOCKS AND DAMS ON THE OHIO RIVER

See this heading under Chapter 19 – Ohio River.

2. KANAWHA RIVER, WV

Location. The Kanawha River is approximately 97 miles in length and is formed by the junction of the New and Gauley Rivers, a short distance above Kanawha Falls, WV, and flows generally northwesterly to the confluence with the Ohio River at Point Pleasant, WV.

Previous projects. For details of previous projects see the Annual Reports for 1875, 1915 and 1938.

Existing project. The existing project consists of three navigation structures on the Kanawha River. London Locks and Dam are located approximately 83 miles above the mouth of the Kanawha River and approximately two miles downstream from Montgomery, WV. Marmet Locks and Dam are located approximately 68 miles above the mouth of the Kanawha River at Marmet, WV. Winfield Locks and Dam are located approximately 31 miles above the mouth of the Kanawha River at Winfield, WV. Each structure has twin locks with usable dimensions of 56 feet by 360 feet. Another structure, Robert C. Byrd Locks and Dam, is located on the Ohio River at approximate river mile 279 and approximately nine miles below Gallipolis, OH. This structure has two parallel locks, the main lock is 110 feet by 1,200 feet. The existing project was completed at a cost of $27,853,699. Construction was initiated in 1931 and completed in 1937. This system of locks and dams provides a navigable depth of nine feet from the mouth of the Kanawha River to a point approximately 91 miles upstream. For further cost details see Table 17-B, see also, Appendix C. Public Law 99-88 authorized the initiation of Engineering and Design and Real Estate Acquisition for Winfield Locks and Dam Replacement. Feasibility studies for modernization have been completed. The plan includes construction of an additional lock chamber (800’x110') adjacent to the existing locks and continued use of the riverward lock chamber and the navigation dam. The contract for Lock Replacement – Phase I was awarded in April 1990 and is complete. The contract for Construction of Additional Lock and Gate Bay, Phase IIA, was awarded in May 1993 and is complete. The contract for lock replacement, Phase IIB, was awarded in January 1994 and is complete. The full funding estimate for new work is $235,900,000, which is 50 percent Federal cost and 50 percent Inland Water Ways Trust Fund cost. Public Law 104-303 authorized construction of a new lock chamber at Marmet Locks and Dam. The plan includes construction of a new lock chamber (800'x110') on the right descending bank landward of the existing locks and the continued use of the current twin 360'x56' chambers and the navigation dam. Feasibility studies for modernization are complete. Pre-construction engineering and design work is complete. Real estate acquisition activities, begun in FY 1998, are continuing. The contract for lock replacement was awarded in May 2002 and is 25% complete. The full funding estimate for new work is $333,000,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost. Major rehabilitation work has been initiated at London Locks and Dam. The plan for rehabilitation includes lengthening the river lock chamber by moving existing upper miter gates and reinstalling them upstream at the emergency dam sill, but within the confines of existing lock walls, and replacing the upper guard wall. The contract for Phase 2C, major rehabilitation at London, was awarded in January 2002 and is 99% complete. The full funding estimate for major rehabilitation is $22,900,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost.

In addition to the navigation structures on the Kanawha River, the Corps of Engineers participated with the City of Charleston in construction of a riverfront park on the right descending bank near downtown Charleston. The total cost of the project was $8,755,242. The federal share was $4,370,121 and the non-federal share was $4,385,121. The additional $15,000 in the non-federal share was for betterments paid for by the City of Charleston. The project was completed in January 1999.

Local cooperation. All requirements for local cooperation have been completed.

Terminal facilities. There are 100 terminals along the Kanawha River located from the mouth of the river to 30 miles east of Charleston, WV. These terminals are constructed principally of steel and wood mooring piles and steel pile mooring cells. Eighteen of these terminals have railroad connections. Five terminals are paved wharves and one is owned by the City of Charleston, WV. The remaining terminals are privately owned. The principal commodities handled are coal, chemicals,

acids, cement, gasoline and oil, and sand and gravel. For further details see the 1962 Annual Report.

Operations during the fiscal year. The Locks and Dams were operated as required and necessary repairs and improvements were made to the locks and dams as well as to the appurtenant structures and grounds. Channel inspections were conducted periodically. In FY 2003 dredging by contract on the Kanawha River totaled 38,689 cubic yards at $284,994.

3. OPEN CHANNEL WORK, OHIO RIVER

See this heading under Chapter 19 – Ohio River.

4. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 25-C.

Article I. FLOOD CONTROL

5. ALUM CREEK LAKE, OH

Location. The damsite is located in Delaware County, OH, on Alum Creek, a tributary of Big Walnut Creek, approximately 26 miles above the mouth of Alum Creek and 15 miles north of Columbus, OH, and approximately 157 miles above the mouth of the Scioto River.

Existing project. The existing project consists of a rolled earthfill dam 93 feet in height and 10,000 feet in length with a gate controlled spillway located in the right abutment. The reservoir provides a total storage of 134,800 acre-feet and controls a drainage area of approximately 123 square miles. See also Appendix A. Construction of the dam and appurtenant works was initiated in August 1970 and completed in July 1974. The 405 tracts of land required for the project have been acquired. The Federal cost of the project was $56,267,422. The Sponsor will reimburse the Government an estimated $27,880,000, exclusive of interest, for cost allocated to water supply.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The project was operated for the benefit of flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $2,883,000. To date, the project has prevented an estimated $82,614,000 in flood damages.

6. BEECH FORK LAKE, WV

Location. The damsite is located in Wayne County, WV, on Beech Fork Creek, a tributary of Twelvepole Creek, approximately four miles above the mouth of Beech Fork Creek and 20 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of a rolled earth-fill dam 86 feet in height and 1,080 feet in length, an uncontrolled spillway landward of the left abutment of the dam with a control structure at the upstream end. The reservoir provides a total storage of 37,540 acre-feet and controls a drainage area of approximately 78 square miles. Construction of the dam was initiated in December 1972 and completed in February 1977. See also Appendix A. A total of 485 tracts of land were acquired for the project. The total cost of the project was $41,987,500.

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date the project has prevented an estimated $17,559,000 in flood damages.

7. BLUESTONE LAKE, WV

Location. The damsite is located on the New River in Summers County, WV, approximately three miles above Hinton, WV, and one mile from the confluence of the New and Greenbrier Rivers. The reservoir is located in Summers County, WV, and Giles County, VA.

Existing project. The existing project consists of a concrete gravity dam 180 feet in height and 2,048 feet in length. Appurtenant structures consist of a gated spillway 790 feet in length located in the channel section of the dam. The stilling pool is formed by a 23-foot-high weir located 364 feet downstream of 16 gated sluices through the spillway section and discharging into the stilling pool. Penstocks were installed at the time of construction

to permit the future installation of hydropower. The reservoir provides for a total storage of 631,000 acre-feet. See also Appendix A. Construction of the dam was initiated in January 1942 and completed in April 1952. A total of 338 tracts of land were acquired for the project. The Federal cost of the project was $29,458,652, which includes expenditures under the recreation at completed projects program. For further details see the 1939 and 1962 Annual Reports.

In FY 2000 Dam Safety Assurance activities were initiated at Bluestone Dam. Modifications include increasing the height of the dam 13 feet; installing 309 anchors and thrust blocks; constructing gate closures across State Route 20; modifying penstocks to supplement discharge capacity; and relocating electrical lines. The Phase 1 contract, consisting of construction of a temporary access bridge, modification to existing penstocks, and construction of concrete thrust block; and design of Phase 2 of project, was awarded in September 2000, and is 97% complete. The full funding estimate for this work is $118,000,000 (full Federal expense).

Public Law 106-53, Section 361, directed the Corps to implement a plan for debris management at Bluestone Lake. In April 2001, a contract to construct a multi-level release tower and tunnel was awarded and is 91% complete. The full funding estimate for this work is $15,120,200.

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $298,398,000. To date, the project has prevented an estimated $1,893,841,000 in flood damages.

8. BURNSVILLE LAKE, WV

Location. The damsite is located in Braxton County, WV, on the Little Kanawha River, approximately two miles above Burnsville, WV, and 124 miles above the confluence of the Little Kanawha River and the Ohio River.

Existing project. The existing project consists of an earth embankment dam 80 feet in height and 1,000 feet in length with a gated spillway in the left abutment. The outlet works is an integral part of the spillway, consisting of five sluice gates and one low flow sluice. The reservoir provides for a total storage of 65,400 acre-feet and controls a drainage area of approximately 165 square miles. Construction of the dam was initiated in June 1973 and completed in February 1976. See also Appendix A. The 357 tracts of land required for the project have been acquired. The Federal cost of the project to date has been $57,166,839.

Local cooperation. None required.

Operations during the fiscal year. The project is completed. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $13,658,000. To date, the project has prevented an estimated $111,748,000 in flood damages.

9. CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

Location: The project area consists of 20 counties in Central West Virginia and includes portions of Huntington, Pittsburgh, and Baltimore Districts. The program purpose is to provide design and construction assistance for environmental infrastructure and resource protection and development, including projects for wastewater treatment, water supply, and surface water resource protection and development. Only those projects which are publicly owned may participate in the program.

Existing project: In 2003 there were two projects underway in Huntington District: North Putman County and Silverton PSD. Work is authorized by Sec 571 of the Water Resources Development Act of 1999 (PL 106-53).

Local Cooperation:. All requirements of local cooperation have been met.

Operating during the fiscal year: During the year, $52,400 was expended in Huntington District in the various activities related to this program.

10. DEER CREEK LAKE, OH

Location. The damsite is located in Pickaway County, approximately seven miles south of Mount Sterling, OH, on Deer Creek, a tributary of the Scioto River, approximately 21 miles above the mouth of Deer Creek and approximately 106 miles above the mouth of the Scioto River.

Existing project. The existing project consists of a rolled earth-filled dam 93 feet in height and 3,880 feet in length, a 741-foot concrete gravity channel section controlled by three tainter gates, an outlet works consisting of five gated sluices through a concrete spillway section discharging into a stilling basin and an earth dike 15 feet by 4,600 feet in a saddle located approximately four miles southwest of the damsite. The reservoir provides a total storage of 102,540 acre-feet and controls a drainage area of approximately 278 square miles. Construction of the dam was completed in May 1968. The 138 tracts of land required for the project have been acquired. For further project details see the 1965 Annual Report. See also Appendix A. The Federal cost of the project is $20,406,545, including expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated $322,000 in flood damages during the fiscal year. To date, the project has prevented an estimated $34,155,000 in flood damages.

11. DELAWARE LAKE, OH

Location. The damsite is located on the Olentangy River, approximately six miles above and north of Delaware, OH, and approximately 32 miles above the confluence of the Olentangy and Scioto Rivers at Columbus, OH. The reservoir is located in Delaware, Marion and Morrow Counties, OH.

Existing project. The existing project consists of a rolled earth-fill dam with a gate controlled ogee type spillway and five outlet conduits in the channel. The dam is 18,600 feet in length and 92 feet in height. The project provides for storage of 132,800 acre-feet and controls a drainage area of approximately 381 square miles. Construction of the dam was initiated in April 1946 and completed in July 1948. For further details see the 1962 Annual Report. See also Appendix A. Total real estate requirements of 7,703 acres of fee acquisition and 2,428 acres of flowage easements have been completed. The Federal cost for the project was $7,631,821.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for the benefit of flood control as required, and necessary repairs were made to the structure and appurtenances. The project prevented an estimated $1,021,000 in flood damages during the fiscal year. To date, the project has prevented an estimated $91,878,000 in flood damages.

12. DEWEY LAKE, KY

Location. The damsite is located on Johns Creek, approximately seven miles southeast of Paintsville, KY, and approximately six miles above the confluence of Johns Creek and the Levisa Fork of the Big Sandy River.

Existing project. The existing project consists of an earthfill dam 118 feet in height and 913 feet in length, a controlled outlet works discharging through a channel excavated in the left abutment, and a rolled earth-fill dike blocking a low divide to Brandykeg Creek and the Levisa Fork. The reservoir provides a total storage of 93,300 acre-feet and controls a drainage area of approximately 207 square miles. Construction of the dam was initiated in March 1946 and completed in July 1949. For further project detail see the 1965 Annual Report. See also Appendix A. Total real estate requirements for the project were 12,458 acres in fee and 1,170 acres in flowage easements. The Federal cost of the project was $7,845,547, including expenditures for recreation under the completed project program.

Dam Safety Assurance activities are underway at Dewey Dam. Modifications include raising the height of the main dike with compacted earth, construction of a parapet wall across the dam, addition a 125-foot auxiliary spillway, and restricting the existing spillway to its original design capacity by providing vertical restriction walls on each side. A construction contract was awarded in May 2000 and is 100% complete. Dam safety assurance activities at Dewey Dam are about 99% complete. The full funding estimate for this work is $18,600,000 (full Federal expense).

Local cooperation. None required.

Operations during the fiscal year. All construction activities are complete. The reservoir was operated for the benefit of flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated $15,622,000 in flood damages during

the fiscal year. To date, the project has prevented an estimated $77,787,000 in flood damages.

13. DILLON LAKE, OH

Location. The damsite is located on the Licking River, approximately six miles above the confluence of the Licking and Muskingum Rivers at Zanesville, Ohio.

Existing project. The existing project consists of a rolled earth-fill dam 118 feet in height and 1,400 feet in length, a controlled outlet works discharging through a 20-foot conduit in the right abutment, and an ungated 280-foot spillway adjacent to the left abutment of the dam, and two rolled earthfill dikes. The reservoir provides for a total storage of 261,110 acre-feet and controls a drainage area of approximately 748 square miles. Construction of the dam was completed in July 1959. For further project details see the 1962 Annual Report. See also Appendix A. Total real estate required for the project consists of 8,232 acres in fee and 5,380 acres of flowage easements. See also Appendix A. Federal cost of the project was $30,218,135.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated as required for flood control, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $410,000. To date, the project has prevented an estimated $298,054,000 in flood damages.

14. EAST LYNN LAKE, WV

Location. The damsite is located in Wayne County, WV, approximately six miles southeast of Wayne, WV, 10 miles above the mouth of East Fork and 42 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of an earth-fill dam 113 feet in height and 638 feet in length, an uncontrolled spillway near the left abutment of the dam, and a 13-foot reinforced concrete tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 82,500 acre-feet and controls a drainage area of approximately 133 square miles. The required 552 tracts of land have been acquired. See also Appendix A. The Federal cost of the project was $85,872,963.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year, the project prevented flood damages estimated to be $10,378,000. To date, the project has prevented an estimated $74,408,000 in flood damages.

15. FISHTRAP LAKE, KY

Location. The damsite is located in Pike County, KY, on the Levisa Fork of the Big Sandy River, approximately 15 miles upstream from Pikeville, KY, approximately three miles above the confluence of Levisa and Russell Forks and 103 miles above the mouth of the Levisa Fork.

Existing project. The existing project consists of a rock-fill dam 195 feet in height and 1,100 feet in length, a controlled spillway containing four tainter gates located in the valley wall adjacent to the left abutment of the dam, the outlet works consists of an intake structure with three conduits controlled by slide gates and discharging into a horseshoe shaped tunnel. The reservoir provides for a total storage of 164,360 acre-feet and controls a drainage area of approximately 395 square miles. The dam was completed in February 1969. The 1,301 tracts of land required for the project have been acquired. See also Appendix A. The Federal costs for the project was $54,754,126, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $150,346,000. To date, the project has prevented an estimated $445,720,000 in flood damages.

16. GRAYSON LAKE, KY

Location. The damsite is located in Carter County, KY, on the Little Sandy River approximately

49 miles above the confluence with the Ohio River, and 11 miles upstream from Grayson, KY.

Existing project. The existing project consists of a random earthfill dam 120 feet in height and 1,460 feet in length, a controlled outlet works discharging though a 14-foot spillway beyond the left abutment. The reservoir provides for a total storage of 119,000 acre-feet and controls a drainage area of approximately 196 square miles. The dam was completed in January 1968. The 484 tracts of land required for the project have been acquired. See also Appendix A. Federal costs for the project was $19,162,741, which includes expenditures for recreation facilities under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $5,417,000. To date, the project has prevented an estimated $87,462,000 in flood damages.

17. JOHN W. FLANNAGAN DAM AND RESERVOIR, VA

Location. The damsite is located in Dickenson County, VA, approximately four miles northwest of Haysi, VA, on the Pound River approximately two miles above the confluence of the Pound River and Russell Fork and approximately 150 miles above the mouth of the Big Sandy River.

Existing project. The existing project consists of a rock-fill dam 252 feet in height and 970 feet in length, an outlet tunnel located near the left abutment of the dam with a control structure at the upstream end, a spillway controlled by six tainter gates located in a saddle just upstream from the damsite. The reservoir provides for a total storage of 145,700 acre-feet and controls a drainage area of approximately 222 square miles. The project was modified to include water quality control by adding control gates to the previously uncontrolled spillway, which increased the total storage capacity by 39,000 acre-feet. The dam was completed in December 1963. The 382 tracts of land required for the project have been acquired. See also Appendix A. The Federal cost for the project was $20,444,383, which includes expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $82,879,000. To date, the project has prevented an estimated $242,844,000 in flood damages.

18. LEVISA AND TUG FORKS OF THE BIG SANDY AND CUMBERLAND RIVERS, WV, VA, AND KY

Location. The Levisa and Tug Forks form the Big Sandy River at Louisa, KY. The Cumberland portion is the Upper Cumberland River Basin above Cumberland Falls, KY. The basin is approximately 100 miles in length and averages approximately 30 miles in width in the lower portion and approximately 10 miles in width above Harlan, KY. The Big Sandy Basin is within the Huntington District, and the Cumberland Basin is within the Nashville District. This report covers that portion of the project located in the Huntington District.

Existing project. The authorization language (Section 202 of PL 96-367, 1981) directs the Corps of Engineers to design and construct, at full Federal expense, such flood control measures as are determined to be necessary and advisable for the communities in the Tug and Levisa Forks and Upper Cumberland River basins. The authorization further states that such flood control measures would be located at or in the vicinity of Pikeville, KY, and Grundy, VA, on the Levisa Fork; Pineville, KY, on the Cumberland River; and Williamson and Matewan on the Tug Fork, in order to afford the named communities and other flood damaged locations and their immediate environs a level of protection against flooding at least sufficient to prevent any future losses from the likelihood of flooding such as occurred in April 1977. Subsequent legislation (WRDA 1986), required that non-Federal interests cost share construction at no less than 5%. The full funding estimate for the project is $2,056,272,000, which includes $112,540,000 non-federal contributions.

Local cooperation. All requirements of local cooperation have been met.

Operations during the fiscal year. Engineering studies are underway to determine what is necessary and advisable to address the flooding problems in both the Levisa Fork Basin and in the Tug Fork tributary stream areas.

Structural measures have been completed at West Williamson and Williamson, WV; South Williamson, KY; Matewan, WV; and Kermit, WV. Flood warning systems have been completed for the Levisa Basin and Tug Basin.

Non-structural measures are complete at Williamson, WV; Matewan, WV; and South Williamson, KY.

Non-structural measures are underway at Hatfield Bottom, Lower Mingo County, Upper Mingo County, Wayne County and McDowell County in WV; at Pike County, Martin County, and the Town of Martin in KY; in the Levisa Basin, VA and KY; and at Grundy, VA. At Grundy, two contracts are underway: Redevelopment Site, awarded April 2001 is 75% complete; and Access Bridge, awarded in September 2003.

Operations during the fiscal year. To date, flood damages prevented in the area include: South Williamson, KY: $1,826,000; and Williamson LPP, WV: $3,801,000.

19. MASSILLON, OH

Location. The project is located in Stark County, on the Tuscarawas River, approximately 200 miles above the mouth of the Muskingum River.

Existing project. The existing project consists of channel improvement to the Tuscarawas River, combined with the construction of drainage facilities, levees and pump stations. For further details see the 1962 Annual Report. Construction was initiated in July 1940 and completed in October 1951.

Local cooperation. None required. See the 1962 Annual Report for details of local contribution of work beyond the scope of the project. To date, the system has prevented an estimated $5,711,000 in flood damages.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition.

20. MUSKINGUM RIVER LAKES, OH

Location. The Muskingum River lies in Southeast Ohio and including tributaries, drains approximately 8,000 square miles. The headwaters rise about 25 miles south of Lake Erie and flow into the Ohio River at Marietta, OH, 172 miles below Pittsburgh, PA.

Existing project. The existing project consists of the construction and operations and maintenance of 14 reservoirs and appurtenant works in the Muskingum River Basin. The existing project originally authorized by the Public Works Administration in February 1934. Construction of the system was initiated in January 1935 and completed in November 1938. The system was initially operated and maintained by the Muskingum Watershed Conservancy District of Ohio, the sponsoring agency, from July 1938 to August 1939 when operation and maintenance became the responsibility of the Corps of Engineers in accordance with the provisions of the 1939 Flood Control Act. For further project details, see the 1962 Annual Report. See also Appendix A. The cost of the project was $41,247,815, which includes expenditures for recreation facilities under the completed project program.

A significant Major Rehabilitation program was approved in December 1977 in order to assure the integrity of the existing 14 structures under the originally designed maximum pool conditions. Underseepage and abutment seepage problems are being corrected through the installation of downstream blankets, toe drains and/or relief wells and grouting.

A related but separate program entitled Dam Safety Assurance has been initiated. Under current hydrologic design standards, deficiencies exist in the spillways at the 14 projects in the system. Corrective measures include widening present spillways, constructing new spillways and installing parapet walls on top of the dams have been completed at 7 projects. Seven remaining projects with deficiencies need corrective measures. New seismic criteria will require all dams to be evaluated for seismic deficiencies. If deficiencies are found, corrective measures will be required. Dam Safety Assurance activities are 100% complete at Beach City Lake. Modifications involved upgrading spillway adequacy including raising the dam and dike, constructing a parapet wall, raising roadways, and modifying a railroad stoplog closure. The full funding estimate for this work is $34,590,000, which includes $8,000,000 from the non-Federal sponsor, the

Muskingum Watershed Conservancy District. Work was begun at Magnolia Levee, which protects the town of Magnolia during flood events, and is a part of the Bolivar Dam area. Magnolia Levee experiences a seepage problem during high water and is in danger of failure.

Local cooperation. All requirements for local cooperation have been met. For further details see the 1942 Annual Report.

Operations during the fiscal year. The reservoirs were operated for flood control as required, and the necessary repairs were made to the structures and appurtenances. The system prevented an estimated $29,815,000 in flood damages during the fiscal year. To date, the system has prevented an estimated $2,236,776,000 in flood damages.

21. NEWARK, OH

Location. The project is located in Licking County at the junction of the North and South Forks of the Licking River, approximately 29 miles above the confluence with the Muskingum River at Zanesville, OH.

Existing project. For details of the existing project see the 1981 Annual Report. Construction of the existing project was initiated in July 1940 and completed in November 1941. As a result of the 1968 Flood Control Act the existing project was modified to include improvement of the interior drainage facilities, construction of Log Pond Run diversion channel and modification of the North Fork Channel. Construction of the Log Pond Run diversion channel was awarded in September 1980 and completed in December 1981. The total cost of the project is $11,151,232.

Local cooperation. For details of required and completed local cooperation see the 1981 Annual Report.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition. To date, the project has prevented an estimated $3,299,000 in flood damages.

22. NORTH BRANCH OF KOKOSING RIVER LAKE, OH

Location. The damsite is located in Knox County, OH, on the North Branch of Kokosing River, approximately nine miles above the confluence of the Kokosing and North Branch Rivers, and two miles northwest of Fredericktown, OH.

Existing project. The existing project consists of a rolled-earth dam, 70 feet in height and 1,400 feet in length with an uncontrolled spillway adjacent to the right abutment, and an uncontrolled, reinforced concrete outlet work located in the right abutment of the dam. The reservoir provides for a total storage of 14,885 acre-feet and controls a drainage area of approximately 45 square miles. The 56 tracts of land required for the project have been acquired. Construction of the dam was completed in May 1972. See also Appendix A. The Federal cost for the project was $6,665,985, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances.

23. NORTH FORK OF POUND RIVER LAKE, VA

Location. The damsite is located in Wise County, VA, on the North Fork of Pound River, approximately one mile upstream from the confluence of the North and South Forks which form the Pound River and approximately three miles upstream from Pound, VA.

Existing project. The existing project consists of a rockfill dam, 130 feet in height and 600 feet in length, an uncontrolled spillway in a saddle upstream from the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides a total storage of 11,300 acre-feet and controls a drainage area of approximately 17 square miles. The 127 tracts of land required for the project have been acquired. Construction of the dam was completed in January 1966. See also Appendix A. The Federal cost for the project was $6,186,901, which includes expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction is complete. The project was operated as required for flood control and the necessary repairs

were made to the structure and appurtenances. During the fiscal year the project prevented an estimated $6,914,000 in flood damages. To date, the project has prevented an estimated $12,854,000 in flood damages.

24. OHIO ENVIRONMENTAL PROGRAM

Location: The program provides environmental infrastructure assistance to communities throughout the State of Ohio and includes portions of Huntington, Louisville, Pittsburgh, and Buffalo Districts. This includes project design and construction assistance for wastewater treatment and related facilities, combined sewer overflows, water supply and storage and related facilities, mine drainage, environmental restoration, and surface water resource protection and development. Reimbursable projects are allowed.

Existing project: Within Huntington District there are 2 projects underway in Ohio: Wellston and Adelphi. Work is authorized by Sec 594 of the Water Resources Development Act of 1999 (PL 106-53).

Local cooperation: Reimbursable construction PCAs, 75% federal and 25% non-federal, were executed with the appropriate local sponsors.

Operating during the fiscal year: During the year, $166,700 was expended in Huntington District in the various activities related to this program.

25. OHIO RIVER BASIN (HUNTINGTON DISTRICT)

Location. The work covered by this project consists of a series of levees, floodwalls, channel improvements and dams and lakes in the Ohio River Basin within the Huntington District.

Existing project. The existing project consists of the individual projects considered in the Ohio River Basin comprehensive plan within the Huntington District.

Operations during the fiscal year. The completed local protection projects, which are operated and maintained by local interests, except for those local protection projects for which individual reports have been included. During the fiscal year, the project prevented an estimated $11,617,000 in flood damages. To date the project has prevented flood damages of an estimated cumulative total of $937,788,000.

26. PAINT CREEK LAKE, OH

Location. The damsite is located in Ross County, OH, on Paint Creek, a tributary of the Scioto River, approximately 37 miles above the mouth of Paint Creek and 100 miles above the mouth of the Scioto River and approximately four miles east of New Parkersburg, OH.

Existing project. The existing project consists of a rock and random earth fill dam, 118 feet in height and 700 feet in length, a gate controlled spillway located near the right abutment, an outlet tunnel located in the right abutment with a control structure at the upstream end, and a random rockfill dike located at the right abutment of the spillway. The reservoir provides for a total storage of 145,000 acre-feet and controls a drainage area of approximately 576 square miles. Construction of the dam was completed in July 1973. The 257 tracts of land required for the project have been acquired. See also Appendix A. Federal cost for the project was $26,969,962, which includes expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented an estimated $614,000 in flood damages. To date, the project has prevented flood damages estimated to be $80,651,000.

27. PAINTSVILLE LAKE, KY

Location. The damsite is located in Johnson County, KY, on Paint Creek, a tributary of the Levisa Fork of the Big Sandy River, approximately eight miles above the mouth of Paint Creek, and four miles west of Paintsville, KY.

Existing project. The existing project consists of a rockfill dam 153 feet in height and 1,560 feet in length, an uncontrolled spillway located southwest of the right abutment of the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 76,642 acre-feet and controls a drainage area of approximately 93 square miles. The 635 tracts of land required for the project have been acquired. Construction of the dam was initiated in

September 1976 and was completed in September 1980. See also Appendix A. The total cost of the project to date has been $60,194,986. The local sponsor has reimbursed the Government $377,000 for the cost sharing portion of recreation development.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $7,694,000. To date, the project has prevented flood damages estimated to be $15,501,000.

28. R. D. BAILEY LAKE, WV

Existing project. The damsite is located in Wyoming County, WV, on the Guyandotte River approximately 108 miles above the confluence with the Ohio River and one mile east of Justice, WV.

Existing project. The existing project consists of a rolled rockfill dam with a concrete face, 305 feet in height and 1,330 feet in length, an uncontrolled spillway located in a saddle in the right abutment of the dam, and an outlet tunnel in the left abutment with a control structure located at the upstream end. The reservoir provides for a total storage of 203,700 acre-feet and controls a drainage area of approximately 540 square miles. Construction of the dam was initiated in November 1973 and completed in December 1979. See also Appendix A. A total of 2,109 tracts of land were acquired for the project. The total cost of the project to date has been $261,251,678.

Local cooperation. None required.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $16,539,000. To date, the project has prevented flood damages estimated to be $147,828,000.

29. ROSEVILLE, OH

Location. The project is located in Muskingum and Perry Counties, on Moxahala Creek, approximately six miles from the confluence with Jonathan Creek, a tributary of the Muskingum River.

Existing project. The existing project consists of 7,291 feet of channel improvement; 6,400 feet of levee and railroad embankment enlargements; and the necessary appurtenances for interior drainage. Total Federal cost of the project was $910,785. Construction was initiated in August 1959 and completed in October 1960.

Local cooperation. All requirements for local cooperation have been completed. See also the 1962 Annual Report. Total costs of local requirements were $62,000.

Operations during the fiscal year. Routine inspections of the improved portion of the project were conducted to determine that the project was maintained in satisfactory condition. During the fiscal year the project prevented flood damages estimated to be $15,000. To date, the project has prevented an estimated $1,287,000 in flood damages.

30. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE

Location: The project area consists of a 27 county region in southern and eastern Kentucky, which includes portions of the Huntington, Nashville, and Louisville Districts. The program provides for design and construction assistance of environmental infrastructure projects. The focus of the program is on wastewater treatment and collection systems. Reimbursable projects are allowed.

Existing project: Within Huntington District, nine projects were underway in 2003 in eastern Kentucky, These were South Williamson, David, Manchester, Rolling Acres, Fleming-Neon, Martin County-Warfield, Henry Clay Area, Booneville, and Pikeville. Work is authorized by Sec 531 of the Water Resources Development Act of 1996 (PL 104-303); as amended by Sec 532 of Water Resources Development Act of 1999.

Local cooperation: Reimbursable construction PCAs, 75% federal and 25% non-federal, were executed with the appropriate local sponsors.

Operating during the fiscal year: During the year, $868,900 was expended in Huntington District in the various activities related to this program.

31. SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

Location. The project area consists of 16 counties in southern West Virginia (all within Huntington District). The program provides for design and construction assistance of environmental infrastructure, largely water supply and wastewater treatment facilities, in that region.

Existing project. In 2003, four projects were underway in the program: Krouts Creek, Boone County, Kilsyth and Cool Ridge/Flat Top. Work is authorized under Section 340 of the Water Resources Development Act of 1992 (PL 102-580).

Local Cooperation. All requirements of local cooperation have been met.

Operating during the fiscal year: During the year, $253,500 was expended in this program.

32. SUMMERSVILLE LAKE, WV

Location. The damsite is located at Ruckers Bend in Nicholas County on the Gauley River approximately 35 miles above the confluence of the Gauley and New River at Gauley Bridge, WV.

Existing project. The existing project consists of a rockfill dam having a height of 357 feet and a length of 2,280 feet, an outlet tunnel in the right abutment with a control structure located at the upstream end, an uncontrolled spillway located west of the right abutment and two earthfill dikes. The reservoir provides for a total storage of 413,800 acre-feet and controls a drainage area of 803 square miles. See also Appendix A. Construction of the dam was initiated in March 1960 and completed in March 1966. A total of 9,346 acres of land were acquired for the project. The Federal cost of the project was $48,375,884, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structures and appurtenances. During the fiscal year the project prevented flood damages estimated to be $61,150,000. To date, the project has prevented an estimated $468,541,000 in flood damages.

33. SUTTON LAKE, WV

Location. The damsite is located on the Elk River in Braxton County approximately one mile above Sutton, WV, and 101 miles above the mouth of the Elk River.

Existing project. The existing project consists of a concrete gravity dam having a height of 220 feet and a length of 1,178 feet, a gated spillway in the channel section of the dam, comprised of six tainter gates supported by piers, an outlet works comprised of five gate sluices through the spillway section. The reservoir provides for storage of 265,300 acre-feet and controls a drainage area of 537 square miles. See also Appendix A. Construction of the dam was initiated in 1949 and completed in June 1960. The total cost of the project was $37,029,585.

Local cooperation. None required. See the 1981 Annual Report for contributed funds.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $344,000. To date, the project has prevented an estimated $261,883,000 in flood damages.

34. TOM JENKINS DAM, OH

Location. The damsite is located in Athens County, on the East Branch of Sunday Creek, a tributary of the Hocking River, approximately three miles north of Glouster, OH, and 57 miles above the mouth of the Hocking River.

Existing project. The existing project consists of a rolled-earth dam, 84 feet in height and 944 feet in length, a controlled works discharging through a tunnel in the left abutment, and an uncontrolled spillway in the ridge running south from the damsite. The reservoir, known as Burr Oak Lake, provides for a total storage of 26,900 acre-feet and controls a drainage area of approximately 33 square miles. See also Appendix A. Construction of the project was initiated in March 1948 and completed in February 1950. A total of 100 acres of land were acquired for the project. The Federal costs of the project were $2,086,503, which includes expenditure for recreation at completed project.

Local cooperation. All requirements of local cooperation have been met. See also the 1962 Annual Report. Contributed funds in the amount of $575,000 have been received from the State of Ohio.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $375,000. To date, the project has prevented an estimated $22,559,000 in flood damages.

35. WEST COLUMBUS, OH

Location. The project is located on the right bank of the Scioto River in the western part of the City of Columbus, OH, across the river from the downtown area in Franklin County. It is generally bounded by the Scioto River on the north, Interstate 71 on the east, and Frank Road on the south. The area being protected, approximately 2,800 acres, is completely urban with a mix of residential, industrial and commercial development.

Existing project. The project under construction consists of a 7.2-mile system including levee, floodwall and high ground. It protects 6,170 structures and 2,800 acres of lands. Fourteen gate closures, interior drainage facilities and construction of two new pump stations and reworking two existing pump stations are included. .

Local cooperation. Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings; utilities, roads, bridges (except railroad bridges), and other facilities where necessary. Pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during the fiscal year. Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1989 and funds to initiate construction were appropriated in Fiscal Year 1993. The total estimated cost of the project is $129,400,000 of which $32,400,000 is non-Federal. Construction contracts underway in 2003 include:

Phase IIIC, awarded Nov 2000, 98% complete.

Phase IIIB, awarded Mar 2001, 98.6% complete.

Reliable Power, awarded Dec 2001, 49.3% complete.

Phase IIE, awarded Jan 2003, 100% complete.

Scioto Main Sanitary Sewer, awarded May 2003, 74.8% complete.

36. YATESVILLE LAKE, KY

Location. The damsite is located in Lawrence County, on Blaine Creek, a tributary of the Big Sandy River, approximately five miles west of Louisa, KY, and 18 miles above the mouth of Blaine Creek.

Existing project. The existing project consists of an earth and rockfill dam, 104 feet in height and 760 feet in length, an uncontrolled spillway located one-half mile southeast of the right abutment of the dam. The outlet works consists of a 13-foot diameter tunnel through the left dam abutment. The reservoir provides for a total storage of 86,951 acre-feet and controls a drainage area of approximately 208 square miles. The 778 tracts of land required for the project have been acquired. Construction was completed in May 1995. See also Appendix A. The total cost of the project to date has been $99,453,537.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $47,000. To date the project has prevented an estimated $17,616,000 in flood damages.

37. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

The Flood Control Act of June 22, 1936, and subsequent acts require local interest to furnish assurances that they will operate and maintain certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for the administration of these regulations within their respective districts. Maintenance inspections were made during the fiscal year of those completed units transferred to local interests for operation and maintenance. Local interests were advised, as necessary, of measures required to maintain the projects in accordance with the standards prescribed by regulations. Total costs for fiscal year 2003 were $163,978. Total cost to September 30, 2003 were $2,268,714. The flood control works inspected and the dates of inspection are tabulated in Table H.

38. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency bank protection activities pursuant to Section 14 of the 1946 Flood Control Act (PL 79-526), are tabulated as follows:

Location	FY 2003 Cost
Sec 14, Coordination Account	$23,923
Paden City, WV	438
River Ave., So Charleston, WV	3,376
Spruce Street, St. Albans, WV	296
Kanawha, RM 56, Charleston, WV	630
East/West Interceptor Sewer, Huntington, WV	335
Minersville, OH	77,115
Tuscarawas Co, Johnson Co. Road, OH	13,953

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act (PL 80-852), are tabulated as follows:

Location	FY 2003 Cost
Sec 205, Coordination Account	$11,657
Brush Ck, Glady Fork, Princeton, WV	29,944
Mercer County, WV	58,851
Blacksburg, VA	17,215
Hoods Creek, KY	12,319
Magazine Branch, Elk River, WV	3,126

No activities pursuant to Section 208 of the 1954 Flood Control Act (PL 83-780) were underway in FY 2003.

Activities pursuant to Section 107 of the 1960 River and Harbor Act (PL 86-645) for small navigation projects are tabulated as follows:

Location	FY 2003 Cost
Greenup Slackwater Harbor, KY	$24,293

Activities pursuant to Section 1135 of WRDA 1986 (PL 99-662) for Project Modifications to Improve the Environment are tabulated as follows:

Location	FY 2003 Cost
Sec 1135, Coordination Account	$ 9,717
Piedmont Lake Reclamation Project, OH	12,169
Wills Creek, Linton Road Mine, OH	111,448
Wills Creek, Mason Mine 280, OH	105,104

Activities pursuant to Section 206 of WRDA 1996 (PL 104-303) for Aquatic Ecosystem Restoration are tabulated as follows:

Location	FY 2003 Cost
Sec 206, Coordination Account	$10,819
Ore Knob, NC	162,960
Watauga, NC	138,744
Huff Run, OH	3,641
Big Darby Creek, OH	98,450
Lancaster, OH	7,360
Three Creeks Environmental Restoration, OH	41,594
St. Louisville, OH	129,113
Hocking R. Wetlands, Lancaster, OH	3,701
5th Avenue Dam Removal, Columbus, OH	6,118

Work performed under special legislation pursuant to Water Resources Development Act of 1996 (PL 104-303) as follows:

Location	FY 2003 Cost
Greenbrier River, Marlinton, WV	$1,088,220
Lower Mud River, Milton, WV	494,501

Flood control and coastal emergency activities pursuant to PL 84-99 were conducted as required during FY 2003 at a cost of $317,809.

National emergency management activities were accomplished by the district as required. The costs for these activities during FY 2003 were $20,718.

GENERAL INVESTIGATIONS

39. SURVEYS

Fiscal year 2003 costs were $4,436,068 itemized as follows:

Location	FY 2003 Cost
Navigation Studies	$1,316,576
Flood Damage Prevention Studies	494,152
Special Studies	352,486
Comprehensive Basin Studies	0
Review of Authorized Projects	0
Miscellaneous Activities	214,201
Coordination with Other Agencies	83,621
Collection and Study of Basic Data	74,224
Preconstruction Engineering and Design (Projects not Fully Authorized)	1,339,572
Preconstruction Engineering and Design (Projects Fully Authorized)	561,235

Table 25-A Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
2	Kanawha River, WV (existing project)	New Work						
		Approp					27,853,699	1
		Cost					27,853,699	1
		Maint						
		Approp	7,184,996	6,487,816	7,678,843	10,195,697	203,251,801	2
		Cost	7,141,925	6,433,269	7,479,955	10,051,433	202,780,853	2
		Rehab						
		Approp					130,984	3
		Cost					130,984	3
2	Elk River Harbor, WV	Maint						
		Approp	-1,367	304,510	-5,096	272,118	2,992,655	
		Cost	0	299,414	-5,096	272,118	2,987,359	
2	Charleston Riverfront Park, WV	New Work						
		Approp	0	0	0	0	4,370,121	
		Cost	0	0	0	0	4,370,121	
2	Winfield L&D	New Work						
		Approp	2,880,000	42,000	394,000	39,656	227,777,656	4
		Cost	2,946,031	247,614	290,037	224,075	227,771,621	5
2	Marmet L&D	New Work	10,909,000	13,948,000	28,788,000	38,588,972	104,286,972	6
		Approp	11,577,252	13,710,285	28,789,324	38,748,329	104,178,024	7
		Cost						
2	London L&D	New Work	1,326,000	1,270,000	8,810,000	12,085,488	23,491,488	8
		Approp	1,118,822	1,305,006	8,849,284	12,112,141	23,385,253	9
		Cost						
5	Alum Creek Lake, Oh	New Work						
		Approp					56,267,422	
		Cost					56,267,422	
		Maint						
		Approp	674,535	969,519	696,311	685,354	15,595,759	10
		Cost	677,513	780,461	884,845	687,747	15,595,491	10
6	Beech Fork Lake	New Work						
		Approp					41,987,500	
		Cost					41,987,500	
		Maint						
		Approp	1,301,099	1,149,417	1,000,536	980,376	20,710,501	
		Cost	1,294,647	1,143,991	1,014,609	988,024	20,708,844	

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
7	Bluestone Lake	New Work						
		Approp					29,458,652	11
		Cost					29,458,652	11
		Maint						
		Approp	1,621,800	4,115,643	5,466,866	4,567,079	50,446,503	12
		Cost	1,778,295	3,913,298	5,646,306	4,157,506	49,992,175	12
		Dam Safety						
		Approp	3,349,000	7,904,000	9,982,000	10,047,090	31,282,090	
		Cost	2,590,849	7,735,109	9,861,138	11,081,555	31,268,651	
8	Burnsville Lake	New Work						
		Approp					57,166,839	
		Cost					57,166,839	
		Maint						
		Approp	1,492,133	1,819,970	1,608,956	1,688,582	30,291,631	13
		Cost	1,493,198	1,808,463	1,623,061	1,699,721	30,288,349	13
9	Central WV	New Work						
	Environmental	Approp	0	122,000	111,000	-33,000	200,000	
	Infrastructure	Cost	0	83,414	64,044	52,449	199,907	
10	Deer Creek Lake	New Work						
		Approp					20,406,545	14
		Cost					20,406,545	14
		Maint						
		Approp	690,797	672,483	653,099	851,838	16,469,528	15
		Cost	687,425	667,429	654,823	773,812	16,394,370	15
11	Delaware Lake	New Work						
		Approp					7,631,821	
		Cost					7,631,821	
		Maint						
		Approp	809,872	870,970	727,235	770,970	21,503,983	16
		Cost	808,930	862,363	739,284	737,593	21,464,348	16
12	Dewey Lake	New Work						
		Approp					7,845,547	17
		Cost					7,845,547	17
		Maint						
		Approp	1,373,286	1,330,685	1,394,082	1,523,950	34,276,597	18
		Cost	1,352,736	1,342,517	1,273,566	1,662,674	34,285,513	18
		Dam Safety						
		Approp	1,171,744	8,888,000	4,890,109	988,152	19,582,320	
		Cost	1,228,998	8,836,123	5,188,052	960,720	19,538,400	
13	Dillon Lake	New Work						
		Approp					30,218,135	19
		Cost					30,218,135	19
		Maint						
		Approp	783,493	723,150	545,655	655,467	15,617,952	20
		Cost	777,386	698,624	553,370	687,785	15,617,952	20

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
14	East Lynn Lake	New Work						
		Approp					85,872,963	
		Cost					85,872,963	
		Maint						
		Approp	1,665,901	1,847,637	1,787,486	1,681,320	33,852,273	21
		Cost	1,653,492	1,812,927	1,783,136	1,735,236	33,852,131	21
15	Fishtrap Lake	New Work						
		Approp					54,754,126	22
		Cost					54,754,126	22
		Maint						
		Approp	1,647,314	1,754,255	1,841,837	1,788,177	30,053,139	23
		Cost	1,651,328	1,746,772	1,787,542	1,864,741	30,134,807	23
16	Grayson Lake	New Work						
		Approp					19,162,741	24
		Cost					19,162,741	24
		Maint						
		Approp	1,006,828	1,223,795	1,265,122	1,068,466	23,420,944	
		Cost	1,002,220	1,228,744	1,265,914	1,076,592	23,430,148	
17	J. W. Flannagan	New Work						
		Approp					20,444,383	25
		Cost					20,444,383	25
		Maint						
		Approp	1,333,463	1,310,385	1,308,547	1,218,260	30,320,728	26
		Cost	1,339,592	1,268,970	1,318,435	1,248,863	30,313,497	26
18	Levisa and Tug Forks	New Work						
		Approp	11,773,000	18,161,859	32,427,000	34,356,600	485,932,246	27
		Cost	18,804,408	16,954,129	31,763,448	28,639,694	470,266,481	27
19	Massillon, Ohio	New Work						
		Approp					8,139,406	28
		Cost					8,139,406	28
		Maint						
		Approp	1,351	19,320	13,695	15,152	406,710	
		Cost	1,351	19,288	13,726	15,152	406,709	
20	Muskingum River Dams and Lakes	New Work						
		Approp					41,247,815	29
		Cost					41,247,815	29
		Maint						
		Approp	6,291,901	7,357,638	6,562,745	6,809,465	154,681,316	30
		Cost	6,198,899	7,224,978	6,785,467	6,825,770	153,744,482	30
		Maint (Rehab)						
		Approp					982,300	
		Cost					982,300	
		Rehab						
		Approp					22,172,945	31
		Cost					22,172,945	31

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
20	Muskingum River							
	Dams and Lakes (cont'd)	Dam Safety						
		Approp	1,776,000	822,000	296,391	9,905	31,441,540	
		Cost	1,960,262	786,930	431,464	10,156	30,989,162	
21	Newark Ohio	New Work						
	(Previous Project)	Approp					845,916	
		Cost					845,916	
		Maint						
		Approp					758,673	
		Cost					758,673	
	(Existing Project)	New Work						
		Approp					11,151,232	32
		Cost					11,151,232	32
22	North Branch of	New Work						
	Kokosing River	Approp					6,665,985	33
		Cost					6,665,985	33
		Maint						
		Approp	491,967	623,305	203,044	249,146	5,782,617	
		Cost	461,533	644,199	212,185	250,475	5,782,619	
23	North Fork of	New Work						
	Pound River Lake	Approp					6,186,901	34
		Cost					6,186,901	34
		Maint						
		Approp	304,341	493,919	326,662	338,463	10,354,258	35
		Cost	304,235	478,246	340,529	341,204	10,443,892	35
24	Ohio Environmental	New Work						
	Program	Approp	0	157,000	93,000	64,649	314,649	
		Cost	0	46,876	63,572	166,600	277,048	
25	Ohio River Basin	New Work						
		Approp					355,861	36
		Cost					355,861	36
26	Paint Creek Lake	New Work						
		Approp					26,969,962	37
		Cost					26,969,962	37
		Maint						
		Approp	612,843	805,003	688,688	730,510	15,744,573	38
		Cost	597,171	813,910	694,571	734,280	15,743,174	38
27	Paintsville Lake	New Work						
		Approp					60,194,986	
		Cost					60,194,986	
		Maint						
		Approp	935,486	1,137,462	1,137,599	956,734	17,529,504	
		Cost	932,399	1,131,038	1,140,871	964,395	17,524,984	

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
28	R. D. Bailey Lake	New Work						
		Approp					261,251,678	39
		Cost					261,251,678	39
		Maint						
		Approp	1,553,551	1,563,200	1,399,543	1,586,158	32,403,948	40
		Cost	1,560,074	1,551,729	1,407,664	1,576,574	32,382,443	40
29	Roseville, Ohio	New Work						
		Approp					910,785	
		Cost					910,785	
		Maint						
		Approp	2,315	2,500	956	31,013	284,954	
		Cost	2,470	569	2,887	30,942	284,883	
30	Southern and Eastern	New Work						
	Kentucky Env.	Approp	-1,045,000	992,000	3,999,550	-1,041,000	7,535,550	
	Infrastructure	Cost	453,660	1,186,626	1,027,373	868,876	4,073,070	
31	Southern West Virginia							
	Env. Infrastructure	New Work						
		Approp	1,279,000	2,514,010	2,521,000	-2,521,544	9,429,466	41
		Cost	1,343,504	1,153,703	1,230,293	249,363	9,017,261	41
32	Summersville Lake	New Work						
		Approp					48,375,884	42
		Cost					48,375,884	42
		Maint						
		Approp	1,564,592	1,599,759	1,664,997	1,699,318	39,834,569	43
		Cost	1,565,797	1,617,539	1,658,176	1,712,467	39,825,775	43
33	Sutton Lake	New Work						
		Approp					37,029,585	44
		Cost					37,029,585	44
		Maint						
		Approp	1,762,674	1,828,429	2,235,881	2,165,537	45,864,031	45
		Cost	1,779,211	1,818,914	2,221,050	2,179,5539	45,831,299	45
34	Tom Jenkins Dam	New Work						
		Approp					2,086,503	46
		Cost					2,086,503	46
		Maint						
		Approp	430,979	338,239	232,721	295,110	4,673,631	
		Cost	430,177	334,393	238,624	296,516	8,669,472	
35	West Columbus	New Work						
		Approp	8,736,961	8,812,000	12,592,500	5,877,777	89,793,518	47
		Cost	10,881,536	9,596,620	14,315,179	6,030,742	89,696,514	47

Table 25-A (Cont'd) Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003
36	Yatesville Lake	New Work					
		Approp					99,456,500
		Cost					99,453,537
		Maint					
		Approp	940,585	1,117,713	947,420	1,046,158	13,000,840
		Cost	938,308	1,104,747	953,665	1,062,312	12,998,339

Notes for Table 25-A

[1]Includes $4,294,612 for new work for previous projects, $4,498,636 Emergency Relief funds, $9,004,800 Public Works funds and $686,317 Code 713 funds.

[2]Includes $3,883,513 for maintenance of previous projects and $546,090 Maintenance and Operation funds.

[3]Public Works Acceleration funds.

[4]Includes $19,828 Inland Waterways Trust funds.

[5]Includes $103,555 Inland Waterways Trust Fund.

[6]Includes $19,294,486 Inland Waterways Trust funds.

[7]Includes $19,357,200 Inland Waterways Trust funds.

[8]Includes $6,042,744 Inland Waterways Trust funds.

[9]Includes $6,061,033 Inland Waterways Trust funds.

[10]Includes $1,063 Maintenance and Operation funds.

[11]Includes $543,960 Emergency Relief funds, $9,698 Public Works Acceleration funds, $211,850 Code 711 funds and $75,000 Code 713 funds.

[12] Includes $2,795 Maintenance and Operation funds.

[13]Includes $748,281 Maintenance and Operation funds.

[14]Excludes $225,090 contributed funds. Includes $590,000 Code 711 funds.

[15]Includes $130,000 provided by the Productive Employment Act of 1983.

[16]Includes $240,000 provided by the Productive Employment Act of 1983.

[17]Includes $23,087 Public Works Acceleration funds, $1,089,940 Code 711 funds and $231,105 Code 713 funds.

[18]Includes $82,900 Special Recreation Use Fee Funds and$747,028 Maintenance and Operations Funds.

[19]Includes $100,000 provided from the Productive Employment Act of 1983.

[20]Includes $1,924 Maintenance and Operations funds.

[21]Includes $209,918 Special Recreation Use Fee Funds and $747,028 Maintenance and Operations Funds.

[22]Includes $362,649 Code 711 funds and $10,000 Code 712 funds.

[23]Includes $38,000 Special Recreation Use Fee Funds and $748,714 Maintenance and Operations Funds.

[24]Includes $406,919 Code 711 funds and $2,317 code 713 funds.

[25]Includes 422,983 Code 711 funds

[26]Includes $88,710 special recreation use funds.

[27]Includes Cost from Ohio River Division of $696,000. Excludes $20,819,782 cumulative contributed funds.

[28]Includes $477,813 contributed funds.

[29]Includes $27,190,000 National Industrial Recovery funds and $528,288 Code 711 funds.

[30]Includes $206,815 Maintenance and Operations funds.

[31]Includes $61,945 public Works Acceleration funds.

[32]Excludes $160,082 contributed funds.

[33]Includes $45,177 Code 711 funds.

[34]Includes $64,233 Code 711 funds.

[35]Includes $68,200 special recreation use fees.

[36]Includes $10,920 Emergency Relief funds.

[37]Includes $14,153 Code 711 funds.

[38]Includes $31,496 special recreation use fee funds.

[39]Includes $5,534 Consolidated Army funds.

[40]Includes $60,000 provided from the Productive Employment Act of 1983, and $85,233 Maintenance and Operations Funds.

[41]Excludes $1,386,692 cumulative contributed funds.

[42]Includes $300,062 Code 711 funds.

[43]Includes $214,112 special recreation use fee funds, $300,000 provided from the Productive Appropriations Act of 1983, and $100,016 Maintenance and Operation Funds.

[44]Includes $1,837,337 Code 711 funds and $287,843 Accelerated Public Works funds. Excludes $62,800 contributed funds.

[45]Includes $267,634 special recreation use fee funds, $215,000 provided from the Productive Employment Appropriations Act of 1983, and $144,562 Maintenance and Operations Funds.

[46]Includes $8,064 Code 711 funds and $30,000 Public Works Acceleration funds. excludes $575,000 contributed funds.

[47]Excludes $6,878,109 cumulative contributed funds.

Table 25-B		Authorizing Legislation	
See Section In Text	**Date of Authorizing Act**	**Project and Work Authorized**	**Documents**
2		**KANAWHA RIVER LOCKS AND DAMS, WV**	
	Aug 30, 1935	Construction of three locks and dams on the Kanawha River and one on the Ohio	H. Doc 31, 73rd Cong., lst Sess.
	Aug 15, 1985	Engineering and Design and Land Acquisition to Winfield Locks and Dam.	P.L. 99-88, 1st Sess.
	Oct 12, 1996	Construction of 110' x 800' replacement lock to replace 56' x 360' twin lock chambers at Marmet Locks and Dam.	P.L. 104-303, (WRDA '96)
5		**ALUM CREEK LAKE, OH**	
	Oct 23, 1962	Construction of Flood Control Reservoir	H. Doc 587, 87th Cong 2nd Sess.
6		**BEECH FORK LAKE, WV**	
	Oct 23, 1962	Construction of Flood Control Reservoir	H. Doc 587, 87th Cong 2nd Sess.
7		**BLUESTONE LAKE, WV**	
	Jun 28, 1938	Construction of Flood Control Reservoir	H. Doc 91, 74th Cong 2nd Sess.
	Dec 22, 1944	Added Recreation; Deleted Power	P.L. 78-534, 2nd Sess.
	Oct 31, 1992	Authorization for Drift & Debris Removal	P.L. 102-580 (WRDA '92) P.L. 104-303 (WRDA '96) P.L. 106-53 (WRDA '99)
8		**BURNSVILLE LAKE, WV**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
9		**CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE**	
	Aug 17, 1999	Design and Construction Assistance for Environmental Infrastructure	P.L. 106-53, Sec 571 (WRDA '99)
10		**DEER CREEK LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.

Table 25-B (Cont'd) **Authorizing Legislation**

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
11		**DELAWARE LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
12		**DEWEY LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
13		**DILLON LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
14		**EAST LYNN LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
15		**FISHTRAP LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
16	Jul 14, 1960	**GRAYSON LAKE, KY**	
		Construction of Flood Control Reservoir	H. Doc 440, 86th Cong 2nd Sess.

Table 25-B (Cont'd) **Authorizing Legislation**

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
17		**JOHN W. FLANNAGAN DAM AND RESERVOIR, VA**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
18		**LEVISA AND TUG FORKS OF THE BIG SANDY RIVER, AND CUMBERLAND RIVER, KY, WV, AND VA**	
	Oct 01, 1980	Construction of such Flood Control Measures as deemed Necessary and Advisable	P.L. 96-367, Sec 202
19		**MASSILLON , OH**	
	Jun 28, 1938	Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
20		**MUSKINGUM RIVER LAKES, OH**	
	Feb 20, 1934	Construction of 14 Flood Control Reservoirs	Public Work Admin
	Jun 28, 1938	Reimbursement to the Muskingum Conservancy District a sum not to exceed actual expenditures for project construction	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Aug 11, 1939	Operations and Maintenance assigned to the Corps of Engineers	P.L. 76-396, 1st Sess
21		**NEWARK, OH**	
	Jun 28, 1938	Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Aug 13, 1968	Modification to Existing Project and Additional Channel Improvement and Drainage Facilities	H. Doc 337, 90th Cong, 2nd Sess.
22		**NORTH BRANCH OF KOKOSING RIVER LAKE, OH**	
	Oct 23, 1962	Construction of Flood Control Reservoir	H. Doc 220, 87th Cong

Table 25-B (Cont'd) **Authorizing Legislation**

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
			2nd Sess.
23		**NORTH FORK OF POUND RIVER LAKE, VA**	
	Jul 14, 1960	Construction of Flood Control Reservoir	H. Doc 645, 86th Cong, 2nd Sess.
24		**OHIO ENVIRONMENTAL PROGRAM**	
	Aug 17, 1999	Design and Construction Assistance for Environmental Infrastructure	P.L. 106-53, Sec 594 (WRDA '99)
25		**PAINT CREEK LAKE, OH**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
26		**PAINTSVILLE LAKE, KY**	
	Oct 27, 1965	Construction of Flood Control Reservoir	H. Doc 246, 89th Cong, 1st Sess.
27		**R. D. BAILEY LAKE, WV**	
	Oct 23, 1962	Construction of Flood Control Reservoir	H. Doc 569, 87th Cong, 2nd Sess.
28		**ROSEVILLE, OH**	
	Jun 28, 1938	Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
29		**SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE**	
	Oct 12, 1996	Design and Construction Assistance for Environmental Infrastructure	P.L. 104-303 (WRDA'96), as amended by P.L. 106-53 (WRDA '99)
30		**SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE**	
	Oct 31, 1992	Design and Construction Assistance for Environmental Infrastructure	P.L. 102-580 (WRDA'92)

Table 25-B (Cont'd) **Authorizing Legislation**

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
31		**SUMMERSVILLE LAKE, WV**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
32		**SUTTON LAKE, WV**	
	Jun 28, 1938	Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Con lst Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
33		**TOM JENKINS DAM, OH**	
	Dec 22, 1944	Construction of Flood Control Reservoir	P.L. 78-534, 2nd Sess.
34		**WEST COLUMBUS, OH**	
	Nov 17, 1986	Construction of Local Protection Project	P.L. 99-662
35		**YATESVILLE LAKE, KY**	
	Oct 27, 1965	Construction of Flood Control Reservoir	H. Doc. 246, 89th Cong. 2nd Sess.
36		**INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**	
	Jun 22, 1936	Inspection of Local Maintenance of Federally Constructed Local Protection Projects	P. L. 74-738

Table 25-C **Other Authorized Navigation Projects**

Project	Status	For Last Full Report See Annual Report For	Cost to Sep 30, 2003 Construction	Operation and Maintenance	Contributed Funds Expended
Big Sandy River, WV and KY including Levisa and Tug Forks [1 and 2]	completed	1952	1,586,236	15,698,111	131,473
Elk River, WV[3]	completed	1903	30,259		
Gauley River, WV[4]	completed	1903	14,761		
Guyandotte River, WV[5]	completed	1915	27,500		
Little Kanawha River, WV[6]	completed	1960	470,536	1,023,854	
Muskingum River, OH[7]	completed	1955	301,912	6,171,897	6,041
New River, WV and VA[5]	completed	1899	109,691		
Scioto River at Portsmouth, OH[8]	completed	1953	10,951	16,593	

[1]In addition, $140,068 expended from funds transferred from Department of Commerce, Under accelerated public works program, for repairs of eroded bank at Lock 3 on Big Sandy River, at Louisa, KY.

[2]Operations and maintenance suspended June 30, 1952.

[3]Work closed September 1902. Property transferred to Kanawha River improvements.

[4]Work closed September 1902. Abandonment recommended in H. Doc 467, 69th Congress.

[5]Work suspended.

[6]Operation and maintenance suspended June 30, 1951.

[7]Collections from licensed non-Federal hydroelectric utilities for use of dams on Muskingum River for fiscal years 1923-1953 were $79,154.

[8]P.L. 954, August 31, 1954, authorized Secretary of Treasury to pay Portsmouth Sand and Gravel Co. $75,000 in full settlement of claims against government for damages resulting from change in Scioto River Channel.

Table 25-E **Other Authorized Flood Control Projects**

Project	Status	For Last Full Report See Annual Report For	Cost to Sep 30, 2003 Construction	Operation and Maintenance	Contributed Funds Expended
Ashland, KY, LPP	Completed	1954	3,718,839	---	---
Athens, OH, LPP	Completed	1979	5,313,700	---	---
Augusta, KY	Inactive	---	11,577	---	---
Cattletsburg, KY, LPP	Completed	1963	3,854,361	---	---
Ceredo-Kenova, WV, LPP	Completed	1955	2,753,551	---	---
Chillicothe, OH, LPP	Completed	1986	20,373,314	---	---
Coal River, WV	Inactive	1979	472,229	---	---
East Rainelle, WV, LPP	Completed	1962	614,598	---	---
Galax, VA, LPP	Completed	1953	480,536	---	---
Haysi, VA	Inactive	---	2,656	---	---
Huntington, WV, LPP	Completed	1956	7,172,840	---	---
Ironton, OH, LPP	Completed	1952	2,604,646	---	---
Kehoe Lake, KY	Deferred	1981	1,272,740	---	---
Martin, KY	Active with no current year expenditures	1983	212,048	---	---
Maysville, KY, LPP	Completed	1959	6,493,747	---	---
Newark, OH (Interior Drainage)	Deferred	1983	---	---	---
Oceana, WV	Deferred	1981	611,000	---	---
Parkersburg, WV, LPP	Completed	1955	6,652,827	---	---
Pt. Pleasant, WV, LPP	Completed	1955	2,919,578	---	---
Portsmouth - New Boston, OH, LPP	Completed	1956	9,806,424	---	---
Princeton, WV, LPP	Completed	1962	808,750	---	---
Russell, KY, LPP	Completed	1953	552,493	---	---
Vanceburg, KY	Inactive	---	---		
Williamson, WV, LPP	Completed	1964	1,056,166	---	---

Table 25-G **Deauthorized Projects**

Projects	For Last Full Report See Annual Report For	Date	Federal Funds Expended	Contributed Funds Expended
All projects listed in this table have been deauthorized in accordance with Section 12 of the Water Resources Development Act of 1974, P. L. 251, 93rd Congress				
Local Protection Projects				
Aberdeen, OH	---	May 1981	1,334	---
Athalia, OH	---	Aug 1977	---	---
Belpre, OH	---	Nov 1977	---	---
Brooklyn, WV	---	Nov 1979	---	---
Buena vista, OH	---	Aug 1977	---	---
Chambersburg, OH	---	Nov 1986	---	---
Cheshire, OH	---	Nov 1977	---	---
Chilo, OH	---	Aug 1977	---	---
Clifton, WV	---	Aug 1977	11,237	---
Coal Grove, OH	---	Jan 1990	3,389	---
Columbus, OH	---	Aug 1977	---	---
Dover, KY	---	Jan 1990	---	---
Friendly, WV	---	Aug 1977	---	---
Fullerton, KY	---	Jan 1990	---	---
Gallipolis, OH	---	Aug 1977	---	---
Greenup, KY	---	Jan 1990	4,962	---
Hanging Rock, OH	---	Aug 1977	---	---
Hartford, WV	---	Aug 1977	---	---
Henderson, WV	---	Aug 1977	---	---
Higginsport, OH	---	Oct 1978	---	---
Hockingport, OH	---	Aug 1977	---	---
Killbuck, OH	---	Apr 2002	---	---
Letart, WV	---	Aug 1977	---	---
Letart Falls, OH	---	Aug 1977	---	---
Lower Guyandotte, River Basin, WV	---	Nov 1986	17,721	---
Manchester, OH	---	May 1981	---	---
Mansfield, OH	---	Apr 2002	---	---
Mapleshade, OH	---	Oct 1978	---	---
Marietta, OH	---	Nov 1981	---	---
Mason, WV	---	Aug 1977	---	---
Middleport, OH	---	May 1981	9,783	---
Miller, OH	---	Aug 1977	---	---
Millwood, WV	---	Aug 1977	---	---
Nelsonville, OH	---	Apr 2002	---	---
New Martinsville, WV	---	Nov 1979	---	---
New Matamoras, OH	---	Aug 1977	---	---
Newport, OH	---	Aug 1977	---	---
Normal, KY	---	Jan 1990	---	---

Table 25-G (Cont'd) Deauthorized Projects

Projects	For Last Full Report See Annual Report For	Date	Federal Funds Expended	Contributed Funds Expended
North Chillicothe, OH	---	Apr 2002	---	---
Pomeroy, OH	---	Aug 1977	---	---
Portland, OH	---	Aug 1977	---	---
Proctorville, OH	---	Nov 1986	---	---
Racine, OH	---	Aug 1977	---	---
Ripley, OH	---	Oct 1978	7,523	---
Riverview, WV	---	Aug 1977	---	---
St. Mary's, WV	---	Aug 1977	---	---
Sardis, OH	---	Aug 1977	---	---
Sciotoville, OH	---	Aug 1977	---	---
Sistersville, WV	---	Aug 1977	---	---
South Point, OH	---	Nov 1986	---	---
South Portsmouth, KY	---	Jan 1990	---	---
Syracuse, OH	---	Aug 1977	---	---
Waverly, WV	---	Aug 1977	---	---
Williamstown, WV	---	Nov 1979	---	---
Zanesville, OH	---	May 1981	---	---
Reservoirs and Lakes				
Big Bend, WV	---	Aug 1977	---	---
Big Darby, OH	1969	Nov 1979	3,349,568	---
Birch, WV	---	Nov 1986	---	---
Frazeysburg, OH	---	May 1981	5,000	---
Kehoe Lake, KY	---	Jul 1992	1,273,000	---
Leading Creek, WV	1974	Jan 1990	272,880	---
Logan, OH	---	Oct 1985	---	---
Millersburg, OH	---	May 1981	---	---
Mill Creek, OH	1981	Nov 1985	1,602,702	---
Moores Ferry, VA	---	Nov 1986	22,879	---
Mud River, WV	---	Nov 1979	---	---
Panther Creek, WV	1976	Nov 1986	---	---
Poca, WV	---	May 1981	---	---
Rocky Fork, OH	1950	Aug 1977	91,321	---
Salt Creek, OH	1975	Nov 1986	1,089,943	---
Utica, OH	1975	Jan 1990	757,550	---
West Fork, WV	1974	Jan 1990	663,192	---
White Oak Creek, OH	---	Nov 1981	---	---

Table 25-H **Inspection of Flood Control Projects (See Sec 33 of Text)**

Flood Control Works Inspected	Dates of Inspection
Ashland, KY	JUL 03
Athens, OH	SEP 03
Berwind, WV	NOT INSPECTED
Bramwell, WV	SEP 02
Cairo, WV	SEP 03
Canton (Nimishillen), OH	NOT INSPECTED
Catlettsburg, KY	JUN 03
Ceredo-Kenova, WV	APR 03
Chillicothe, OH	APR 03
East Rainelle, WV	SEP 03
Fishing Creek, Pine Grove, WV	REMOVED FROM PROGRAM
Fourpole Creek, Huntington, WV	NOT INSPECTED
Galax, VA	SEP 03
Grahn, KY	NOT INSPECTED
Hargus Creek, Circleville, OH	NOT INSPECTED
Hitchins, KY	REMOVED FROM PROGRAM
Huntington, WV	APR 03
Inez, KY	DEC 03
Ironton, OH	JUN 03
Massillon, OH	NOT INSPECTED
Matewan, WV	SEP 03
Maysville, KY	JUL 03
Montcalm, WV	SEP 03
Mount Vernon, OH	NOT INSPECTED
Newark, OH	NOT INSPECTED
Olive Hill, KY	NOT INSPECTED
Paint Creek at Chillicothe, OH	NOV 02
Paint Creek at Washington Court House, OH	SEP 03
Parkersburg, WV	JUL 03
Pax, WV	SEP 03
Point Pleasant, WV	MAY 03
Portsmouth-New Boston, OH	AUG 03
Prestonsburg, KY	APR 03
Princeton, WV	SEP 03
Richwood , WV	SEP 03
Right and Left Forks of Beaver Creek, KY	REMOVED FROM PROGRAM
Ripley, WV	SEP 03
Roseville, OH	NOT INSPECTED
Russell, KY	AUG 03
Smithfield, WV	REMOVED FROM PROGRAM
South Williamson, KY	SEP 03
South Williamson (Hospital), KY	SEP 03
Spencer, WV	SEP 03
Utica, OH	NOT INSPECTED
West Columbus, OH	SEP 03
West Union, Middle Island, WV	SEP 03
West Williamson, WV	SEP 03
Williamson, WV	SEP 03

OMAHA, NE, DISTRICT

This district comprises portions of Montana, Wyoming, North Dakota, South Dakota, Minnesota, Colorado, Nebraska, Iowa, and Missouri, all embraced in the drainage basin of the Missouri River along the mainstem and tributaries to Rulo, NE.

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Navigation

1. MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA TO RULO, NE)

Location. Channel of the Missouri River extending from Sioux City, IA to Rulo, NE.

Previous Projects. For details see page 1893, Annual Report for 1915, and page 1175, Annual Report for 1938.

Existing Project. A navigation channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, rock dikes to contract and stabilize waterway, cutoffs to eliminate long bends, closing minor channels, and removal of snags and dredging as required. Construction was initiated on this section of the project (Sioux City to Rulo) in FY 1928, the bank stabilization work was completed in April 1979, and the navigation feature was completed in September 1980. A reliable channel suitable for navigation is available through this section. Controlling depth at ordinary stages of the river is 9 feet, with additional depths available during high stages. Commercial navigation was inaugurated on this section in May 1939, and common carrier transportation service was inaugurated in October 1946. Seven riverside recreation sites are complete and in operation. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Terminal Facilities. Terminal facilities for loading and unloading grain, liquids and dry bulk products are maintained by private interests at various locations on this section of the river. A complete list of terminal facilities is included in the Missouri River navigation maps and can be obtained from the Omaha District for a small fee.

Operations During FY. District personnel accomplished channel reconnaissance, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Local interests operate and maintain the recreation sites. Government Hired Labor Forces completed maintenance, which consisted of placing stone on damaged structures and placing structure markers to aid navigation.

2. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Small Navigation Projects Not Specifically Authorized by Congress (Sec. 107 of the River and Harbor Act of 1960, as amended, Public Law 645, 86th Congress).

No work during the period.

Flood Control

3. ABERDEEN, SD

Location. This project is in the Moccasin Creek sub basin in the city of Aberdeen, Brown County, South Dakota. Aberdeen is located in the James River Valley in the northeast quarter of South Dakota.

Existing Project. The selected alternative is a 100-year event levee 2.9 miles long on the northeast side of Aberdeen that will prevent 49 percent of the average annual flood damages to structures and contents in that area. The proposed levee will essentially block existing drainage to Moccasin Creek, and a combination of culverts with gates and detention ponds were incorporated into the design to mitigate this interior drainage problem. A two-foot road raise at Fairgrounds Road is also included.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended applies. The city of Aberdeen and Brown County is paying the local share of the project.

Operations During FY. Plans and specifications were completed for Phase II construction. Advertisement and award of Phase II will occur FY 2004.

4. ANTELOPE CREEK, LINCOLN, NEBRASKA

Location. Antelope Creek is located in the southeastern portion of Nebraska in Lancaster County and passes through the state capital of Lincoln.

Existing Project. The project consists of 2 miles of improved channel extending upstream from the mouth of Antelope Creek, a portion of which is a by-pass channel adjacent to a 4,060 foot-long concrete conduit in the downtown area. The project also includes a labyrinth weir control structure, two existing bridge replacements, one bridge modification, and 2.29 miles of recreation

trails along the proposed channel project. The channel improvement project will provide flood damage reduction to the city of Lincoln and the University of Nebraska-Lincoln campus. The Antelope Creek project is just one piece of a larger Antelope Valley project, which combines flood control, urban revitalization, and transportation projects.

Local Cooperation. This project is authorized under Section 101(b)(19) of the Water Resources Development Act of 2000. The Project Cooperation Agreement (PCA) with the Lower Platte South Natural Resources District and the Joint Antelope Valley Authority to sponsor the Antelope Creek project was executed in October 2002. The current non-Federal cost estimate is $26,338,000. The current Federal cost estimate is $26,338,000 for a total project cost of $52,676,000.

Operations During FY. PCA was executed in October 2002. Phase 1 construction contract in the amount of $3,282,466 was awarded to Hawkins Construction Company, Omaha, Nebraska, in December 2002. Phase 1 construction began in January 2003 and continued throughout fiscal year 2003, with Phase 1 construction completion scheduled for fiscal year 2004.

5. BEAR CREEK LAKE, CO

Location. The dam site is on Bear Creek in Jefferson County, CO, about 8 miles above the confluence of Bear Creek with the South Platte River at Denver.

Existing Project. Earthfill dam 180 feet high, with a crest length of about 5,300 feet; and a supplementary earthfill dike with a height of 65 feet and a crest length of 2,100 feet, to the south of the main dam, and an uncontrolled earth and rock-cut emergency spillway. The lake provides storage capacity of 28,831 acre-feet for flood control and 1,979 acre-feet for sediment and recreation. Construction of the project was initiated in October 1973 and was completed in September 1982, exclusive of recreation facilities. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 21-3 of FY 1981 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

6. BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SOUTH DAKOTA

Location. Sioux Falls is located on a large bend of the Big Sioux River and at the confluence with Skunk Creek in the south half of Minnehaha County in southeastern South Dakota.

Existing Project. The project builds upon an existing project. It consists of raising an existing levee from the diversion dam to the upstream tie-off, raising the diversion channel levee, modifying the chute and stilling basin, raising the diversion dam, raising the levees on Skunk Creek, raising big Sioux levees downstream of Skunk Creek, and providing for bridge improvements.

Local Cooperation. This project is authorized under Section 101 of the Water Resources Development Act of 1996. The Project Cooperation Agreement (PCA) with the city of Sioux Falls to sponsor the Big Sioux River project was executed on 14 August 2000. The current non-Federal cost estimate is $10,402,000. The current Federal cost estimate is $31,206,000, for a total project cost of $41,608,000.

Operations During FY. Construction of Phase IC was completed. Plans and specifications for Phase 2 and real estate purchases for Phase 2 were all initiated.

7. BOWMAN-HALEY LAKE, ND

Location. The dam site is on North Fork of Grand River in southwestern North Dakota, about 6 miles above Haley, ND.

Existing Project. An earth-fill dam 79 feet high, with a crest length of 5,730 feet, and a reservoir with a flood storage capacity of about 72,700 acre-feet, plus 19,780 acre-feet for sediment storage, fish and wildlife conservation, recreation, and future water supply for communities of Bowman, Reeder, Scranton, and Gascoyne, ND. Construction was initiated in July 1964, and the project was completed in 1970. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Operations During FY. Maintenance: Continued

routine operation and maintenance activities.

8. BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISITION)

Location. The Buford Trenton Irrigation District (BTID) is located in the flood plain along the left (north) bank of the Missouri River near its confluence with the Yellowstone River, in Williams County near Williston, ND.

Existing Project. The project consists of the acquisition of permanent flowage and saturation easements within and surrounding the BTID for land that has been affected by rising ground water and the risk of surface flooding. There are approximately 70 affected landowners and 90 tracts. Approximately 10,000 acres are irrigable and 1,750 non-irrigable. Acquisition of easements and relocation assistance under P. L. 91-646 began in FY 1998. The total cost of the project is capped at $34,000,000 by authorizing legislation.

Location Cooperation. The project is authorized under Section 336(a) of the Water Resources Development Act of 1996, P. L. 104-303. Local cooperation is not applicable.

Operations During FY. During fiscal year 2003, eight easements were purchased totaling $2,320,699 with associated costs. Relocation actions continued during the year and will increase until project completion. All initial appraisals have been completed. The purchase of additional easements, associated costs, and relocations will continue in FY 2004.

9. CHATFIELD LAKE, CO

Location. A dam site on the South Platte River, just below the mouth of Plum Creek, about eight miles upstream from Denver, CO.

Existing Project. Consists of rolled earth-fill dam with a maximum height of 148 feet and a crest length of 12,500 feet; a reservoir with flood control capacity of 204,737 acre-feet and sediment capacity of 26,692 acre-feet, which will be used for recreation; and an enlarged channel from the dam downstream to Denver to accommodate reservoir flood releases. The Corps participated with local interests in acquisition of lands and development of recreation facilities immediately downstream of the Chatfield Dam in lieu of a portion of the channel improvement. Construction of the project was initiated in August 1967 and was physically completed in 1992. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-3 of FY 1993 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

10. CHERRY CREEK LAKE, CO

Location. A dam site on Cherry Creek in Arapahoe County, CO, approximately 6 miles southeast of Denver, CO, just outside of city limits. Cherry Creek joins South Platte River within city limits of Denver,

Existing Project. A rolled earth-fill dam with maximum height of 141 feet above streambed and a crest length of 14,300 feet. Project includes a reinforced concrete outlet works and an uncontrolled side channel spillway canal discharging into adjacent Toll Gate Creek. Cherry Creek project provides reservoir storage capacity of 93,920 acre-feet below spillway canal invert and, in addition, a surcharge storage of 134,470 acre-feet. Plan of operation in ultimate development for multiple-purpose uses includes 13,960 acre-feet for sediment storage and 79,960 acre-feet for conservation purposes. Construction began in FY 1946 and was completed in June 1961, exclusive of recreation facilities. (See Table 26-A for total cost of construction.)

Local Cooperation. None required except for recreation cost sharing.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

11. FALL RIVER BASIN, SD

Location. In Custer and Fall River Counties, in and near the town of Hot Springs, SD. Hot Springs unit is in the town of Hot Springs, immediately south of the junction of Cold Brook and Hot Brook, which combine to form the Fall River. Cold Brook Lake unit is approximately 1.25 miles north of the town of Hot Springs on Cold Brook, and Cottonwood Springs Lake unit is approximately 4.5 miles west of the town of Hot Springs

on Cottonwood Springs Creek, one-half mile upstream from its confluence with Hot Brook.

Existing Project. The general plan of improvement provides flood protection for Hot Springs, SD. The Hot Springs channel improvement unit consisted of widening, deepening and straightening 6,000 feet of channel of Fall River. The Cold Brook Lake unit, an earth-fill dam with appurtenant structures, controls an area of 70.5 square miles. The Cottonwood Springs Lake unit consists of an earth-fill dam with appurtenant structures and controls an area of 26 square miles. Construction of Hot Springs unit was completed during FY 1951. Construction of Cold Brook unit dam and appurtenances was completed in FY 1953 with the exception of a road and parking area, which were completed in FY 1955. Construction of the Cottonwood Springs Dam was completed in FY 1970, with the exception of the recreation facilities, which were completed in FY 1972. (See Table 26-A for total cost of construction.)

Local Cooperation. Local cooperation requirements have been fully complied with.

Operations During FY. Maintenance: Routine operation and maintenance activities were continued on the Cottonwood Springs and Cold Brook Dams and structures.

12. LOGAN CREEK, PENDER, NE

Location. This project is located in northeastern NE, approximately 75 miles north-northwest of Omaha, NE. Pender is located along the right bank of Logan Creek, about midpoint in the Logan Creek basin.

Existing Project. The selected and constructed plan is a combination levee and floodwall with a detention storage feature. It provides flood protection from Logan Creek as well as incidental benefit from Stage Creek flooding to the Village's residential and industrial area as well as its central business district. The levee extends approximately 15,000 feet in length along the north, east, and south edge of the community, averaging 10 feet in height.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The Village of Pender is paying the local share of the project.

Operations During FY. O&M Manuals were completed in 2002. Project modification to drainage structures, Real Estate certification and project closeout are projected for completion late in FY 2004.

13. MILK RIVER, MALTA, MT

Location. This project is located in Phillips County in North Central MT. The city of Malta is located approximately 170 miles northeast of Great Falls, MT.

Existing Project. The selected and constructed plan is a levee/floodwall constructed along the right bank of the Milk River to provide protection for the area immediately upstream from the Burlington Northern Santa Fe Railroad (BNSF) bridge. The project consists of an earthen levee that is 1,800 ft in length, combined with a floodwall that extends 1,040 ft. The height of the levee ranges from 4 to 10 ft above natural ground along its entire length. The levee/floodwall requires a tie-off with the existing BNSF grade on the downstream end.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Malta participated in the project's cost sharing requirements utilizing a $176,500 grant from the State of MT combined with real estate interests of approximately $282,000.

Operations During FY. Construction phase is complete with remaining requirements directed toward project management, coordination with local sponsors and project closeout.

14. MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD

Location. On the Missouri River between Gavins Point Dam and Ponca State Park, NE. This includes Cedar and Dixon Counties in Nebraska, and Yankton, Clay, and Union Counties in South Dakota.

Existing Project. The designation as a National Recreational River will preserve outstanding and important scenic values and will provide additional opportunities for river access and recreation use. The project provides erosion control, consisting of bank stabilization and river management techniques designed to preserve the existing environment, and at the same time preserves high

bank flood plain lands. Estimated total cost of construction is $24,626,000 of which $21,000,000 is the Federal cost of construction and $3,626,000 is the non-Federal contributed funds.

Local Cooperation. All recreational construction on this project will be done in accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986. A cost-sharing contract with the state of South Dakota for the Myron Grove access site was signed on June 24, 1986; and the Yankton-Riverside Park Section 215 Agreement was signed on April 24, 1989. Construction was completed in June 1987 and June 1991, respectively. A Section 215 agreement was signed on May 30, 2001 with the Nebraska Game and Parks Commission for construction of the Ponca Resource and Education Center.

Operations During FY. Construction of the Ponca Resource and Education Center was completed, with a dedication ceremony during October. In addition, a 90% design report and Environmental Assessment was completed for a backwater restoration project, also at Ponca State Park, on the Nebraska side of the river. Construction is expected to begin during late FY 2004.

15. MISSOURI RIVER, KENSLERS BEND, NE, TO SIOUX CITY, IA

Location. Project is along Missouri River between Ponca Bend, NE, and combination bridge at Sioux City, IA.

Existing Project. Construction of dikes, revetments and channel improvement along Missouri River from Miners Bend and vicinity, SD and NE, to Sioux City, IA. Project was started in June 1946 and completed in June 1961. (See Table 26-A for total costs.)

Operations During FY. Routine operation and maintenance activities continued.

16. NISHNABOTNA RIVER, HAMBURG, IA

Location. This project, the Nishnabotna River and Main Ditch 6 at Hamburg, IA is located in Fremont County, 40 miles south-southeast of Omaha, NE.

Existing Project. The selected and completed plan determined in the feasibility phase, is the construction of a levee approximately 8,300 ft in length along the left bank of Main Ditch No. 6. A range of economically feasible plans was identified from which the city of Hamburg selected and is supported by the Corps. A levee was constructed along Main Ditch 6 with a levee top, referenced as the 911.0 m.s.l. plan having an accedence equivalent to a 300-year event and a 46 percent reliability passing 500-year event. Selection of a levee height was constrained by the elevation of the Burlington Northern Santa Fe (BNSF) Railroad mainline tracks. The BNSF has raised its mainline track approximately 1.5 ft to accommodate the new levee.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Hamburg is participating in the project's cost-sharing requirements utilizing a Community Development Block Grant to help fund real estate interests of approximately $130,500 and cash contributions of $226,800.

Operations During FY. Operations & Maintenance Manuals were prepared in FY2001. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

17. PAPILLION CREEK AND TRIBUTARIES LAKES, NE

Location. The Papillion Creek basin is located in Washington, Douglas, and Sarpy Counties, NE. Big Papillion Creek rises west of Blair and flows south-easterly through metropolitan Omaha. It is joined by the Little Papillion Creek just above Offutt AFB, forming Papillion Creek. The combined creeks flow along the side of Offutt AFB to its confluence with the Missouri River.

Existing Project. The project consists of a series of four dams and reservoirs, channel improvements, an effluent storage facility, and a flood warning system on tributaries of Papillion Creek. Construction was initiated in FY 1972. Completed projects include Standing Bear Lake, Glenn Cunningham Lake, and Wehrspann Lake. Estimated total costs for the project is $68,659,000 consisting of $64,334,000 in Federal funds ($1,367,000 to be reimbursed by the non-Federal sponsor) and $2,958,000 non-Federal other costs and cash contributions.

Local Cooperation. Requirements are described in

full on page 21-6 of FY 1981 Annual Report.

Operations During FY. O&M manuals have been finalized. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

18. PEBBLE CREEK, SCRIBNER, NE

Location. Scribner, NE, is located in Dodge County about 47 miles northwest of Omaha. Pebble Creek is a right-bank tributary to the Elkhorn River.

Existing Project. The project includes a 3.6 mile-long levee along the Elkhorn River with a maximum height of 5 ft (a modification to the original Pebble Creek project), one closure structure at U.S. HWY 275 at the northern edge of Scribner, and several ramps over the two levees. An automated flood warning system was installed that will allow adequate time to operate the closure structure. Both levees are completed which essentially is one ring levee that provides protection for the entire city of Scribner.

Local Cooperation. The city of Scribner strongly supported the entire Pebble Creek levee project, including the Elkhorn River levee and its modification. The City obtained cost-sharing assistance from the Nebraska Natural Resources Commission and the Lower Elkhorn Natural Resources District. The total cost of the project was $3,232,000. The non-Federal portion of this totaled was $807,000 which includes $363,000 for lands, easements, and rights-of-way.

Operations During FY. Final audit and project closeout projected for FY 2004.

19. PERRY CREEK, IA

Location. The Perry Creek basin is located in Woodbury and Plymouth Counties in northwestern Iowa. The downstream five miles of the basin lie within the corporate limits of Sioux City, IA, and drain the central portion of the city.

Existing Project. The project consists of 14,800 linear feet of grass and rock lined channel, 1,500 linear feet of new conduit, modification of 710 linear feet of existing conduit, and a concrete stilling basin, to provide capacity for the 100-year event. Also included are 4.25 miles of hiking/biking trail and a basin-wide flood warning system. Estimated project cost is $96,870,000, of which $58,677,000 is Federal cost and $38,193,000 is non-Federal cost.

Local Cooperation. The project is authorized under the 1986 Water Resources Development Act. The city of Sioux City, IA, is the local sponsor.

Operations During FY. Post Authorization Change Report requesting reauthorization of the project was completed and sent to Headquarters. Additional cultural investigations were completed in the summer and a housing demolition contract was awarded.

20. PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DISTRICT)

Location. Flood control improvements in this project are along the Missouri River and several of its principal tributaries and in states comprising the Missouri River Basin.

Existing Project. A general comprehensive plan for flood control and other purposes in the Missouri River Basin provides for levees along Missouri River between Sioux City, IA, and mouth and reservoirs on the Missouri River main stem and tributaries. See individual reports and Table 26-I for projects in the Omaha District included in the program.

21. PIPESTEM LAKE, ND

Location. On Pipestem Creek in Stutsman County, ND, three miles upstream from where Pipestem Creek joins the James River at Jamestown, ND.

Existing Project. The project consists of a rolled earthfill dam approximately 108 feet high with a crest length of 4,000 feet and outlet works of a gated reinforced concrete conduit. The reservoir provides 146,880 acre-feet of storage. The multipurpose pool provides space for silt storage and 885 acres of water surface for fish, wildlife and recreation needs. Construction of the project was initiated in FY 1970 and completed in FY 1977. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Routine operation and

maintenance activities continued.

22. SALT CREEK AND TRIBUTARIES, NE

Location. Salt Creek Basin comprises an area of about 1,627 square miles in and around Lincoln in southeastern Nebraska.

Existing Project. The authorized project consists of a system of 10 dams and reservoirs, channel clearing, enlarging and realignment, levees and necessary bridge alternations. Pursuant to Senate Resolution adopted August 7, 1964, which authorized a review of the Salt Creek survey report, additional units were placed in "inactive" classification. Construction of the project began in the spring of 1962. All work under the active portion of the project, consisting of the 10 dams and reservoirs and the channel improvements and levees through Lincoln, was completed in 1969. Funds were transferred to the project in FY 1980 with concurrence of Congressional Committees. These funds were used to determine an effective method of correction for the dispersive clay problem in the completed downstream levees through Lincoln. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Maintenance: Routine operation and maintenance activities continued.

23. SOUTH PLATTE RIVER BASIN, CO

Location. Flood control improvements in this project are along the South Platte River and its tributaries in Colorado.

Existing Project. General plan for flood control and other purposes to provide for construction of Chatfield Lake on the South Platte River, Bear Creek Lake on Bear Creek, and levee and channel improvements on the South Platte River. (See individual reports and Table 26-B for authorizing legislation).

24. VAN BIBBER CREEK, CO

Location. Van Bibber Creek is a right bank tributary of Ralston Creek with the confluence in Arvada, CO. The potential project area includes approximately one mile of the downstream portion of the creek located partially in Arvada and partially in Jefferson County.

Existing Project. The proposed project would include channel improvements including an underground conduit to convey Van Bibber Creek flood waters to Ralston Creek.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended, applies. The City of Arvada is paying the local share of this project. The Project Cooperation Agreement with the City of Arvada, Colorado, to sponsor the Van Bibber Creek project was executed in April 2002.

Operations During FY. Sponsor acquisition activities continued into fiscal year 2003 and two final easements were obtained through condemnation proceedings in January 2003. The project was advertised in May 2003 and bids were opened in July 2003. A legal problem was encountered with the bid opening and the invitation for bids cancelled. Contract award and construction commencement is scheduled for fiscal year 2004 with construction continuing into fiscal year 2006.

25. WOOD RIVER, GRAND ISLAND, NE

Location. This project is located in Hall County Nebraska, approximately midway between the city of Grand Island and Interstate 80.

Existing Project. This project consists of a five-mile long diversion channel with levees on both sides. The channel will divert Wood River flood flows to the Platte River. The diversion structure will be located downstream from the Highway 281 bridge that crosses the Wood River. The diversion channel will begin at that point and run eastward to the Platte River. The current county and city bridges that cross the channels will be designed and constructed by the sponsor. One bridge for the Union Pacific Railroad will be constructed. In addition, a two-mile long tie-off levee and small diversion channel will be built west of highway 281 to prevent Wood River flood flows from spilling into the Warm slough basin nearby and outflanking the diversion channel.

Local Cooperation. This project is authorized under the Water Resources Development Act (WRDA) of 1996, Section 101K modified by WRDA of 1999, Section 335.

The Project Cooperation Agreement (PCA with the Central Platte Natural Resources District was executed on 2 May 2000. The current non-Federal cost estimate is $4,134,000. The current Federal cost estimate is $10,562,000, for a total project cost of $14,696,000.

Operations During FY. The construction contractor completed the construction of the diversion channel and part of the warm slough diversion channel during FY 2003.

26. INSPECTION OF COMPLETED FLOOD CONTROL WORKS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion, in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within the boundaries of their respective districts.

Inspections of completed local protection projects which have been turned over to local interests for maintenance and operation during the FY are set forth in Table 26-J, Inspections of Completed Local Protection Projects. FY 2003 costs were $250,512.

27. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Under Sections 7 and 9, Flood Control Act of December 22, 1944, the Corps of Engineers is responsible for detailed scheduling of operations involving storage capacity reserved for or assigned to flood control in reservoirs constructed by the Bureau of Reclamation as well as those constructed by the Corps of Engineers. Costs for FY 2003 were $338,126; and total through September 30, 2003 were $10,699,137.

28. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Emergency Response Activities - Repair, Flood Fighting and Rescue Work (Public Law 99, 84th Cong., and antecedent legislation.)

The District provided assistance for investigation into the repair of one drainage structure on a Missouri River Levee. Contract award anticipated in early FY 2004.

Operational Program Areas. FY costs as follows:

Preparedness:	
All Hazards Planning Activities..... $	505,032
All Hazards Training & Exercise.....	0
Facilities.....	34,036
National Centers of Expertise.....	0
Emergency Operations:	
Response Operations.....	9,999
After Action Report.....	0
Post Flood Response.....	0
Acquisition of Supplies & Equipment.....	0
Operational Support……	14,323
Support For Others.....	0
Rehabilitation of Flood Control Works:	
Rehab. Federal Flood Control Works.....	93,981
Rehab. Non-Federal Flood Control Works..	0
Shore Protection.....	0
Field Investigations.....	12,262
Inspections.....	44,264
Interagency Levee Activities.....	0
Advance Measures:	
Advance Measure Assistance.....	0
Field Investigations.....	16,598
Hazard Mitigation (By State):	
Hazard Mitigation Team Activities.....	0

Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act as amended, Public Law 858, 80th Cong., June 30, 1948 as amended.)

Federal costs for FY 2003 were $717,276 for feasibility studies, plans and specifications and construction measures. See Table 26-L for detailed breakdown by project.

Emergency Bank Protection (Sec. 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946 as amended.)

Operations under this heading were as follows:

Federal costs for FY 2003 were $48,433 for projects in the planning and design analysis phase and projects in the construction phase. See Table 26-L for detailed breakdown by project.

Environmental

29. CALIFORNIA BEND, NE

Location. The remnant river channel and floodplain land along river miles 648.5 - 650.0 along the Missouri River, in Washington County, about one mile east of Blair, NE.

Existing Project. The project to be modified is the Missouri River Navigation and Bank Stabilization Project. The California Bend modification will restore river flows through the historic river channel adjacent to the navigation channel, to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. The downstream end of a 1.5-mile long backwater will be enlarged to provide a permanent connection to the navigation channel, and about 1 mile of excavation will connect its upstream end to the river. This will create permanent flows through about 2.5 miles of channels. Some of the surrounding farmland will be restored to floodplain forest. Also several of the spur dikes along the navigation channel will be lowered to enable navigation flows to create shallow margins along the river.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost-sharing, including real estate interests valued at approximately $540,725, and cash of about $600,000.

Operations During FY. Construction contract bids opened November 2002 with contract award December 2002 to Pentzien, Inc. for $1,898,800. Contract completion is scheduled during first quarter FY 2004. Approximately 49 acres of site will be seeded with native grasses and forbs during second quarter FY 2004. PDT will initiate draft of O&M Manual and prepare 5-year monitoring plan in FY 2004.

30. CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE, AND STATE OF SOUTH DAKOTA TERRESTRIAL WILDLIFE HABITAT RESTORATION

Location. Generally lands located in the state of South Dakota and acquired by the Secretary of the Army for the implementation of the Pick-Sloan Missouri River Basin program. Lands to be transferred to the State are Corps land located above the top of the exclusive flood pool of the Oahe, Big Bend, Fort Randall and Gavins Point projects and located outside of the external boundaries of a reservation of an Indian Tribe. Lands to be transferred to the Secretary of the Interior are lands located above the top of the flood pool of the Big Bend and Oahe projects and located within the external boundaries of the reservation of the Cheyenne River Sioux Tribe and the Lower Brule Sioux Tribe.

Existing Project. Review and submittal to congress of wildlife habitat restoration plans developed by the State and Indian Tribes. Accomplish the transfer of Corps of Engineers land to the State of South Dakota and the Department of Interior for the two Indian Tribes. Estimated total cost of the project is $102,858,000.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal government with no cost to either local or tribal governments or the affected state. Therefore, no Project Cooperation Agreements are required. Restoration of terrestrial wildlife habitat loss programs are being accomplished by the transferees through the use of grant instruments until ten years from date of enactment under which the trust funds established under project authorization are fully capitalized.

Operations During FY. Coordination efforts with state and tribal entities continued. Grant agreements were implemented.

31. FORT PECK FISH HATCHERY, MONTANA

Location. The project is located downstream of the Fort Peck Dam in Valley County, southeast of Glasgow, Montana on approximately 96 acres of Corps project land.

Existing Project. The project will establish a multispecies hatchery for threatened and endangered native fish recovery and for cool-water fish, such as walleye, northern pike, and sauger; warm-water fish such as smallmouth bass and catfish; and cold-water fish such as salmon. As well as other species that have had population declines at Fort Peck Lake in recent years. The project is authorized at $20,000,000.

Local Cooperation. Section 325 of WRDA 2000 applies. The legislation requires that the State of Montana be credited for all costs of stocking Fort Peck Lake during the period beginning January 1, 1947 and the costs to the State of Montana and the counties having jurisdiction over land surrounding Fort Peck Lake of construction of local access roads to the lake. When the project is completed, the operation, maintenance, repair, and replacement of the hatchery will be a non-Federal responsibility except for the costs of operation and maintenance associated with raising threatened or endangered species.

Operations During FY. Design of the intake structure was completed. Construction of the intake structure was substantially complete by year-end. Design of the rearing ponds and hatchery complex was completed. Construction of the rearing ponds and hatchery complex began and has an estimated completion date of early fall 2005.

32. HIDDEN LAKE/GREAT MARSH, NE

Location. A historic backwater adjacent to Missouri River miles 602.5-603.5, and a nearby marsh, in Sarpy County, about 1 mile south of Omaha and adjacent to Bellevue, NE.

Existing Project. The project being modified is the Missouri River Navigation and Bank Stabilization Project. The Hidden Lake modification is restoring a historic backwater of the river to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. A one mile long backwater lake which was filled with sediment in a rare flood event has been excavated and reconnected at its downstream end to the river. The Great Marsh modification has removed sediment and encroaching plants to deepen and expand a marshy wetland, extending its life and benefiting the aquatic community. About 40 acres of wetland were excavated at an average of two feet deeper, increasing the marsh also in size. Total project costs are $3,015,471, with a Federal share of $2,261,604.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District provided all needed cost sharing including real estate interests.

Operations During FY. Construction is complete. O&M Manuals, Real Estate certification and project closeout were completed in FY 2003 and the project has been turned over to the local Sponsor.

33. LOWER DECATUR, NE

Location. The Missouri River's right (west) overbank including side channels, from river mile 684.5 to 689 on the Missouri River in Burt County, NE, about 2 miles southeast of Decatur, NE.

Existing Project. Modification of the Missouri River Bank Stabilization and Navigation Project (MRBSN) constructed from 1935 to 1982. Lower Decatur Bend is one of many bend cutoffs (straightenings) created by the Corps during channelization of the Missouri River for navigation and bank stabilization. The proposed project modification includes 3 main off-stream aquatic components: side-channel restoration, lowering of the riverward extent of closure spur dikes, and revetment lowering over an extended length to allow river flows to erode the river bank behind the revetment, thereby increasing the top width of the channel over an extended area. An opportunity exists at Lower Decatur Bend to restore the physical habitat to configurations more similar to those that existed prior to the channelization of this reach of the river. Total Project costs are estimated at $6,058,000, with a Federal share of $4,543,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost sharing, including real estate interests valued at approximately $574,000 and cash of about $941,000.

Operations During FY. Feasibility studies were completed. Plans and specifications were ongoing in FY 2003. Construction of the project is scheduled for initiation late in FY 2004.

34. MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, & MO

Location. The project extends along the Missouri River from Sioux City, IA, to the mouth near St. Louis, Mo.

Existing Project. To mitigate a portion of the fish and wildlife habitat losses resulting from the construction and operation of the Missouri River Bank Stabilization

and Navigation project. Estimated total cost of the project is $3,059,687,000 federal funds.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal government with no cost to either local governments or the affected states. Therefore, no Project Cooperation Agreement is required. Although the four affected states are not participating financially in the project, the states are very actively involved in the planning and design of the project. The states also are participating in the project by furnishing perpetual easements for construction and operation on existing state-owned lands. The states of Missouri and Iowa are the primary donors of such easements.

Operations During FY. Efforts have started on acquisition of an additional 118,650 acres of land. Construction was completed on Tieville-Decatur Bends. Construction was started on river structure modifications. Plans and Specifications for Kansas Bend and Glovers Point Bend were completed. Other shallow water habitat efforts continue.

35. NATHAN'S LAKE/DEER CREEK AQUATIC HABITAT IMPROVEMENT, NE

Location: The project is located in the Missouri River floodplain, several remnant wetland basins and a ditched creek channel, from river mile 632.8 to 633.5 on the Missouri River in Washington County, Nebraska, about 3 miles north of Omaha and 4 miles southeast of Ft. Calhoun, Nebraska.

Existing Project. Construction of Nathan's Lake and Mud Lake islands and shallow fingers, expansion of wetland areas, construction of a diversion sediment basin and the west ditch and west berm. Additional work will include emphasis on palustrine emergent wetland benefits as well as stream riparian restoration related to those wetlands and the river. This is the first Section 206 project authorized for study nationwide and the work will be a component of the sponsor's Missouri River Corridor Plan.

Local Cooperation. Section 206 of the Water Resources Development Act of 1996 (P.L. 104-303), as amended applies. The Papio-Missouri River Natural Resources District is the local sponsor and providing all necessary cost sharing including real estate interests.

Operations During FY. Approximately 10 acres of site, including disposal area, were seeded with native grasses and forbs. Initiated draft of O&M Manuals. Final O&M Manuals, Real Estate certification and project closeout are projected for completion in 2004.

36. RURAL MONTANA, MT

Location. This authority is to establish a program for providing environmental assistance to non-federal interests in rural Montana. In fiscal year 2002 the Corps of Engineers was directed to give consideration to projects at Helena, Laurel and Conrad, Montana.

Existing Project. The authorization will establish a program for providing environmental assistance to non-federal interests in Montana. Assistance may be in the form of design and construction assistance for water related environmental infrastructure and resource protection and development projects. There is authorized to be appropriated $25,000,000 for this program.

Local Cooperation. Section 595 of WRDA 1999 applies. The Federal share of project costs under each local cooperation agreement entered into shall be 75 percent and may be provided in the form of grants or reimbursements.

Operations During FY. The construction of the water intake at Laurel, Montana was completed. A cooperation agreement was executed with the City of Helena, Montana in June of 2003. Negotiations with the City of Conrad, Montana were initiated.

37. UPPER CENTRAL PLATTE VALLEY COLFAX REACH, CO

Location. The project is 13 miles downstream of Chatfield Reservoir on the South Platte River in the City and County of Denver from just upstream of Lakewood Gulch to approximately 500 feet downstream of Interstate 25. The length of the reach is approximately 3000 feet.

Existing Project. The project will reestablish and improve the ecosystem structures and functions by restoring fish and wildlife habitat through

environmentally sensitive bank modification and creating a low flow meandering channel which existed in the past. Rock jetties, drop structures and a 250 cfs low flow channel will be included as project features. Wetlands and riparian communities will be reestablished along the east bank to create an improved wildlife corridor. Total project costs are currently estimated at $6,000,000 with a Federal share of $4,500,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Greenway Foundation with the support of the City Of Denver is providing all needed cost sharing including real estate interests.

Operations During FY. Project is complete with the exception of monitoring of project vegetation. Contractor to watch the site until April 2004 at which time the project will be turned over to the Sponsor.

38. WEHRSPANN LAKE AQUATIC

Location. The existing Papio Dam #20 and its Wehrspann Lake are located on a tributary to the South Branch Papillion Creek, West Branch Papillion Creek Basin, Sarpy County, NE, about 4 miles southwest of Omaha. The subimpoundment is located in the headwaters of Wehrspann Lake, within the lake's flood control pool, and within the existing project's boundaries.

Existing Project. Wehrspann Lake Aquatic Improvement Project - Modification of Wehrspann Lake, completed in 1984 as Papio Dam #20 for flood control and recreation. Wehrspann Lake site is located within Omaha, NE metropolitan area, and as such it is highly visible, heavily utilized and important ecological, recreational, and educational resource. The modification, a subimpoundment in the lake's flood control pool, will play an essential role in maintaining water quality and fish habitat within Wehrspann Lake by decreasing the amounts of influent nutrients and especially sediment. Total project costs are currently estimated at $2,660,000 with a Federal share of $1,995,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District is providing all needed cost sharing including real estate interests.

Operations During FY. Although project construction was substantially complete in FY 2001, there are several minor modifications pending. During FY 2003, a contract for installation of relief wells and additional riprap was completed. Additional work is planned for FY 2004 to replace mitigation plantings and seal the surface of the spillway.

Multiple Purpose Projects Including Power

39. BIG BEND DAM-LAKE SHARPE, MISSOURI RIVER BASIN, SD

Location. On the Missouri River, 987.4 miles above the mouth, near Fort Thompson, SD, and approximately 20 miles upstream from Chamberlain, SD. Dam is located in the upstream reach of Fort Randall reservoir (Lake Francis Case). Big Bend reservoir (Lake Sharpe) extends upstream to Pierre, SD.

Existing Project. A rolled earth-fill dam 95 feet high, with a crest length of 10,570 feet, a hydroelectric generating plant consisting of five 58,500 kilowatt units, three 67,276 kilowatt units, and a chute-type gated spillway. Reservoir provides gross storage of 1,859,000 acre-feet. Federal cost of the project was $107,498,000. Construction began in September 1959 and was completed in September 1977, except for Code 710 recreation facilities.

Local Cooperation. None required except for recreation cost-sharing.

Operation During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, power production and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. During the period, 838,916,000 net kilowatt-hours of electricity were produced.

40. FORT PECK DAM AND LAKE, MT

Location. The reservoir is in the Missouri River Valley in McCone, Valley, Garfield, Phillips, Petroleum, and Fergus Counties, MT. Dam is approximately 1,771.6 miles above the mouth of the Missouri River. Nearest towns are Glasgow, 17 miles northwest; and Nashua, nine miles north.

Existing Project. A hydraulic earthfill dam with a

maximum height of 251 feet, with a crest length of 21,026 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 18,688,000 acre-feet at maximum operating pool. Work started on the original project in October 1933 and on the second power plant in August 1956. The project was completed in 1965. The power installations at the project were updated in FY 1979. The five generators have a total output of 185,250 KW: two generators at 40,000 KW each, two generators at 43,500 KW each and one generator at 18,250 KW. See page 818 of 1965 Annual Report and page 905 of 1958 Annual Report for project details. Federal cost of the project was $158,428,000,

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with the other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 831,095,000 net kilowatt hours of electricity.

41. FORT RANDALL DAM-LAKE FRANCIS CASE, MISSOURI RIVER BASIN, SD

Location. Located on the Missouri River in Charles Mix and Gregory Counties, SD, about 82 miles above Yankton, SD. Site is 880 miles above the mouth of the Missouri River and 148 miles above Sioux City, IA.

Existing Project. A rolled earth-fill dam with a maximum height of 165 feet; a crest length of 10,700 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 5,494,000 acre-feet at maximum operating pool. The power installation consists of eight units rated at 40,000 kilowatts each. Construction began in May 1946 and was completed in 1969, except for Code 710 recreation facilities. Federal cost of the project was $199,066,000. Non-Federal contribution for constructing approaches to the Platte-Winner Bridge was $720,000.

Local Cooperation. None required except for recreation cost-sharing and bridge approaches.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,495,524,000 net kilowatt hours of electricity.

42. GARRISON DAM MAJOR REHABILITATION, LAKE SAKAKAWEA, ND

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND, 1,389.9 miles about the mouth and 75 miles above Bismarck.

Existing Project. Garrison Dam is a multi-purpose project consisting of a rolled earth-filled dam with a sheet pile cutoff, a hydroelectric power plant, and a reservoir with storage capacity of 23,821,000 acre feet for flood control, navigation, power, recreation, irrigation, and municipal water supply. This major rehabilitation project will replace the turbine runners on all five existing units with new runners designed to improve reliability and maximize efficiency over a broad range of operating conditions for a total project cost of $55,363,000.

Local Cooperation. None required.

Operations During FY. Manufacturing of the wicket gates, turbine runners, and generator components continued throughout the year. The current contract is scheduled for completion in June of 2005. A supplemental rehabilitation report addressing transformers and the switchyard was 90% complete. The finalized report will be published in the second quarter of FY 2004.

43. GARRISON DAM-LAKE SAKAKAWEA, MISSOURI RIVER BASIN, ND

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND. 1,389.9 miles above the mouth and 75 miles above Bismarck, ND.

Existing Project. A rolled earth-fill dam 11,300 feet long with a maximum height of 210 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric

power, and other purposes, with a gross storage capacity of 23,821,000 acre-feet. It provides five power units (three units rated at 109,250 kilowatts each and two units rated at 95,000 kilowatts each), three flood control tunnels, and a gated spillway. Federal cost of the project was $299,938,000, including $4,208,000 for major rehabilitation. Non-Federal contribution in connection with widening Snake Creek Embankment was $687,000. Construction of the project was initiated in April 1946 and completed in 1966, except for recreational development using Code 710 funds.

Local Cooperation. None required except cost-sharing with the state of North Dakota for widening the Snake Creek Embankment and recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,841,808,000 net kilowatt hours of electricity.

44. GAVINS POINT DAM-LEWIS AND CLARK LAKE, MISSOURI RIVER BASIN, NE AND SD

Location. On the Missouri River in Yankton County, SD, and Knox County, NE, about four miles upstream from Yankton, SD, and 811.1 miles above the mouth.

Existing Project. A concrete and rolled earth-fill dam with a maximum height of 74 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 492,000 acre-feet at maximum operating pool. The power installation consists of three units rated at 44,099 kilowatts each. Federal cost of the project was $49,617,000.Construction of the original project was initiated in March 1952 and completed in 1964.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 709,023,000 net kilowatt hours of electricity during FY 2003.

45. OAHE DAM-LAKE OAHE, MISSOURI RIVER BASIN, SD AND ND

Location. Dam is on the Missouri River in Hughes and Stanley Counties, SD, about six miles northwest of Pierre, SD, and 1,072.3 miles above the mouth.

Existing Project. A rolled earth-fill dam with maximum height of 245 feet; a crest length of 9,300 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 23,137,000 acre-feet at maximum operating pool. It contains seven power units rated at 112,290 kilowatts each. Federal cost of the project was $346,521,000. Construction was initiated in August 1948 and the project was placed in operation in June 1963.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 2,011,096,000 net kilowatt hours of electricity.

46. MISSOURI RIVER, BETWEEN FT. PECK DAM, MT AND GAVINS POINT DAM, SD, NE

Location. The project is located along the Missouri River between Fort Peck Dam, MT, and a point 59 miles downstream of Gavins Point Dam, SD and NE.

Existing Project. Consists of undertaking measures, including maintenance and rehabilitation of existing structures, to alleviate bank erosion and related problems associated with releases from the six Missouri River main stem dams that the Secretary determines will be needed. In lieu of structural measures, lands may be acquired in affected areas from willing sellers. The costs of the

measures shall be apportioned among project purposes as a joint-use operation and maintenance expense. Estimated Federal cost of the project is between $140 million for construction or $14 million for the land requisition alternative. Cost is limited to no more than $3 million per FY.

Local Cooperation. Non-federal funds are not required for this project. One reach, the Missouri National Recreational River downstream from Gavins Point Dam, requires, under its separate authorization, that the landowners make available appropriate land interests to maintain the recreational and scenic qualities of the river and adjacent lands. In the other river reaches, lands can be acquired on a willing-seller basis if land acquisition is the recommended measure for erosion control at a given river site.

Operations During FY. Continued coordination for sloughing easements in pursuit of real estate acquisitions in response to requests from landowners. Monitored previously constructed Section 33 projects. Continued EIS/cumulative impacts study to determine effects of bank erosion.

47. PIERRE, SD

Location. The project area consists of the Missouri River just downstream of Oahe Dam near Pierre and Fort Pierre, South Dakota.

Existing Project. The legislation authorizes that the Secretary may acquire from willing sellers such land and property in the vicinity of Pierre, South Dakota or flood proof or relocate such property within the project area, as the Secretary determines is adversely affected by the full wintertime Oahe Powerplant releases. Total cost of this project is held at $35,000,000 by authorizing legislation.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is completely federally financed as the mitigation is for a problem caused by the Oahe Dam project. By funding the project 100 percent Federal, the costs are allocated to the Oahe Project with 45.83 percent of the costs considered as joint costs to allocate for repayment by the Western Area Power Administration (WAPA). When WAPA invokes the sub-allocation of 15.8 percent of power costs to future irrigation, the 45.83 percent joint use costs will actually result in a final cost share of 38.6 percent to be repaid by non-Federal interests.

Operations During FY. Throughout the year, coordination with affected property owners to prioritize and finalize buyback or flood proofing remedies for each tract affected occurred. One hundred thirty four tracts and their affected owners received reimbursement under this project authority to date. Ongoing appraisal activities, title evidence, and acquisition of one hundred three tracts with multiple owners resulted in relocation actions under the authority of PL 91-646. Owner's policies, warranty deeds and closing actions were also completed.

Miscellaneous

48. MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE

Location. The area being studied is the Missouri River basin, to include the Missouri River Mainstem Reservoir System (System). States included in the study area include Nebraska, Montana, North Dakota, South Dakota, Iowa, Kansas, and Missouri.

Existing Project. The Missouri River Master Water Control Manual (Master Manual) sets forth the guidelines for the operation of the System for the Congressionally authorized project purposes of flood control, hydropower, water supply, water quality, irrigation, navigation, recreation, and fish and wildlife. During the late 1980's, the Missouri River basin experienced a moderate to severe drought, impacting upon the System for the first time since filled in 1967. The Master Manual Review and Update was initiated in 1989 as a result of the severe impacts on people and industries that use the Missouri River.

There are a myriad of complex operational and resource management issues. Upriver interests want high, stable lake levels to address recreation, irrigation and hydropower needs. Environmental interests seek a hydrograph that more closely approximates the natural hydrograph of the Missouri River. Downriver interests (below the dams) support different flow regimes for commercial navigation, flood protection, municipal water supply, and thermal generation. The Corps objective is to implement a water control plan that meets the contemporary needs of the basin, serves Congressionally authorized project purposes, complies with environmental laws including the Endangered Species Act, and fulfills

the Corps responsibilities to Native American Tribes.

Local Cooperation. None required.

Operations During FY. The Northwestern Division (NWD) made considerable progress during the past year in moving the National Environmental Policy Act (NEPA) process forward.

On 31 August 2001, the Northwestern Division released a Revised Draft Environmental Impact Statement (RDEIS) that identified the impacts associated with six alternative water control plans for the Missouri River Mainstem System, but did not identify a preferred alternative (PA). Release of the RDEIS marked the beginning of a 6-month public comment period during which the Corps held 19 workshops and 20 Tribal and public hearings at numerous locations throughout the Missouri and Mississippi River basins. Through 28 February 2002, approximately 55,000 oral, written, and electronic comments were received. Subsequently, the Corps reviewed and evaluated all Tribal and public comments received on the RDEIS, all information developed during the course of the study effort, the Biological Opinion (BiOp) and the National Academy of Sciences Report for the Missouri River.

The Corps and U.S. Fish & Wildlife Service (USFWS) have continued informal consultation on the current operation of the Mainstem Reservoir System. Considerable progress was made by the agencies in resolving complex and controversial endangered species issues and on a programmatic approach to recovery of Missouri River protected species and the ecosystem on which they depend. On 21 July 2003, the Corps and the USFWS entered into formal Endangered Species Act (ESA) consultation and a Biological Assessment (BA) was provided to the USFWS on 30 July 2003. The BA reflects a new action for consultation with the USFWS. In accordance with ESA and USFWS regulations, the outcome may be a new BiOp.

The results of the formal consultation will inform a preferred alternative (PA) for presentation in the Final Environmental Impact Statement (FEIS) for the Master Manual Review and Update. The FEIS will be prepared addressing the Tribal and public comments received in response to the RDEIS and will present the impacts of the PA. A comment period will follow release of the FEIS, followed by preparation of a Record of Decision and implementation of revised Water Control Plan. The Corps intends to implement the revised Water Control Plan in 2004. In addition, the Administration announced that funding would be added to the 2004 budget for Missouri River ecosystem restoration.

49. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP) AND SUPPORT FOR FEMA

P. L. 93-288 (and Antecedent Legislation)

Continuity of Operations (510)	$ 0
National Preparedness Planning (520)	6,257
Emergency Operations Center Support (530)	0
Catastrophic Disaster Training and Exercise (560)	0
Total Catastrophic Disaster Preparedness Program	$ 6,257

50. FLOOD CONTROL AND COASTAL EMERGENCIES (FC&CE)

Flood control work under Authorization Emergency Flood Control Activities, Flood Fighting. P. L. 84-99.

Disaster Preparedness (100)	$ 497,044
Emergency Operations (200)	25,215
Rehabilitation and Inspection Program (300)	151,446
Advance Measures (500)	0
Hazard Mitigation (600)	1,880
Reimbursable Activities (900)	226,505
Total FC&CE	$ 902,090

51. GENERAL REGULATORY FUNCTIONS

Permit Evaluation	$ 5,124,923
Enforcement	919,431
Studies	230,021
Environmental Impact Statement	109
Administrative Appeals	0
Reimbursable Activities	148,258
Total Regulatory	$ 6,422,742

52. GENERAL INVESTIGATIONS

FY 2003 non-reimbursable costs totaled $2,063,308 for all General Investigation activities. See Table 26-K which covers Surveys, Collection and Study of Basic Data, Research and Development, Preconstruction Engineering and Design (projects not fully authorized), Planning and Engineering under Proposed Program

Legislation, and Preconstruction Engineering and Design
(fully authorized projects).

TABLE 26-A **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
1.	Missouri River, Sioux City, IA to Mouth (Sioux City, IA to Rulo NE)	New Work:					
		Approp.	------	------	------	------	189,225,991 1/
		Cost.	------	------	------	------	189,225,991 1/
		Maint:					
		Approp.	2,001,438	1,948,268	2,074,500	2,709,300	136,315,956
		Cost.	1,986,394	1,957,234	2,077,431	2,681,264	136,284,257
3.	Aberdeen & Vicinity, SD	New Work:					
		Approp.	5,000	------	------	------	839,759
		Cost.	44,760	3,948	------	------	839,747
	Required Contributed Funds	New Work:					
		Approp	250,000	------	------	------	280,084
		Cost.	20,744	27,326	11,717	35,608	99,934
	Consolidated Summary	New Work:					
		Approp.	255,000	------	------	------	1,119,843
		Cost.	65,504	31,274	11,717	35,608	939,681
4.	Antelope Creek, Lincoln, NE	New Work:					
		Approp.	------	261,354	344,000	3,699,000	4,304,354
		Cost.	------	215,436	382,002	3,704,606	4,302,044
	Required Contributed Funds	New Work:					
		Approp	------	127,200	73,000	1,025,049	1,225,249
		Cost.	------	------	170,803	858,398	1,029,201
	Consolidated Summary	New Work:					
		Approp.	------	127,200	417,000	4,724,049	5,529,603
		Cost.	------	215,436	552,805	4,563,004	5,331,245
5.	Bear Creek Lake, CO	New Work:					
		Approp.	------	------	------	------	62,018,608
		Cost.	------	------	------	------	62,018,608
		Maint:					
		Approp.	540,276	353,686	492,000	268,000	7,368,271
		Cost.	534,838	356,477	440,001	318,819	7,363,748
6.	Big Sioux River and Skunk Creek Sioux Falls, SD	New Work					
		Approp.	525,000	3,696,000	3,461,000	1,374,000	9,056,000
		Cost.	297,450	3,892,130	3,285,979	1,558,190	9,033,749
	Required Contributed Funds	New Work:					
		Approp	------	450,000	150,000	230,000	830,000
		Cost.	------	------	168,817	514,594	683,411
	Consolidated Summary	New Work:					
		Approp.	525,000	4,146,000	3,611,000	1,604,000	9,886,000
		Cost.	297,450	3,892,130	3,454,796	2,072,784	9,717,160

1/ Includes $18,325,581 National Industrial Recovery Act funds, $8,625,718 Emergency Relief Funds, and $1,181,125 for previous project.

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
7.	Bowman-Haley Lake, ND	New Work:					
		Approp.	------	------	------	------	4,372,174
		Cost.	------	------	------	------	4,372,174
		Maint:					
		Approp.	186,830	255,082	141,543	147,000	4,714,725
		Cost.	186,978	233,038	142,488	146,704	4,712,961
8.	Buford Trenton Irrigation District, ND (Land Acquisition)	New Work:					
		Approp.	5,760,000	6,891,872	5,751,000	2,316,000	25,345,872
		Cost.	5,852,428	6,920,466	5,749,811	2,320,699	25,336,430
9.	Chatfield Lake, CO	New Work:					
		Approp.	------	------	------	------	95,444,010
		Cost.	------	------	------	------	95,444,010
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	1,315,328
		Cost.	------	------	------	------	1,315,328
	Consolidated Summary	New Work:					
		Approp.	------	------	------	------	96,759,338
		Cost.	------	------	------	------	96,759,338
		Maint:					
		Approp.	831,042	1,306,828	1,305,682	893,000	18,316,782
		Cost.	826,005	1,305,317	1,308,770	868,013	18,288,071
10.	Cherry Creek Lake, CO	New Work:					
		Approp.	------	------	------	------	15,220,364
		Cost.	------	------	------	------	15,220,364
		Maint.					
		Approp.	396,322	620,480	517,000	478,000	16,929,276
		Cost.	398,121	615,964	523,565	477,671	16,927,386
11.	Fall River Basin, SD (Cottonwood & Coldbrook)	New Work:					
		Approp.	------	------	------	------	5,538,432
		Cost.	------	------	------	------	5,538,432
		Maint.					
		Approp.	690,966	347,163	462,000	484,000	9,954,330
		Cost.	694,703	343,115	464,565	483,277	9,950,262
12.	Logan Creek Pender, NE	New Work:					
		Approp.	14,000	(7,000)	7,000	15,000	4,177,113
		Cost.	48,037	45,500	12,076	16,409	4,175,591
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	394,090
		Cost.	32,388	6,686	3,703	17,012	384,525
	Consolidated Summary	New Work:,					
		Approp.	14,000	(7,000)	7,000	15,000	4,571,203
		Cost.	80,425	52,186	15,779	33,421	4,560,116

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
13.	Milk River, Malta, MT	New Work:					
		Approp.	------	(4,000)	1,500	------	1,481,118
		Cost.	1,678	3,019	5,270	597	1,481,071
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	222,720
		Cost.	------	------	1,050	6,289	213,276
	Consolidated Summary	New Work:					
		Approp.	------	(4,000)	1,500	------	1,703,838
		Cost.	1,678	3,019	6,320	6,886	1,694,347
14.	Missouri National Recreational River NE& SD	New Work:					
		Approp.	900,000	983,000	3,327,000	1,232,500	9,107,759
		Cost.	777,252	1,176,555	3,377,523	1,327,861	9,103,076
	Required Contributed Funds	New Work:					
		Approp.	12,774	16,500	------	------	669,274
		Cost.	7,500	7,722	------	------	655,222
	Consolidated Summary	New Work:					
		Approp.	912,774	999,500	3,327,000	1,232,500	9,777,033
		Cost.	784,752	1,184,277	3,377,523	1,327,861	9,758,298
		Maint.					
		Approp.	241,879	(17)	275,000	228,000	3,438,862
		Cost.	246,985	727	198,357	230,082	3,364,301
15.	Missouri River Kenslers Bend, NE, to Sioux City, IA	New Work:					
		Approp.	------	------	------	------	11,294,414
		Cost.	------	------	------	------	11,294,414
		Maint.					
		Approp.	145,555	134,144	132,500	135,000	5,568,618
		Cost.	145,685	132,130	133,338	135,825	5,568,267
16.	Nishnabotna River, Hamburg, IA	New Work:					
		Approp.	50,000	3,000	(500)	(2,000)	1,369,100
		Cost.	49,949	11,687	3,192	730	1,368,980
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	359,887
		Cost.	10,490	17,235	4,939	------	358,910
	Consolidated Summary	New Work:					
		Approp.	50,000	3,000	(500)	(2,000)	1,728,987
		Cost.	51,439	28,922	8,131	730	1,727,890

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
17.	Papillion Creek and Tributaries Lakes, NE	New Work:					
		Approp	------	------	(6,500)	(60,045)	66,545,670 2/
		Cost.	2,040	56	------	(59,992)	66,545,670 2/
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	955,000
		Cost.	------	56	------	70,264	955,000
	Consolidated Summary	New Work:					
		Approp.	------	------	(6,500)	(60,045)	67,500,670
		Cost.	2,040	56	112	10,272	67,500,670
		Maint:					
		Approp.	598,822	611,050	658,000	501,000	12,035,316
		Cost.	599,595	609,138	659,892	498,375	12,031,420
18.	Pebble Creek Scribner, NE	New Work:					
		Approp.	------	------	(3,000)	(600)	2,717,128
		Cost.	258	------	------	80	2,717,034
	Required Contributed Funds	New Work:					
		Approp	------	------	------	------	435,656
		Cost.	------	------	------	1,040	420,920
	Consolidated Summary	New Work:					
		Approp.	------	------	(3,000)	(600)	3,152,784
		Cost.	258	------	------	1,120	3,137,954
19.	Perry Creek, IA	New Work:					
		Approp.	13,900,000	468,000	(28,000)	(86,700)	35,784,785
		Cost.	13,212,961	1,440,218	65,402	(74,288)	35,744,004
	Required Contributed Funds	New Work:					
		Approp.	642,718	716,002	------	------	2,608,720
		Cost.	608,778	71,977	306,098	478,539	2,575,836
	Consolidated Summary	New Work:					
		Approp.	14,542,718	1,184,002	(28,000)	(86,700)	38,393,505
		Cost.	13,821,739	1,512,195	371,500	404,251	38,319,840
21.	Pipestem Lake, ND	New Work:					
		Approp.	------	------	------	------	9,277,545
		Cost.	------	------	------	------	9,277,545
		Maint:					
		Approp.	598,307	361,938	478,476	434,000	10,112,125
		Cost.	597,556	359,956	480,159	428,296	10,105,052
22.	Salt Creek and Tributaries, NE	New Work:					
		Approp.	------	------	------	------	12,197,621 3/
		Cost.	------	------	------	------	12,197,621 3/
		Maint.					
		Approp.	725,646	655,088	729,000	726,000	18,775,010
		Cost.	725,776	650,977	732,945	722,952	18,770,757

2/ Does not include $1,854,338 cost of inactive sites.
3/ Includes $123,000 of government cost applicable to that portion of the project which is currently being carried in a deferred status.

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
24.	Van Bibber Creek, CO	New Work:					
		Approp.	(7,200)	47,000	133,000	71,000	1,317,589
		Cost.	10,401	62,188	127,656	79,524	1,317,284
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	125,200
		Cost.	------	------	------	------	125,200
	Consolidated Summary	New Work:					
		Approp.	(7,200)	47,000	133,000	71,000	1,442,789
		Cost.	10,401	62,188	127,656	79,524	1,442,484
25.	Wood River, Grand Island, NE	New Work:					
		Approp.	386,000	991,128	1,398,000	4,614,000	8,389,128
		Cost.	409,029	1,240,249	1,442,676	4,591,324	8,351,285
	Required Contributed Funds	New Work:					
		Approp.	------	------	221,026	488,974	710,000
		Cost.	------	------	------	516,614	516,614
	Consolidated Summary	New Work:					
		Approp.	386,000	991,128	1,619,026	5,102,974	9,099,128
		Cost.	409,029	1,240,249	1,442,676	5,107,938	8,867,899
26.	Inspections of Completed Local Protection Projects	Maint.					
		Approp.	160,269	229,200	221,000	251,000	6,318,945
		Cost.	160,371	229,743	219,972	250,512	6,317,429
27.	Scheduling Flood Control Reservoir Operations	Maint.					
		Approp.	345,996	300,039	303,000	335,000	10,700,719
		Cost.	348,525	299,610	298,986	338,126	10,699,137
29.	California Bend, NE	New Work					
		Approp.	200,495	75,000	------	1,960,000	2,680,995
		Cost.	192,614	78,036	9,265	1,954,134	2,673,266
	Required Contributed Funds	New Work.					
		Approp.	100,000	------	------	250,000	350,000
		Cost.	3,985	38,424	46,330	186,165	274,904
	Consolidated Summary	New Work.					
		Approp.	300,495	75,000	------	2,210,000	3,030,995
		Cost.	196,599	116,460	55,595	2,140,299	2,948,170
30.	Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe, and State of SD Terrestrial Wildlife Habitat Restoration, SD	New Work.					
		Approp.	2,500,000	4,636,855	7,390,000	8,362,000	22,888,855
		Cost.	893,862	6,058,974	7,368,425	6,984,819	21,306,080
		Maint:					
		Approp.	------	------	------	4,758,980	4,758,980
		Cost.	------	------	------	4,758,980	4,758,980
31.	Fort Peck Fish Hatchery, Fort Peck, MT	New Work:					
		Approp.	------	------	1,540,000	3,517,000	5,057,000
		Cost.	------	------	1,395,145	3,338,512	4,733,657

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
32.	Hidden Lake/ Great Marsh, NE	New Work. Approp.	15,000	15,000	5,000	5,604	2,261,604
		Cost.	12,600	15,172	14,466	6,101	2,261,604
	Required Contributed Funds	New Work: Approp.	------	------	------	14,050	664,050
		Cost.	(1,358)	879	4,833	17,147	664,050
	Consolidated Summary	New Work. Approp.	15,000	15,000	5,000	19,654	2,925,654
		Cost.	11,242	16,051	19,299	23,248	2,925,654
33.	Lower Decatur, NE	New Work. Approp.	205,000	70,000	90,000	63,500	1,103,500
		Cost.	178,845	86,400	100,051	78,423	1,101,208
34.	Missouri River Fish & Wildlife Mitigation, IA, NE, KS, MO	New Work: Approp.	4,700,000	2,075,000	3,978,000	6,078,000	39,094,000
		Cost.	4,258,705	3,377,896	4,023,429	5,813,772	38,807,338
35.	Nathan's Lake/ Deer Creek Aquatic Habitat Improvement, NE	New Work. Approp.	135,000	143,000	86,000	35,000	524,000
		Cost.	19,178	254,312	90,293	32,244	519,321
	Required Contributed Funds	New Work. Approp.	------	72,000	------	------	122,000
		Cost.	18,241	22,281	50,548	------	121,986
	Consolidated Summary Funds	New Work. Approp.	135,000	215,000	86,000	35,000	646,000
		Cost.	37,419	276,593	140,841	32,244	641,307
36.	Rural Montana, Montana	New Work. Approp.	------	------	410,000	175,000	585,000
		Cost.	------	------	408,203	174,208	582,411
37.	Upper Central Platte Valley, Colfax Reach	New Work. Approp.	536,000	1,280,000	2,565,000	98,000	4,479,000
		Cost.	524,733	1,257,845	2,476,414	188,037	4,447,029
38.	Wehrspann Lake Aquatic	New Work. Approp.	273,000	14,000	18,000	100,000	2,079,000
		Cost.	349,497	14,147	9,528	83,908	2,054,368
	Required Contributed Funds	New Work. Approp.	94,000	------	38,000	27,500	665,500
		Cost.	223,616	21,394	41,985	45,717	636,088
	Consolidated Summary Funds	New Work. Approp.	367,000	14,000	56,000	127,500	2,744,500
		Cost.	573,113	35,541	51,513	129,625	2,690,456

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
39.	Big Bend Dam-Lake Sharpe, Missouri River Basin, SD	New Work:					
		Approp.	------	------	------	------	107,497,597
		Cost.	------	------	------	------	107,497,597
		Maint.					
		Approp.	6,515,756	5,840,398	5,619,227	6,836,000	140,446,954 4/
		Cost.	6,479,037	5,492,538	5,985,438	6,836,807	140,418,375 4/
40.	Fort Peck Lake, MT	New Work:					
		Approp.	------	------	------	134,035	158,562,115
		Cost.	------	------	------	114,529	158,542,609
		Maint.					
		Approp.	4,031,141	5,453,523	5,977,966	5,282,329	121,414,793 4/
		Cost.	4,078,081	5,358,928	5,188,705	4,914,772	120,155,002 4/
41.	Fort Randall Dam-Lake Francis Case, Missouri River Basin, SD	New Work:					
		Approp.	------	------	------	------	199,065,883
		Cost.	------	------	------	------	199,065,883
		Maint.					
		Approp.	7,968,478	8,267,771	8,646,611	8,500,000	212,447,994 4/
		Cost.	7,963,253	8,005,448	7,796,989	9,206,584	212,032,858 4/
42 & 43.	Garrison Dam Lake Sakakawea, Missouri River Basin, ND	New Work:					
		Approp.	------	------	------	------	295,729,613
		Cost.	------	------	------	------	295,729,613
	Federal Funds	Maint					
		Approp.	8,063,896	9,546,471	9,399,820	10,222,000	230,561,860 4/
		Cost.	8,060,510	8,928,405	9,173,004	10,526,308	230,013,968 4/
		Major Rehab:					
		Approp.	8,500,000	7,304,000	7,720,500	7,925,500	41,567,310
		Cost.	5,558,299	10,756,437	7,738,363	7,968,367	41,565,841
	Required Contributed Funds	Approp.	------	------	------	------	686,961
		Cost.	------	------	------	------	686,961
44.	Gavins Point Dam-Lewis & Clark Lake, Missouri River Basin, NE and SD	New Work:					
		Approp.	------	------	------	------	49,617,239
		Cost.	------	------	------	------	49,617,239
		Maint:					
		Approp.	5,889,002	6,494,579	6,366,842	6,227,000	156,852,835 4/
		Cost.	5,908,727	6,485,674	6,306,570	6,243,439	156,784,436 4/
45.	Oahe Dam-Lake Oahe, Missouri River Basin, SD & ND	New Work:					
		Approp.	------	------	------	------	346,520,603
		Cost.	------	------	------	------	346,520,603
		Maint:					
		Approp.	12,236,271	10,287,948	10,711,911	8,354,468	240,226,298 4/
		Cost.	12,253,913	9,970,228	10,337,770	8,598,318	239,753,063 4/

4/ Includes Special Recreation Use Fees.

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
46.	Missouri River Between Ft. Peck Dam MT & Gavins Point Dam, SD and NE	Maint.					
		Approp.	227,000	344,740	654,000	594,916	8,475,656
		Cost.	285,554	345,072	652,931	595,985	8,475,656
47.	Pierre, SD	New Work:					
		Approp.	7,500,000	6,512,000	6,904,000	4,906,200	26,162,200
		Cost.	6,009,111	7,960,685	6,831,235	4,865,674	26,005,987
48.	Missouri River Master Water Control Manual Review and Update	Maint:					
		Approp.	669,109	896,290	1,906,778	606,492	27,388,670 5/
		Cost.	662,650	951,193	1,637,214	595,450	27,108,064 5/

5/ Included in the Miscellaneous Section of the Text.

TABLE 26-B **AUTHORIZING LEGISLATION**

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA TO RULO, NE)**	
	Jan 12, 1927	Appropriation of $12 million authorized for securing a 6 foot depth from Quindaro Bend (Kansas City, MO to Sioux City, IA).	H. Doc. 1120, 69th Cong.
	July 3, 1930	Appropriation of $15 million additional allotments totaling $29,153,108 made bv Public Works Administration under provisions of National Industrial Recovery Act of 1933, and $9,669,791 allotted under provisions of Emergency Relief Appropriations Act of 1935.	PL 71-520 PL 73-67
	Aug 30, 1935	For completion of project from mouth to Sioux City, IA.	H. Doc 238, 73rd Cong. PL 74-409
	Mar 2, 1945	For a channel of 9-foot depth and 300-foot width.	H. Doc. 214, 76th Cong. PL 79-14
3.		**ABERDEEN & VICINITY, SD**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
4.		**ANTELOPE CREEK, LINCOLN, NEBRASKA**	Section 101(b)(19)
	Water Resources Development Act Of 2000	A flood control project for channel improvement upstream from the mouth of Antelope Creek to the downtown area.	PL 106-541
5.		**BEAR CREEK LAKE, CO**	
	Aug 13, 1968	A flood control reservoir for protection of metropolitan Denver, CO.	S. Doc. 87, 90th Cong. PL 90-483
6.		**BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SD**	
	Water Resources Development Act Of 1996	A flood control project for raising levees and diversion dams, modification of chute and stilling basin, and providing bridge improvements.	Section 101 PL 104-303
7.		**BOWMAN-HALEY LAKE, ND**	
	Flood Control Act of 1962	Flood Control reservoir and water supply.	H. Doc. 574, 87th Cong. PL 87-874
8.	Section 336(a) Water Resources Development Act Of 1996	**BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISTION)**	PL. 104-303
9.		**CHATFIELD LAKE, CO**	
	Flood control Act of 1950	Flood control reservoir and channel improvements to provide downstream protection for Denver, CO.	H. Doc. 669, 80th Cong. PL 81-516
	Water Resources Development Act of 1986	Modified 1950 Flood Control Act to operate dam and other Federal improvements to achieve authorized level of protection, beginning at dam and ending 82 miles downstream. Reassigns a portion of the storage space in the lake project to joint flood control-conservation purposes. Modified 1974 WRDA to exempt prohibition of encroach-ment for Mineral Ave/ Ken Caryl Rd. ext & transmission line.	H. Doc. 1013, 99th Cong. PL 99-662

TABLE 26-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
10.		**CHERRY CREEK LAKE, CO**	
	Aug 18, 1941	Initiation and partial accomplishment of project.	H. Doc. 426, 76th Cong. PL 77-228
	Dec 22, 1944	Completion of plan approved in Act of Aug 18, 1941.	H. Doc. 426, 76th Cong. PL 78-534
	Dec 22, 1944	General comprehensive plan, Missouri River Basin.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534
11.		**FALL RIVER BASIN, SD**	
	Aug 18, 1941	Provide flood control to the town of Hot Springs, SD.	H. Doc. 655, 76th Cong. PL 77-228
12.		**LOGAN CREEK, PENDER, NE**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
13.		**MILK RIVER, MALTA, MT**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
14.		**MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD**	
	National Parks and Recreation Act of 1978	Preservation and enhancement of the Missouri River between the reaches from Gavins Point Dam, NE & SD to Ponca State Park, NE.	PL 95-625
15.		**MISSOURI RIVER, KENSLERS BEND, NE , TO SIOUX CITY, IA**	
	Aug 18, 1941 June 30, 1948	Construction of dike, revetments.	H. Doc. 821, 76th Cong. PL 77-228 PL 80-858
16.		**NISHNABOTNA RIVER, HAMBURG, IA**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
17.		**PAPILLION CREEK AND TRIBUTARIES LAKES, NE**	
	Flood Control Act of 1968	Series of flood control reservoirs, providing protection for the metropolitan areas of Omaha, NE.	H. Doc. 349, 90th Cong. PL 90-485
	Water Resources Development Act of 1986	Authorized additional $4.8 million for channel improvement on Big Papillion Creek, and to Union Pacific RR bridge, recreation trail and flood warning system.	H. Doc. 1013, 99th Cong. PL 99-662
18.		**PEBBLE CREEK, SCRIBNER, NE**	
	June 30, 1948	Levee and channel improvement for local protection - Section 205.	858, 80th Cong.
19.		**PERRY CREEK, IA**	
	Water Resources Development Act of 1986 and 2000	Provide flood protection for Perry Creek, Iowa.	Section 401a, PL 99-662 Section 227 PL 106-541 Section 151 PL 108-357

TABLE 26-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
20.		**PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DIST.)**	
	June 28, 1938	Adopted general comprehensive plan for Missouri River basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong. PL 75-761
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE and authorized additional $7 million.	H. Doc. 842, 76th Cong. PL 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized additional $200 million.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534
	July 24, 1946	Authorized additional $150 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 79-526
	May 17, 1950	Authorized additional $250 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 81-516
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized additional $217,710,000.	H. Docs. 549 and 642, 81st Cong. PL 83-780
	Sep 3, 1954	Authorized $5,384,014 to compensate Sioux Indians for reservation lands required for Oahe, South Dakota project.	PL 83-776
	May 2, 1956	Modified general comprehensive plan for Missouri River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	PL 84-505
	July 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized additional $200 million.	H. Doc. 409, 84th Cong. PL 85-500
	July 14, 1960	Authorized additional $207 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 86-645
	Dec 30, 1963	Authorized additional $80 million for prosecution of general comprehensive plan for Missouri River Basin and modified the plan to include work protection and rectification works below Garrison Dam.	PL 88-253
	June 18, 1965	Authorized additional $116 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 89-042
	Aug 13, 1968	Authorized additional $38 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 90-483
	June 19, 1970	Authorized additional $109 million for prosecution of general comprehensive plan for Missouri River Basin.	H. Doc. 91-748 and S. Doc. 91-895 PL 91-282
	Dec 24, 1970	Changed comprehensive plan name to Pick-Sloan Missouri Basin Program.	S. Doc. 91-1100, 91st Cong. PL 91-576
	Dec 31, 1970	Oahe Dam and Reservoir, ND.	H. Doc. 91-23 and PL 91-611
	Dec 23, 1971	Authorized additional $101 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 92-222
	Mar 7, 1974	Authorized additional $72 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 93-251
	July 8, 1976	Authorized additional $85 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 94-347
	Nov 16, 1977	Authorized additional $59 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 95-189
21.		**PIPESTEM LAKE, ND**	
	Flood Control Act of 27 Oct 1965	Provide flood control for Jamestown, ND and downstream areas.	H. Doc. 266, 89th Cong. PL 89-298

TABLE 26-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
22.		**SALT CREEK AND TRIBUTARIES, NE**	
	July 3, 1958	Series of dams and channel improvements for flood control around Lincoln, NE.	H. Doc. 396, 84th Cong. PL 85-500
23.		**SOUTH PLATTE RIVER BASIN, CO**	
	May 17, 1950	Adopted plan of improvement for South Platte River Basin and authorized $26.3 million for initiation and partial accomplishment.	H. Doc. 669, 80th Cong. PL 81-516
	May 12, 1967	Authorized additional $2 million for prosecution of plan.	PL 90-17
	Aug 13, 1968	Authorized additional $12 million for prosecution of plan.	PL 90-843
	Jun 19, 1970	Authorized additional $21 million for prosecution of plan.	PL 91-282
	Dec 23, 1971	Authorized additional $37 million for prosecution of plan.	PL 92-222
	Mar 7, 1974	Authorized additional $15 million for prosecution of plan.	PL 93-251
	Jul 8, 1976	Authorized additional $22 million for prosecution of plan.	PL 94-347
	Nov 16, 1977	Authorized additional $3 million for prosecution of plan.	PL 95-189
24.		**VAN BIBBER CREEK, CO**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
25.		**WOOD RIVER,GRAND ISLAND, NE**	Section 101k
	Water Resources Development Act Of 1996 and 1999	Five-mile long diversion channel with levees.	PL 104-303 and Section 335 PL 106-53
29.	Nov 17, 1986	**CALIFORNIA BEND, NE**	
		Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
30.		**CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE AND STATE OF SOUTH DAKOTA AND TERRESTRIAL WILDLFE HABITAT RESTORATION**	
	Water Resources Development Act of 1999 and 2000	Land transfer, mitigation and cultural work within the State of South Dakota	PL 106-53 Section 540 PL 106-541
31.		**FORT PECK FISH HATCHERY, MONTANA**	Section 325
	Water Resources Development Act	The project will establish a multispecies hatchery for threatened and endangered native fish recovery.	PL 106-541
32.		**HIDDEN LAKE/GREAT MARSH**	
	Nov 17, 1986	Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
33.		**LOWER DECATUR, NE**	
	Nov 17, 1986	Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662
34.		**MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, MO**	
	Water Resources Development Act of 1986 and 1999	Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53

TABLE 26-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
35.		**NATHAN'S LAKE, NE**	
	Water Resources Development Act Of 1986	Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53
36.		**RURAL MONTANA, MT**	Section 595 PL 106-53
	Water Resources Development Act Of 1999	The authorization will establish a program for providing environmental assistance to non-federal interests in Montana.	
37.		**UPPER CENTRAL PLATTE VALLEY, COLFAX REACH**	PL 99-662
	Nov 17, 1986	Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	
38.		**WEHRSPANN LAKE AQUATIC, NE**	
	Nov 17, 1986	Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662
39.		**BIG BEND DAM - LAKE SHARPE, SD**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
40.		**FORT PECK LAKE, MT**	
	June 16, 1933 Aug 30, 1935	Construction of earth dam, as recommended by Chief of Engineers Sep 30, 1933, was approved by Executive Order by the President and included in Public Works Administration program, Oct 14, 1933 as authorized by the National Industrial Recovery Act of 1933 and adopted by the River and Harbor Act of 1935 (PL 74-409).	H. Doc. 238, 73rd Cong. PL 74-409
	May 18, 1938	Completion, maintenance, and operation of a hydroelectric power plant, subject to certain provisions in act respecting transmission and sale of electric energy. Also authorizes installation of additional power-generating facilities by Secretary of War when deemed necessary in judgment of Bureau of Reclamation.	PL 75-529
41.		**FORT RANDALL DAM - LAKE FRANCIS CASE, SD**	
	Dec 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534
42 – 43.		**GARRISON DAM - LAKE SAKAKAWEA, MISSOURI RIVER BASIN, ND**	
	Dec. 22, 1944 PWA 1968	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
44.		**GAVINS POINT DAM - LEWIS AND CLARK LAKE, MISSOURI RIVER BASIN, NE AND SD**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
45.		**OAHE DAM - LAKE OAHE, MISSOURI RIVER BASIN, SD & ND**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.

TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
46.		**MISSOURI RIVER BETWEEN FT. PECK DAM ,MT & GAVINS POINT DAM, SD & NE**	
	Water Resources Development Act of 1988	Undertake measures to alleviate bank erosion and related problems associated with releases along the Missouri River from the six main stem dams.	Section 33, PL 100-676
47.		**PIERRE, SD**	
	Water Resources Development Act of 1999	Mitigation for flooding caused by the Oahe Dam Project to the cities of Pierre and Ft. Pierre, SD.	PL 106-53
48.		**MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE**	
	Dec 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534

TABLE 26-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Cost Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Missouri River, Sioux City, IA to Fort Benton, MT	Complete	1948	3,123,141	644,863
Small Navigation Project at Sioux City, IA	Complete	1970	43,582	88,716

TABLE 26-E **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

Project	Status	For Last Cost Full Report See Annual Report For	Construction	Cost to September 30, 2003 Operation and Maintenance
Belle Fourche, Cheyenne River, SD 1/	Complete	1940	37,410	
Big Sioux River at Sioux City, IA 3/	Complete	1982	7,479,899	-
Blackbird Creek Near Macy, NE 2/	Complete	1970	262,479	-
Buffalo Creek, Meadow Grove, NE 2/	Complete	1974	293,016	-
Buffalo Creek, Scranton, ND 2/	Complete	1960	102,980	-
Cedar Canyon Dam, Rapid City, SD	Complete	1960	120,482	-
City of Aurora, Westerly Creek, CO	Complete	1955	150,000	-
Clarkson, NE, Maple Creek	Complete	1967	191,282	-
Council Bluffs, IA (Act of 1936)	Complete	1939	-	-
Council Bluffs, IA (Act of 1944)	Complete	1954	2,557,680	-
Deadman's Gulch, Sturgis, SD 2/	Complete	1981	3,000,000	-
Dry Creek, Hawarden, IA	Complete	1964	400,000	-
East Nishnabotna River at Red Oak, IA 2/	Complete	1986	2,154,016	-
Floyd River, Sioux City, IA	Complete	1970	11,556,667	-
Forsyth, MT	Complete	1950	255,177	-
Frazer-Wolf Point, MT	Complete	1982	435,000	-
Gering Valley, NE	Complete	1971	5,989,663	-
Glasgow, MT	Complete	1939	16,832	-
Great Falls, MT	Complete	1991	11,905,000	-
Greybull, WY	Complete	1960	248,507	-
Havre, MT	Complete	1958	1,825,881	-
Herreid, Spring Creek, SD	Complete	1954	50,216	-
Hooper, NE 2/	Complete	1968	326,667	-
Ida Grove, IA 2/	Complete	1972	522,344	-
Indian Creek at Emerson, IA 2/	Complete	1986	333,000	-
Jamestown Reservoir, ND	Complete	1950	-	-
Linton, ND 2/	Inactive	1973	-	-
Little Papillion Creek, NE	Complete	1976	3,643,111	-
Little Sioux River, IA	Complete	1992	20,630,000	-
Loup River, Columbus, NE 2/	Complete	1973	1,000,000	-
Lower Heart River, ND	Complete	1964	1,961,173	-
Lower Heart River, Mandan, ND 2/	Complete	1991	1,153,430	-
Madison, NE, Union and Taylor Creeks 2/	Complete	1967	234,839	-
Mandan, Heart River, ND	Complete	1960	676,916	-
Marmarth, ND	Complete	1960	169,498	-
McCook Lake, SD	Complete	1958	147,627	-
Miles City, MT	Inactive	1956	-	-
Missouri River, Aten, NE	Complete	1951	578,791	-

1/ Completed as a Public Works Administration project.
2/ Authorized by Chief of Engineers.
3/ **Design Deficiency Correction initiated in FY00**.

TABLE 26-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Missouri River Levee System, IA, NE, KS and MO	Complete	1993	37,964,177	-
Missouri River, Niobrara, NE	Complete	1945	99,370	-
Mott, ND	Deferred	-	-	-
Mud Creek, Broken Bow, NE 2/	Complete	1976	1,000,000	-
Nishnabotna River at Hamburg, IA	Complete	1948	236,000	-
Norfolk, NE	Complete	1971	3,400,504	-
Omaha, NE	Complete	1954	5,903,640	-
Pierce, NE	Complete	1967	296,597	-
Platte River Near Schuyler, NE 2/	Complete	1948	74,940	-
Platte River and Lost Creek, Schuyler, NE	Complete	1971	257,398	-
Platte River and Tributaries, NE	Inactive	-	1,538,269	-
Rapid Creek, Rapid City, SD	Complete	1980	1,004,000	-
Saco, MT	Complete	1958	67,793	-
Sacred Heart Hospital, Yankton, SD	Complete	1978	184,380	-
Sheridan, WY 3/	Complete	1976	2,618,809	-
Shields River, Near Clyde Park, MT 2/	Complete	1951	25,747	-
Sioux Falls, SD	Complete	1966	5,288,707	-
Thurman to Hamburg, IA	Complete	2001	1,438,350	
Vaughn, MT, Sun River 2/	Complete	1971	457,582	-
Waterloo, NE	Complete	1970	237,883	-
West Point, NE	Complete	1966	149,596	-
Yellowstone River, W. Glendive, MT	Complete	1960	230,294	-

2/ Authorized by Chief of Engineers.
3/ Includes inactive segment.

TABLE 26-F OTHER MULTIPLE PURPOSE PROJECTS INCLUDING POWER

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Gavins Point Dam - Lewis and Clark Lake, Relocation of Niobrara, NE	Complete	1980	13,516,459	-
Williston, ND Water Intake	Complete	1981	988,583	-

TABLE 26-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Billings, MT (Western Unit)	1976	Sec. 201, FC Act 1950 23 Mar 81	75,000	-
Boulder, CO	1976	FC Act 1950 WRDA of 1986 17 Oct 86	142,666	-
Buffalo, Johnson County Diversion Channel, WY	1961	FC Act 1950 WRDA of 1986 17 Oct 86	-	-
Castlewood Lake, Douglas County, CO	1943	PL 77-228 WRDA of 1986 17 Oct 86	-	-
Davids Creek Lake, IA	1972	Sec. 203, PL 90-483 WRDA of 1986 17 Oct 86	-	-
Dayton, WY	1956	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	-	-
Elm Creek at Decatur, NE	N/A	Sec. 1001(b) WRDA of 1986	70,000	-
Giles Creek, Elkhorn, NE	1952	Sec. 12, PL 93-251 WRDA of 1974 6 Nov 77	-	-
Indian Creek Lake, IA	1969	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	135,000	-
Lake Herman (Dredging), SD	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Little Nemaha River, Nemaha County, NE	1973	Sec. 204, PL 89-298 WRDA of 1986 17 Oct 86	-	-
Milk River, Havre, MT	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Miles City, MT	1982	FC Act of 1950 Section 1001(b) WRDA 1986	282,200	-
Morrison, Bear Creek, CO	1950	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	30,000	-
Mott, ND	N/A	Sec. 1001(b) WRDA of 1986	-	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD;,Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R66l, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

TABLE 26-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Oahe Dam - Lake Oahe (Wildlife Restoration), ND	N/A	FC Act of 1970 Section 1001(b) WRDA 1986	0	-
Redwater River and Hay Creek, Bell Fourche, SD	1966	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	1,000	-
Shell Creek, NE	1962	Sec. 12, PL 93-251 WRDA of 1974 3 Oct 78	71,000	-
Upper Missouri River, SD Streambank Erosion Control Project	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Vermillion River and Tribs, SD	1968	Sec. 12 PL 93-251 WRDA of 1974 4 Jan 74	208,000	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD;,Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R66l, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

MISSOURI RIVER LEVEE SYSTEM, SIOUX CITY, IA TO RULO, NE

TABLE 26-H

	Unit	Miles of Levee	Status
L627-624	Mosquito Creek Levee	14.2	Complete 1950
L601	Watkins-Waubonsie Ditch Levees	15.0	Complete 1966
L594	Pleasant Valley Levee	11.4	Complete 1964
R580	Nebraska City Levee	0.2	Complete 1950
L575	Thurman-Hamburg Levee	45.8	Complete 1950
R573	Otto County Drainage District No. 2	5.9	Complete 1950
R562	Peru Dike	7.6	Complete 1950
L561-550	Atchison County Levee District No. 1	41.3	Complete 1952
R548	Brownville-Nemaha Levee	19.5	Complete 1952
L536	Mill Creek Levee	13.6	Complete 1952
R520	Richardson County Drainage District No. 8	6.3	Complete 1960
R613	Papillion Creek-Platte River Levee	14.0	Complete 1971
R616	Bellevue-Papillion Creek Levees	4.5	Complete 1987
L611-614	Mosquito-Keg Creek Levees	22.0	Complete 1988
L627, L624, L561-550	Remedial Studies on Completed Units		Studies Complete
Comprehensive	Restudy of Levee System		Studies Complete

PICK-SLOAN MISSOURI RIVER BASIN PROGRAM

TABLE 26-I **(See Section 20 of Text)**

Project	Estimated Federal Cost	Estimated Non-Federal Cost
Fort Peck Lake, MT 1/, 2/	158,428,000	1,103,000
Garrison Dam, Lake Sakakawea, ND 1/, 2/ 3/	337,295,431	1,516,000
Missouri River Levee System, IA, NE, KS and MO (Sioux City, IA to Rulo, NE) 1/	37,931,000	4,618,000
Oahe Dam-Lake Oahe, SD and ND 1/, 2/	346,521,000	2,320,000
Big Bend Dam-Lake Sharpe, SD 1/, 2/	107,498,000	302,000
Fort Randall Dam, Lake Francis Case, SD 1/, 2/	199,066,000	1,609,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE 1/, 2/	49,617,000	137,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE-Relocation of Niobrara, NE 2/	13,516,000	-
Omaha, NE 2/	5,904,000	362,000
Council Bluffs, IA 2/	2,558,000	146,000
Missouri River, Garrison Dam to Lake Oahe, ND 2/	9,413,000	270,000
Cherry Creek Lake, C0 1/, 2/	15,220,000	285,000

1/ Details presented on individual report. **2/ Completed.** **3/ Active portion of project.**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J **(See Section 26 of Text)**

Location	Month Inspected
Montana	
* Clyde Park, Shields River	Sep 99
* Yellowstone River, Water Plant, Livingston	Sep 02
* Milk River, Malta (Sewer Line)	Oct 02
* Yellowstone River, Livingston (N.E. Livingston Bridge)	Sep 02
* Milk River, Chinook (Finley Bridge)	Oct 02
* Battle Creek, Chinook (Uhruh Bridge)	Sep 02
* East Gallatin, Near Bozeman (Intst Bridge)	Sep 02
* Yellowstone River, Near Livingston (Hwy 89 - 7 Miles East of Livingston)	Sep 02
* Shields River, Near Livingston (Hwy 89)	Sep 02
* Teton River, Near Choteau (Hwy 89)	Oct 02
* Madison River, Quake Lake	Sep 03
* Milk River, Malta	Oct 00
* Missouri River, Bank Stabilization Project, Frazer	Sep 94
* Dearborn River - Hwy 287, Wolf Creek	Oct 02
* Muddy Creek - Int Hwy 15 - Frontage Road, Vaughn	Oct 02
* Badger Creek - Hwy 89, Browning	Sep 02
* Yellowstone River, Glendive	Sep 03
* Coulsen Park, Yellowstone	Sep 02
* Missouri River, Culbertson	Sep 02
* Wolf Point, Missouri River	Oct 02
- Saco, MT, Beaver Creek	Oct 01
- Glasgow, MT, Milk River	Nov 02
- Havre, MT, Milk River	Oct 02
- Forsythe, MT, Yellowstone River	Sep 03
- West Glendive, MT, Yellowstone River	Sep 02
- Vaughn, MT, Sun River	Oct 02
- Great Falls, MT, Sun River	Oct 02
- Malta, MT, Milk River	Oct 02
- Havre, MT, Bull Hook Dam	Oct 02
- Havre, MT, Scott Coulee Dam	Oct 02
**Cotton Wood Levee, Glendive, Montana	Dec 00
Wyoming	
* Baldwin Creek, Lander (Sewage Lagoons)	Sep 03
* Shoshone River, Bank Protection, Lovell	Aug 92
* Shoshone River, Byron	Sep 02
* Powder River, Arvada	Oct 02
* Medicine Bow River, Elk Mountain	Jan 97
* Tongue River, Ranchester, WY	Oct 02
- Greybull, WY, Big Horn River	Sep 03
- Sheridan, WY, Big and Little Goose Creeks	Sep 03
North Dakota	
* Cannonball River	Oct 97
- Mandan, ND, Lower Heart River	Sep 02
- Marmarth, ND, Little Missouri River	Sep 02
- Scranton, ND, Buffalo Creek	May 03

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Colorado	
* South Platte River, Kersey	Sep 99
* South Platte River, Merino	Sep 99
* South Platte River, Iliff	Aug 99
* South Platte River, Platteville	Sep 99
* Big Thompson River, Johnstown	Sep 99
* Cache La Poudre River, Ft. Collins (Water Treatment Plant)	Sep 96
* South Platte River, Fort Lupton Hwy 85	Aug 99
* South Platte River, Logan County (Bridges 175A & 173)	Sep 99
* Downstream Chatfield, Denver	Jun 01
* South Platte, Ft. Lupton WWTP	Aug 99
* S. Platte River, Weldona	Sep 96
* Cache La Poudre, Boxelder Sanitation	Jun 00
* S. Platte, Weld Cty Bridges (Hwy 28, 61 & 87)	Sep 96
- Aurora, CO, Westerly Creek	Jun 03
- Aurora, CO, Kelley Road Dam	Jun 03
- Littleton Chatfield Downstream Channel, Denver, CO	Jun 03
** Town of Wiggins, CO	May 01
** Town of Erie, CO	May 01
** Fort Collins North, CO	May 01
** Fort Collins Wastewater Treatment Plant, CO	May 01
South Dakota	
* Missouri River, Bank Protection, Greenwood	Sep 02
* Bad River, Bank Protection, Fort Pierre	Jun 00
* Big Sioux River, Schofield Bridge, Near Flandreau	Jun 00
* Rapid Creek, Rapid City	Sep 99
* Missouri River, Sacred Heart Hospital, Yankton	Aug 97
* Vermillion River, Vermillion	Jun 01
* Big Sioux River, Harrisburgh	Jun 00
* Big Sioux River, Jefferson	Jun 00
* Marne Creek, Yankton	Jun 01
* White River, Winner	Sep 02
* James River, Yankton	Jul 01
* Missouri River, White Swan & Sunshine Bottoms	Aug 98
* Big Sioux River, Plymouth County	Jun 99
* Vermillion River, Vermillion WWTP	Jun 01
- Elk Point, SD, Big Sioux River, Union County	Jun 03
- Big Sioux River, North Sioux City, SD	Jun 03
- Sioux Falls, SD, Big Sioux River	Jun 03
- Belle Fourche, SD, Belle Fourche River	Sep 03
- Rapid City, SD, Rapid Creek	Sep 03
- Rapid City, SD, Cedar Canyon	Sep 03
- Hot Springs, SD, Fall River Channel	Sep 03
- Herreid, SD, Spring Creek	Sep 03
- Sturgis, SD, Deadman Gulch	Sep 03
** City of Waubay, SD	Dec 99
** Centerville, SD	Feb 97

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Nebraska	
* Blackbird Creek, Burt County	Apr 01
* Platte River, Brady	Apr 03
* Elm Creek, Decatur	Apr 01
* Nebraska City South Table Creek	Jul 02
* Wigle Creek, Homer	Nov 01
* South Elkhorn River, near Ewing, NE	Apr 03
* Elk Creek, Jackson	Nov 01
* Elk Creek, Willis	Nov 01
* Middle Pebble Creek, Snyder	Jun 01
* Elm Creek, Burt County	Apr 01
* Platte River, Camp Ashland	Nov 01
* West Branch Papillion Creek, Omaha, NE	Nov 01
* Logan Creek, Near Bancroft	Nov 01
* Platte River, Near North Bend	Oct 01
* Elkhorn River, Near Beemer	May 01
* East Bow Creek, Wynot	Jun 01
* Cedar River, Spalding	Dec 01
* Bassett, Niobrara River	Aug 01
* Scottsbluff, Nine Mile Drain	Sep 96
* O'Neill, Redbird Creek	Sep 02
* Johnstown, Plum Creek	Sep 02
* St. Edwards, Beaver Creek	Dec 01
* Martinsburg, South Creek	Nov 01
* Ginger Cove, Platte River	Apr 01
* Elkhorn River, Omaha	Dec 92
* Little Papio Creek, Omaha	Oct 98
* Muddy Creek, Syracuse	Oct 94
* Valley, Platte River	Oct 94
* Hanson Chris Lake, Platte River	Feb 02
- Sioux City, NE, Perry Creek	Aug 03
- Macy, NE, Blackbird Creek	Jul 03
- Lincoln,NE, Salt Creek & Tributaries	May 03
- Meadow Grove, NE, Buffalo Creek	May 03
- Columbus, NE, Loup River	Aug 03
- Broken Bow, NE, Mud Creek	Aug 03
- Lost Creek, Columbus, NE	Aug 03
- Omaha, NE Missouri River	Aug 03
- Waterloo, NE, Elkhorn River	Apr 03
- West Point, NE, Elkhorn River	May 03
- Pierce, NE, Elkhorn River	Jul 03
- Clarkson, NE, Middle Fork, Maple Creek	Jun 03
- Hooper, NE, Elkhorn River	May 03
- Norfolk, NE, North Fork, Elkhorn River	May 03
- Madison, NE, Union & Taylor Creeks	May 03
- Schuyler, NE, Lost Creek & Platte River	Sep 03

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Nebraska (Continued)	
- Pender, NE, Logan Creek	Jul 03
- Little Papillion Creek, Omaha, NE	Oct 98
- Scribner, NE, Elkhorn River	Jun 03
- Howells, NE, Maple Creek	Jun 03
- Big Papio Creek, Omaha, NE	Aug 02
- Gering, NE, Gering Drain	May 02
- Sidney, NE, Lodgepole Creek	May 02
Missouri River Levees	
- L624 & L627, Mosquito Creek & Sieck Levees, Council Bluffs, IA	Jul 01
- L601, Watkins Levee District	Aug 02
- L601, Miller-Sturgeon Levee District	Jan 03
- L601, Missouri River Levee District #1	Aug 02
- L594, Waubansie Drainage District	Aug 02
- L594, Pleasant Valley Levee District	Aug 02
- L575, Benton-Washington Levee District	Apr 03
- L575, Northwest Atchison Levee District	Dec 99
- L575, McKissock Island Levee District	Aug 03
- L575, Buchannan Levee District	Aug 03
- L575, Missouri River Levee	Aug 03
- L561, L550, L536, Atchison County Levee District	Jul 03
- L611-614, M & P Missouri River Levee District	Jul 03
- R613, Papio Natural Resources District	Sep 02
- R548, Little Nemaha Levee District, Brownville, NE	Aug 02
- R548, Little Nemaha Levee District #3	Sep 02
- R520, Richardson Co. Levee Dist. #8	Sep 02
- R573, Otoe County Drainage Dist. #2	Sep 99
- R616, Sarpy County Papio Natural Resources District	Sep 02
- R562, Peru Levee District	Sep 02
**Union Dike, Valley, NE	Sep 99
**No Name Dike, Valley, NE	Sep 99
**Big Papio Cr. West Branch 96th – 44th, Papillion, NE	Oct 99
**YMCA Camp Kataki, South Bend, NE	Nov 98
**Omaha Fish & Wildlife Club, NE	Apr 00
**Clear Creek, Ashland, NE	Oct 00
**Lake Waconda SID #1, Union, NE	Sep 00
**Hawaiian Village SID #97, Papillion, NE	Sep 00
**Ames Diking District, Ames, NE	Jan 99
**SID #101 Hansen Lake	Jun 00
**Fremont County Bd of Sup Peterson	Jul 99
**Big Papio L st to Capehart Rd, Omaha, NE	Feb 00
**Whitehead, Riverton, IA	Aug 99
**Cottrelle Diking District	Jul 99
**Corning Levee Dist #2 Mill Creek D.D.	May 00

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Iowa	
* West Nishnabotna River, Mills County Bridge, Near Malvern	Apr 02
* East Nisbnabotna River, Page County Bridge, Near Essex	Jul 99
* Mucky Creek, Mapleton, IA	Oct 01
* Little Sioux River, Anthon	Oct 01
* Keg Creek, Minden	Mar 02
* Soldier River, Near Ute	Oct 01
* Hastings Bridge, W. Nishnabotna, Mills Cty	Apr 02
* Southerland, Watermann Creek	Jul 01
* Vail, Boyer River	Mar 99
* Akron #1, Big Sioux River	Jul 01
* Akron #2, Big Sioux River	Jul 01
- Sioux City, IA, Big Sioux City	Jun 03
- Hamburg, IA, Ditch 6	Jun 02
- Nisnabotna River, Hamburg, IA	Aug 03
- Council Bluffs, IA, Missouri River	Jul 00
- Ida Grove, IA, Maple River-Odebolt Creek	Jul 03
- Sioux City, IA, Floyd River	Jul 03
- Hawarden, IA, Dry Creek	Jul 03
- Hamburg, IA L575, Nishnabotna River	Jul 03
- Little Sioux, IA, Intercounty D.D., Little Sioux River	Sep 03
- Little Sioux, IA, Nagel D.D., Little Sioux River	Sep 03
- Little Sioux, IA, Bennett-McDonald-Smithland D.D., Little Sioux River	Sep 03
- Red Oak, IA, East Nishnabotna River	Jun 03
- Emerson, IA, Indian Creek, Mills County	Jun 03
- Little Sioux, IA, Monona-Harrison Ditch Control, Monona County	Sep 01
**Winslow Seg #1 (Up Stream) Hamburg, IA	Aug 99
**Fremont County Bd of Sup Bowman, Zach, Roth	Jul 99

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

TABLE 26-K

ACTIVE GENERAL INVESTIGATIONS
(See Section 52 of Text)

Item	Federal Cost Fiscal Year 03	Totals By Subtotal and Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Reconnaissance Study (121)		
Cache La Poudre River	22,826	
James River, ND & SD	16,911	
Niobrara & Missouri Rivers	12,757	
Feasibility Study (122)		
Antelope Creek, Lincoln, NE	74	
James River, ND & SD	319,481	
Lower Platte River and Tribs., NE	79,767	
Subtotal		**451,816**
Special Studies (140)		
Ecosystem Restoration RECON (143)		
Adams County	16,039	
Arapahoe County	19,030	
Watershed/Ecosystem Feasibility (144)		
Lower Platte Watershed, NE	119,460	
Zuni & Sun Valley Reaches, South Platte	(10,954)	
Subtotal		**143,575**
Comprehensive Studies (150)		
Feasibility Study (152)		
Yellowstone River Corridor, MT	135,778	**135,778**
Review of Authorized Projects (160)		
Review of Completed Project: Feasibility Study (164)		
Chatfield, Cherry Creek & Bear Creek	176,046	**176,046**
Miscellaneous Activities (170)		
Special Investigations (171)	113,185	
FERC Licensing Activities (172)	1,963	
Interagency Water Resources Development(173)	16,638	
North American Waterfowl Management Plan(176)	3,281	
Subtotal		**135,067**
Coordination Studies with Other Agencies (180)		
Cooperation With Other Water Resources Agencies (181)	10,042	
Planning Assistance to States (186)	202,196	
Subtotal		**212,238**
TOTAL (Category 100)		**1,254,520**
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management, Omaha, NE	54,940	
National Flood Proofing Committee (NFPC)	65,075	
Quick Responses	4,878	
Flood Proofing Workshop	5,979	
SS – Aowa Creek, NE	34,680	
SS – Douglas County, WY	5,197	
SS – Hulett, WY	5,559	
SS – Yellowstone River, Glendive, MT	138	
Technical Services, General	37,174	
Hydrologic Studies (260)		
General Hydrologic Studies (262)	12,043	
TOTAL (Category 200)		**225,663**

TABLE 26-K (Continued)

ACTIVE GENERAL INVESTIGATIONS
(See Section 52 of Text)

Item	Federal Cost Fiscal Year 03	Totals By Subtotal and Categories
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS NOT FULLY AUTHORIZED (Category 400)		
Zuni & Sun Valley Reaches, South Platte, CO (410)	168,069	
Antelope Creek, Lincoln, NE (451)	676	
Watertown & Vicinity, SD (451)	219,392	
Lower Yellowstone River Diversion Dam (451)	505	
Sand Creek Watershed, Wahoo, NE (451)	109,150	
		=======
TOTAL (Category 400)		**497,792**
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS FULLY AUTHORIZED (Category 600)		
Western Sarpy & Clear Creek, NE (651)	85,333	**85,333**
		=======
GRAND TOTAL GENERAL INVESTIGATIONS		**2,063,308**

FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

TABLE 26-L **(See Section 28 of Text)**

Project Name	Stage	Fiscal Year 03 Cost
Flood Control and Coastal Emergencies		
Disaster Preparedness (100)	-	497,044
Emergency Operations (200)	-	25,215
Rehabilitation & Inspection Program (300)	-	151,446
Emergency Water Supplies & Drought Assistance (400)	-	0
Advance Measures (500)	-	0
Hazard Mitigation (600)	-	1,880
Support for Others		226,505
Total (FCCE)		**902,090**
Section 205:		
Coordination Account	-	35,333
Logan Creek, Pender, NE	C	16,409
Milk River, Malta, MT	C	597
Nishnabotna River, Hamburg, IA	C	730
Van Bibber Creek, Arvada, CO	P	79,524
Denison, IA	P	148,928
Verdigre, NE	F	534
Burt & Washington Counties, NE	F	260
Livingston, MT	F	28,149
Cold Brook Creek, Hot Springs, SD	F	9,596
Sidney, NE	C	37
Ponca Creek, Lynch, NE	F	2,483
Heart River, Mandan, ND	F	2,297
Mosquito Creek, Council Bluffs, IA	F	8,513
Knife River, Beulah, ND	F	1,888
Yellowstone River, Glendive, MT	F	275
Crow Creek, Cheynne, WY	F	5,957
Platte River, Fremont, NE	F	37,152
Platte River, Schuyler, NE	F	39,024
Red Oak Creek, IA	F	69,415
Platte River, North Fremont, NE	F	43,402
Sterling, CO	F	2,984
Pebble Creek, Scribner, NE	C	80
Maple Creek, Howells, NE	C	433
Randolph, NE	F	63,483
Kaycee, WY	F	17,441
Dry Creek, Cheyenne, WY	F	31,616
Box Elder Creek, Box Elder, SD	F	38,069
Tongue & Yellowstone Rivers, Miles City	F	32,667
Total (Section 205's)		**717,276**

FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

TABLE 26-L **(See Section 28 of Text)**

Project Name	Stage	Fiscal Year 03 Cost
Section 14:		
Coordination Account	-	12,424
County Road M16, IA	C	(4,010)
North Platte River, Casper, WY	PDA	5,718
Beal Slough, Lincoln, NE	PDA	8,248
James River, Redfield, SD	PDA	16,727
Howard County, NE	PDA	2,500
Salt Creek, Lincoln, NE	PDA	6,826
Total (Section 14's)		**48,433**
Total Flood Control Activities		**$ 1,667,798**

L = Litigation **R** = Recon
P = Plans & Specs **C** = Construction
F = Feasibility **-** = Does Not Apply
PDA = Planning & Design Analysis (Section 14 only)

TABLE 26-M

ENVIRONMENTAL
Modification of projects for the purpose of improving the quality of the environment in the public interest.
(Includes Section 1135, Public Law 99-662, as amended and Section 206, Public Law 104-303, as amended.)

Study/Project and Location	Fiscal Year 03 Federal Funds Expended	Fiscal Year 03 Contributed Funds Expended
California Bend, NE	1,954,134	186,165
Candlewood Lake, NE	4,660	------
Chatfield Downstream, South Platte, CO	51,900	------
Cherry Creek Reservoir, CO	138	------
Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe and State of South Dakota Terrestrial Wildlife Habitat Restoration	6,984,819	------
Coordination Account Funds (1135)	46,208	------
Coordination Account Funds (206)	29,590	------
Council Bend, IA	190,481	------
Dry Creek, WY	3,027	------
Ericson Lake, Cedar River, NE	99,717	------
Glenn Cunningham Lake, NE	131,437	------
Fort Peck Fish Hatchery, MT	3,338,512	------
Glover's Point Bend, NE	------	------
Goose Creek, CO	9,124	------
Heron Haven, NE	140,976	------
Hidden Lake Restoration, NE	6,100	17,148
Kingfisher Point, CO	343,051	------
Livingston, MT	------	------
Lower Boulder Creek, CO	103,350	------
Lower Decatur Bend, NE	78,423	------
Marcy Gulch, CO	353	------
Missouri River Fish & Wildlife Mitigation, IA, NE, KS & ND	5,813,772	------
Missouri River Restoration, SD	38,562	------
Missouri River Restoration, ND	4,212	------
Missouri River Bank Stab/Nav.	10,196	7
Nathan's Lake, NE	32,244	------
Piney Creek, CO	7,411	------
Plattesmouth Bend Chute, NE	218,173	------
Preliminary Restoration Plan (1135)	3,307	------
Preliminary Restoration Plan (206)	------	------
Sand Creek, NE	407,059	------
South Platte River (Hayman Fire), CO	8,222	------
Upper Central Platte Valley (Colfax Reach), CO	188,037	------
Wehrspann, Lake Aquatic, NE	83,908	45,717

KANSAS CITY, MO, DISTRICT

The district comprises a portion of southwestern Iowa; northwestern, central and western Missouri; northern Kansas; southern Nebraska; and a portion of northeastern Colorado embraced in drainage basin of the Missouri River and tributaries from Rulo, Nebraska, to the mouth. Report on navigation project for section of Missouri River from Sioux City, Iowa, to Rulo, Nebraska, is in report of Omaha District.

IMPROVEMENTS

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Navigation

1. MISSOURI RIVER, SIOUX CITY, IA,TO MOUTH (RULO, NE, TO MOUTH)

Location. Jefferson, Madison, and Gallatin Rivers conjoin at Three Forks, Montana, to form the Missouri River, which flows southeasterly 2,315 miles (1960 mileage) across or along seven states to the Mississippi River, 17 miles above St. Louis. For description see page 1149, Annual Report for 1932. The river is commercially navigable from Sioux City, Iowa, to the mouth, a distance of 732 miles. The portion of project in Kansas City District extends from Rulo, Nebraska, to the mouth, a distance of 498 miles.

Previous Projects. For details see page 1891 of Annual Report for 1915, and pages 1153 and 1175 of Annual Report for 1938.

Existing Project. A channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, construction of permeable dikes to contract and stabilize the waterways, cutoffs to eliminate long bends, closing minor channels, removal of snags, and dredging as required. The improved reach within the Kansas City District extends from the mouth to Rulo, Nebraska, a distance of 498.4 miles. The Bank Stabilization and Navigation features of the project were completed in September 1980. For the reach from Rulo, Nebraska, to the mouth, the total construction cost was $237,942,190 including $8,665,594 for previous project. River access sites have been completed at 11 locations. Ordinary and extreme stage fluctuations are 16 and 38 feet, respectively.

Local cooperation. Cooperation from benefited localities may be required where any improvement may confer special benefit. The receipt of contributions from private parties are to be expended along with Government funds upon authorized work where such work would be in the interest of navigation, as authorized by 1915 Rivers and Harbors Act. Secretary of the Army approved general principle of cooperative construction on Missouri River below Kansas City on basis that 25 percent of cost of any special installation shall be paid by the United States and 75 percent by local interests. Total contributed by local interests in cooperation with the United States from 1918 to June 30, 1964, was $675,663, of which $8,647 was returned to contributors. Local interests must share in cost of recreation facilities in accordance with provisions of the Federal Water Project Recreation Act of 1965. Local interests have contributed $171,816 for cost sharing on construction of recreation in addition to constructing portions of the facility.

Terminal facilities. A listing of terminal facilities are included in Missouri River Navigation Charts and can be obtained from Kansas City District Engineer for a small fee.

Operations during fiscal year. Field hired labor accomplished emergency construction of a new dike to correct a chronic low water navigation problem. Contract and District personnel to improve the aquatic habitat of the river constructed over 80 notches. District personnel also accomplished other work items: Channel reconnaissance, stream gauging condition studies, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Project tonnage on the river for CY 2003 is estimated at 8.2 million tons, excluding waterway improvement materials. District estimates the recreation use on the Missouri River (NWK) at 1.3 million recreation days annually.

2. MISSOURI RIVER FISH AND WILDLIFE MITIGATION, IA, NE, KS, and MO

Location. This project authority extends along the Missouri River from Sioux City, Iowa, to the mouth near St. Louis, Missouri a river distance of 735 miles. Individual project site may be located along the 735 miles at locations adjacent with the river and within the historic floodplain.

Existing project. This project was authorized under WRDA86 and WRDA99. The purpose of this project is to mitigate losses of fish and wildlife habitat resulting from construction and operation of the Missouri River Bank Stabilization and Navigation Project. An estimated 522,000 acres of aquatic and terrestrial floodplain habitats have been lost in the project area. 166,750 acres has been authorized for mitigation, roughly 32% of the estimated loss. The major components of the Mitigation project are acquisition, design, development and monitoring of floodplain habitats. The mitigation can be implemented on either existing publicly owned lands or could involve acquisition of private lands from willing sellers. The estimated funded cost of the project is $1,330,000,000 (Oct 2001 price level). The project is 100% Federally funded, including O&M. If the project is funded through 2042, the estimated project cost after inflation is $3,100,000,000. Kansas City District has overall project management responsibility. Omaha District is involved in the implementation of the project in the States of Iowa and Nebraska.

Local cooperation. There is no non-Federal sponsor for the project. The U.S. Fish & Wildlife Service, EPA and the states of Iowa, Nebraska, Kansas, and Missouri are voluntarily serving on a coordinating team, which is actively involved in ongoing project activities and site-specific operation and maintenance.

Operations during fiscal year. Funding was continued for land acquisition and construction of mitigation features.

Total expenditures for FY 03 was $13,492,200 ($7,678,428 NWK + NWO $5,813,772). Land was purchased or easements obtained at Monkey Mountain, Thurnau, Tieville-Decatur, Langdon Bend, and Columbia Bottoms mitigation sites. Planning efforts were undertaken to focus on shallow water habitat creation for the endangered pallid sturgeon. Design activities were carried out at Lower Hamburg, Columbia Bottoms, Glovers Point, and Kansas Bend sites. Construction activities occurred at Overton Bottoms North, Columbia Bottoms, Tieville-Decatur, California Bend, Hamburg Bend, and Louisville Bend sites. O&M during construction and monitoring activities is being formulated with local agencies.

Flood Control

3. BLUE RIVER BASIN, KANSAS CITY, MO

Location. Along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1-1/4 miles in Jackson County, Missouri, to the Bannister Federal Complex levee.

Existing project. The recommended project includes construction of approximately 1-1/4 miles of levee to provide flood protection to 280 acres in the Dodson Industrial Area and surrounding area in Kansas City. Estimated Federal cost through construction of the project (2004) is $12,332,000, and estimated non-Federal cost of lands damages and relocations is $6,785,900. Funds were provided in FY 2002 for a new construction start.

Local Cooperation. The Project Cooperation Agreement (PCA) was executed in September 2001.

Operations during fiscal year. Preconstruction engineering and design continued with preparation of the Design Documentation Report and plans and specifications. A first phase of the project was awarded in September 2003. A second phase of the will be awarded in September 2004.

4. BLUE RIVER CHANNEL, KANSAS CITY, MO

Location. Along the Blue River and tributaries in Jackson County, Missouri.

Existing Project. Project consists of 12.5 miles of improved channel along the Blue River within Kansas City, Missouri. Estimated Federal cost through construction of the project (2002) is $220,000,000, and estimated non-Federal cost of lands, damages and relocations is $32,500,000.

Local Cooperation. Section 2, Flood Control Act of June 22, 1936 applies. The City of Kansas City, Missouri, passed a resolution of intent on December 9, 1975 to provide the required assurances of local cooperation when requested. The Kansas City District Engineer signed the Section 221 agreement on September 8, 1983.

Operations during fiscal year. All work on stages 1 and 2 has been completed. The Stage 3 reach of the project consists of six construction contracts. The 12th to 19th Street, the 19th to Stadium Drive, and the Stadium Drive to Brush Creek contracts are complete. The Union Pacific Railroad Bridges Alteration contract is currently advertised and will be awarded in early FY04. The Plans and Specifications for the remaining two contracts have been initiated. A General Reevaluation Report study effort has been initiated. FEMA map revision studies from the mouth to Stadium Drive are nearing completion. A Blue Parkway Bridge Study (City funded) has been completed. Phase 1 of the Greenway Master Plan Study (Planning Assistance to States program) is nearly complete.

5. BRUSH CREEK, KANSAS CITY, MO

Location. A major tributary of the Blue River in Kansas City, Missouri, and Johnson County, Kansas, draining a highly urbanized 29-square-mile area in the two states.

Existing project. The authorized project consists of improving about 7,500 feet of the channel from near Roanoke Parkway downstream to near Troost Avenue in Kansas City. At the request of the sponsor, Kansas City, Missouri, a modified project was built which provides identical flood protection, but which also accommodates park and recreation development in the authorized reach. Estimated fully funded Federal cost of the modified project (1996) is $14,464,000; and estimated non-Federal cost of lands, damages, and cash is $19,526,000.

Local cooperation. The City of Kansas City and the Corps of Engineers entered into a Local Cooperation Agreement (LCA) on the project in March 1991.

Operations during fiscal year. The dedication of the project was in June 1995. The project was turned over to the local sponsor in January 1997.

6. CLINTON LAKE, WAKARUSA RIVER, KS

Location. Damsite is on Wakarusa River about 4 miles southwest of Lawrence, in Douglas County, Kansas. The lake extends into Shawnee and Osage Counties, Kansas.

Existing project. An earthfill dam about 9,250 feet long constructed to a height of about 114 feet with an uncontrolled spillway in left abutment. Total reservoir storage capacity 397,200 acre-feet (258,300 for flood control, 28,500 for sediment reserve, and 110,400 of multipurpose storage for municipal and industrial waste supply and recreation). Cost of constructing the completed project was $57,415,433. Construction was initiated in January 1972, and the project was placed in operation in November 1977.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement in the estimated amount

of $6,768,000 is required for water supply storage in accordance with the Water Supply Act of 1958. A contract was signed by the State on September 6, 1978 and was approved by the Secretary of the Army on October 30, 1978. Utilization of storage was initiated in December 1979. Repayment also began at that time.

Operations during fiscal year. Visitation for FY 2003 was 7,959,056 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

7. HARLAN COUNTY LAKE, REPUBLICAN RIVER, NE

Location. Dam is on main stem of Republican River about 235 miles above confluence of stream with Smoky Hill River. Site is in Harlan County, 1-1/2 miles south of Republican City and 13 miles west of Franklin, Nebraska.

Existing project. An earthfill dam about 107 feet above streambed with a total length of 11,827 feet, including a gate-controlled, concrete, gravity-type spillway section near the center of dam. Reservoir provides storage capacity of 814,111 acre-feet (500,000 for flood control and 314,111 [sediment survey effective January 2001] for irrigation, sedimentation allowance, and other authorized purposes.). Initial cost of constructing the project was $45,279,532. Total Federal cost of project, including $1,017,623 for major rehabilitation work and $1,832,394 supplemental recreation development (Code 710), is $48,129,549. Construction of the project was initiated in August 1946. The project was placed in operation in December 1952. Major rehabilitation work was completed in FY 1968.

Local cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2003 was 6,879,339 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

8. HILLSDALE LAKE, BIG BULL CREEK, KS

Location. The project is located approximately 12 miles above the mouth of Big Bull Creek, a tributary of the Marais des Cygnes River and about 2½ miles west of Hillsdale, in Miami County, Kansas.

Existing project. An earthfill embankment about 11,600 feet long (including approximately 3,300 feet of dike section) about 75 feet above rising valley flood plain. The spillway is gravity type uncontrolled and the outlet works are controlled. The total reservoir storage capacity is 160,000 acre-feet (81,000 for flood control, 11,000 for sediment reserve, and 68,000 for multipurpose storage for water supply, water quality control, and recreation). Construction was initiated in December 1974, and the project was placed in operation in October 1981. Federal cost of construction was $64,161,400.

Local cooperation. Section 2, Flood Control Act 1938, applies. Local interests must make reimbursement of $21,145,338 for water supply storage in accordance with Water Supply Act of 1958. The Kansas Water Resources Board signed a contract in January 1974, approved by the Secretary of the Army in April 1974, for the entire 53,000 acre-feet of water supply storage. The Kansas Department of Wildlife and Parks has s 50-year lease on 12,880 acres for management of land and water areas for public park, recreational, and fish and wildlife purposes.

Operations during fiscal year. Visitation for FY 2003 was 1,925,955 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

9. KANOPOLIS LAKE, SMOKY HILL RIVER, KS

Location. The dam is on the Smoky Hill River about 184 river miles above the mouth of the stream, and about 11 miles northwest of Marquette, Kansas.

Existing project. An earthfill dam about 131 feet above streambed, having a total length of 15,360 feet, including 4,070 feet of dike section on the left abutment and 2,550 feet of dike section on right abutment. The reservoir provides storage capacity of 450,000 acre-feet, (400,000 for flood control and 50,000 for recreation and streamflow regulation). Outlet works and spillway are in right abutment. Initial cost of constructing the project was $12,327,735. Total Federal cost of project, including $249,492, supplemental recreational development (Code 710), was $12,577,227. Construction was initiated in June 1940, and project was placed in operation in May 1948.

Local Cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2003 was 1,462,425 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

10. LITTLE BLUE RIVER LAKES, MO

Location. This project consists of two lakes in Jackson County, Missouri, located in Kansas City, Missouri, and suburban communities. The Blue Springs Lake site is on the East Fork of the Little Blue River about ½ mile south of U,S. Highway 40, and the Longview Lake site is on the main stem at approximately 109th Street.

Existing Project. The Blue Springs dam is an earthfill embankment about 2,500 feet long and rising about 78 feet above the streambed, with an uncontrolled service spillway and uncontrolled outlet conduit. The total reservoir storage capacity is 26,600 acre-feet (15,700 for flood control, 10,600 for multipurpose storage for water quality and recreation, and 300 for sedimentation).

The Longview dam is an earthfill embankment about 1,900 feet long and rising about 120 feet above the streambed, with an uncontrolled service spillway and an uncontrolled outlet conduit. The total reservoir storage capacity is 46,900 acre-feet (24,300 for flood control and 20,600 for multipurpose storage for water quality and recreation, and 2,000 for sedimentation). Federal cost (1992) for both lakes through construction of the project was $140,809,200. Construction was initiated in September 1977, and the project became operational in September 1988.

Local cooperation. Section 2 of the Flood Control Act of June 28,1938 applies. Local interest must share in separable costs allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. The Jackson County Legislature approved a recreation cost-sharing contract on July 5, 1974, which was approved by the Secretary of the Army on June 24, 1976. A supplemental agreement, signed by Jackson County officials on June 5, 1978, and approved by the Secretary of the Army January 10, 1979, revised the existing contract to include additional costs involved in raising the multipurpose pool elevation at the Blue Springs Lake. Reimbursement for recreation was $15,047,000 of which $450,000 was accomplished during construction by local interests.

Operations during fiscal year. Project is complete. Land acquisition is complete. Visitation for FY 2003 was 2,471,342 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

11. LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO

Location. The Damsite is on the East Fork Little Chariton River in north central Missouri about 2 miles west of Macon in Macon County.

Existing project. An earthfill dam about 3,800 feet long and about 71 feet high with an uncontrolled outlet conduit and an uncontrolled service spillway in the right abutment. Total reservoir storage capacity is 65,000 acre-feet (29,000 for flood control, 4,000 for sediment reserve, and 32,000 of multipurpose storage for water supply, water quality control, fish and wildlife, and recreation). Estimated Federal cost (1997) is $20,288,000, and estimated non-Federal cost is $3,605,000. Construction was initiated in March 1973. The project was placed in useful operation for flood control on September 1, 1980.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Local interests must make reimbursement of $5,567,000 for water supply storage in accordance with Water Supply Act of 1958 and share in separable cost of $3,589,000 allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. On September 15, 1972 the Secretary of the Army approved a contract signed by the City of Macon, Missouri, for water supply and recreation development. Missouri State agencies indicated their intent to sponsor future water supply and signed a contract on June 17, 1977 to sponsor recreational development in lieu of the City of Macon. After review by the Office of the Secretary of the Army, the state signed the contract in December 1979, and it was approved by the Secretary of the Army on April 18, 1980. Supplemental Agreement No. 1 to this contract was approved December 28, 1993 to provide for additional recreational facilities. Additional facilities have been designed

Operations during fiscal year. Visitation for FY 2003 was 1,102,534 visitor hours. Project is 100 percent complete on scheduled work. Maintenance: Activities consisted of ordinary operation and maintenance.

12. MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS

Location. Damsite is on Marais des Cygnes (Osage) River in Osage County, Kansas, about 4 miles west of Melvern, Kansas.

Existing project. An earthfill dam about 9,700 feet long and about 98 feet high with an uncontrolled chute-type spillway in the left abutment. Total reservoir storage capacity is 363,000 acre-feet (200,000 for flood control, 26,000 for sediment reserve, and 137,000 for multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the completed project was $37,436,530. Construction was initiated in July 1967, and the project was placed in operation in August 1972.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Project storage was reallocated in 1989 to include municipal and industrial water supply in accordance with provisions of the Water Supply Act of 1958. In accordance with the provisions of the Memorandum of Understanding between the State of Kansas and the Department of the Army dated 1985, payment in full of $7,131,834 for 50,000 acre-feet of water supply storage was made in March 1995. Utilization of storage for water supply was initiated in September 1993 under an interim contract and continues under the current contract signed in January 1995.

Operations during fiscal year. Visitation for FY 2003 was 5,295,054 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

13. MILFORD LAKE, REPUBLICAN RIVER, KS

Location. The Damsite is on the Republican River near the village of Alida about 10 miles above confluence of Republican and Smoky Hill Rivers which form Kansas River; and about 4 miles northwest of Junction City, Kansas.

Existing project. An earthfill dam about 6,300 feet long and 126 feet high with an uncontrolled service-chute spillway in a saddle on right abutment. Total reservoir

storage capacity is 1,160,000 acre-feet (700,000 for flood control, 160,000 for sediment reserve and 300,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project at the request of the Governor of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was $48,268,843. Total Federal cost of project, including $1,297,649 supplemental recreational development (Code 710), was $49,566,492. Construction was initiated in July 1961. The project was placed in operation in June 1965.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of $12,162,134 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1984. Reimbursement was initiated, at the option of the State, in September 1976.

Operations during fiscal year. Visitation for FY 2003 was 6,275,920 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

14. MISSOURI RIVER LEVEE SYSTEM IA, NE, KS AND MO (RULO, NE, TO MOUTH)

Location. On both banks of the Missouri River from Sioux City, Iowa, about 760 miles to the mouth near St. Louis, Missouri. The portion of the project in Kansas City District extends from Rulo, Nebraska, 498 miles to mouth.

Existing project. A series of levee units and appurtenant works along both sides of Missouri River from Sioux City, Iowa, to the mouth, for protection of agricultural lands and small communities against floods. Estimated fully funded (2002) for the active portion of the project from Rulo, Nebraska, to mouth is $209,379,000, including $157,521,000 Federal and $22,720,000 non-Federal contributions, and costs of $29,138,000 for lands and damages are to be borne by local interests. Remaining portion of project consists of units on which planning and construction are being delayed pending restudy to assure that additional levee construction is economically justified. Current cost estimate for deferred, inactive, and deauthorized portion of project Rulo, Nebraska, to mouth is $168,865,000 (1964, 1986, and 1987 price levels), of which $153,233,000 is Federal cost for construction and $15,632,000 for lands and damages to be borne by local interests. Construction of the project was initiated in June 1948.

Local cooperation. Section 3, Flood Control Act of 1936 applies. Fully complied with for all completed units and units under construction. Local sponsors provide all operation and maintenance.

Operations during fiscal year. Status of individual units of active portion at end of fiscal year is shown in Table 27-H on Missouri River Levee System. The contract to construct Unit L-385 was awarded on 28 March 2002 with the notice to proceed being issued on April 26, 2002. The project is about 81% complete as of January 2004. The contractor is a head of schedule and is expected to complete in 4th Quarter FY 04. The GRR for the Unit L-142 was approved in 2001 and the LRR was approved in September of 2003. Currently the design of the project is 65% complete.

15. PERRY LAKE, DELAWARE RIVER

Location. The Damsite is on the Delaware River about 5 miles above the mouth in Jefferson County, and about 3 miles northwest of Perry, Kansas.

Existing project. An earthfill dam about 7,750 feet long constructed to an elevation about 95 feet above valley floor with gated-outlet works and an uncontrolled spillway in left abutment. Total reservoir storage capacity is 770,000 acre-feet (480,000 for flood control, including 140,000 for sediment reserve and 150,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project plan at the request of the State of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was $48,371,706. Total Federal cost of project, including $724,212 supplemental recreational development (Code 710), is $49,095,918. Construction was initiated in March 1964, and the project was placed in operation in January 1969.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of $8,551,805 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1991. Reimbursement was initiated at the option of the State in September 1978.

Operations during fiscal year. Visitation for FY 2003 was 3,789,215 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

16. PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DIST.)

Location. Flood control improvements included in this project are on and along the Missouri River and several of its principle tributaries, in states comprising the Missouri River Basin.

Existing project. The Pick-Sloan Missouri Basin program for flood control and other purposes in Missouri River Basin provides for levees along Missouri River between Sioux City, Iowa, and the mouth, flood-protection works at certain municipalities, and reservoirs on main stem of Missouri River and on tributaries for control of flooding. (See Table 27-B for authorizing legislation and Table 27-I on Kansas City District projects included in Pick-Sloan Missouri Basin program.) See individual project reports.

17. POMME DE TERRE LAKE POMME DE TERRE RIVER, MO

Location. The dam is on the main stem Pomme de Terre River, about 44 miles above the mouth in Hickory County, Missouri. The lake extends upstream into Polk County, Missouri. The site is about 4 miles south of Hermitage, Missouri, and 20 miles north of Bolivar, Missouri.
Existing project. An earth and rockfill dam about 4,630 feet long constructed to about 155 feet above riverbed and a dike section on left abutment about 2,790 feet long, providing storage capacity of 650,000 acre-feet (407,000 for flood control and 243,000 for sedimentation and multi-purpose). Initial cost of constructing the complete project was $14,946,784. Total Federal cost of project, including $329,140 area redevelopment and $2,089,529 supplemental recreational development (Code 710), is $17,365,453. Construction was initiated in January 1957, and the project was placed in useful operation in October 1961.
Operations during fiscal year. Visitation for FY 2003 was 11,744,334 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

18. POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS

Location. The dam is on One Hundred Ten Mile Creek, a tributary of Marais des Cygnes (Osage) River, 7 miles above mouth of stream in Osage County, Kansas, about 8 miles northwest of Pomona, Kansas, and 34 miles upstream from Ottawa, Kansas.
Existing project. An earthfill dam 7,750 feet long constructed to an average height of about 85 feet above streambed, with gated-outlet works and an ungated chute-type spillway near left abutment. Total reservoir storage capacity is 230,000 acre-feet (160,000 for flood control, 14,000 for sediment reserve, and 56,000 of multipurpose storage for water quality control, and recreation). Initial cost of constructing the completed project was $13,272,108. Total Federal cost of project, including $731,130 supplemental recreational development (Code 710), was $14,003,238. Construction began in July 1959, and the project was placed in operation in October 1963.
Local cooperation. Section 2, Flood Control Act of 1938 applies. Pomona has water supply reimbursement under Water Supply Act of 1958 totaling $862,923.
Operations during fiscal year. Visitation for FY 2003 was 4,487,007 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

19. RATHBUN LAKE, CHARITON RIVER, IA

Location. The Damsite is on the Chariton River about 7 miles north of Centerville and 1 mile north of Rathbun, Appanoose County, Iowa.
Existing project. An earthfill dam 10,600 feet long constructed to an elevation about 86 feet above valley floor, with gated-outlet works and an uncontrolled service chute with paved sill spillway about a mile upstream from left abutment. Total reservoir storage capacity is 552,000 acre-feet (339,000 for flood control, 24,000 for sediment reserve and 189,000 of multipurpose storage for navigation, water quality control, and recreation). Initial cost of constructing the project was $27,033,210. Total Federal cost of project, including $588,948 supplemental recreation development (Code 710), was $27,622,158. Construction of the project was initiated in September 1964 and completed in November 1969. The operating plan for this project was revised to reduce flood control releases during critical times of the year to allow local farmers better access during planting and harvesting and to facilitate field drainage and drying out. The revised plan has resulted in more frequent high pool elevations than anticipated, which has inundated roads and recreation facilities. A shoreline erosion study was accomplished; and a supplement to the master plan was approved, which resulted in relocation of recreation facilities and bank stabilization work to compensate for the higher lake levels.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operations during fiscal year. Visitation for FY 2003 was 5,600,757 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

20. SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO

Location. The Damsite is on the Little Platte River about 1 mile northeast of Smithville and about 5 miles north of Kansas City, in Clay and Clinton Counties, Missouri.
Existing project. Earthfill dam about 4,200 feet long and 95 feet high with an uncontrolled service spillway. A dike about 2,400 feet long crosses a saddle in the left abutment. Total reservoir storage capacity is 246,500 acre-feet (92,000 for flood control, 52,300 for sediment reserve, and 102,200 of multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the project was $87,685,314. Construction was initiated in November 1973, and the project was placed in operation in March 1982.
Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement of $24,000,000 will be required for water supply storage in accordance with Water Supply Act of 1958, and reimbursement of $7,500,000 will

be required for recreation development in accordance with Federal Water Recreation Act of 1965. Additional non-Federal contribution for recreation amounts to $737,000. All contracts for local cooperation were approved by the Secretary of the Army on November 27, 1972.
Operations during fiscal year. Visitation for FY 2003 was 6,543,542 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

21. TURKEY CREEK BASIN, KS & MO

Location: The Turkey Creek Basin is a 23-square mile area within Kansas City, KS and suburbs in Johnson and Wyandotte Counties in Kansas.
Existing Project. The recommended project is estimated to cost $82,500,000, with an estimated Federal cost of $50,967,000 and an estimated non-Federal cost of $31,533,000, including construction of channel modification and structures to control hillside runoff. This project was reauthorized in 2003 and has moved into Construction, General funding.
Local Cooperation. The PCA is being drafted and should be executed in 2004.
Operations during fiscal year. Work continued on Preconstruction Engineering and Design.

22. TUTTLE CREEK LAKE, BIG BLUE RIVER, KS

Location. The dam is on the main stem of the Big Blue River, about 12 miles above the stream mouth in Riley and Pottawatomie Counties, Kansas. Site is about 5 miles north of Manhattan, Kansas.
Existing project. An earth and rock-filll dam 7,500 feet long and 157 feet high. Total reservoir storage capacity is 2,346,000 acre-feet (1,933,000 for flood control, 228,000 for sediment reserve and 185,000 for multipurpose storage, for low-flow regulation, navigation, and recreation). Initial cost of constructing the completed project was $80,051,031. Total Federal cost of project, including $533,048 supplemental recreational development (ode 710), was $80,584,079. Construction began in October 1952. Project was placed in Operation in July 1962.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operations during fiscal year. Visitation for FY 2003 was 2,655,336 visitor hours. The project provided primary water releases into the Big Blue and Kansas Rivers to meet minimum in-stream flow requirements in accordance with agreements with the state of Kansas. The project also provided water releases for supplemental navigation flows on the Missouri River for a portion of the navigation season in fiscal year 2003 Maintenance: Activities included ordinary operation and maintenance.
Dam Safety Assurance Program: Evaluation of seismic and hydrologic aspects of Tuttle Creek Dam has been underway for several years as part of the Dam Safety Assurance Program. In 2003, the final engineering Evaluation Report and Environmental Impact Statement were approved by Corps of Engineers headquarters and the Assistant Secretary of the Army for Civil Works. These approvals follow extensive community outreach, regulatory coordination, and Environmental Protection Agency approval in 2001 and 2002. These approvals authorized the construction of modifications totaling approximately $206 million at the Tuttle Creek project.

23. WILSON LAKE, SALINE RIVER, KS

Location. The dam is on the Saline River about 130 miles above its mouth, near the eastern edge of Russell County, Kansas, about 50 miles west of Salina, 10 miles north of Wilson, and 20 miles east of Russell, Kansas.
Existing project. An earthfill dam about 5,600 feet long and 160 feet high with a gated-outlet works, chute spillway, storage capacity is 776,000 acre-feet (511,000 for flood control, 40,000 for sediment reserve and 225,000 multipurpose storage for irrigation, navigation, and low-flow regulation). Initial cost of constructing the project was $20,015,023. Total Federal cost of project, including $448,344 supplemental recreational development (Code 710), was $20,463,367. Construction began in April 1961, and the project was placed in operation in December 1964.
Local cooperation. Section 2, Flood Control Act of 1938, applies.
Operations during fiscal year. Visitation for FY 2003 was 3,276,189 visitor hours. Maintenance: Activity included ordinary operation and maintenance.

24. SCHEDULING OF FLOOD CONTROL RESERVOIR OPERATIONS

Under sections 7 and 9, 1944 Flood Control Act, the Corps is responsible for detailed scheduling of operations concerning storage capacity reserved for or assigned to flood control in reservoirs constructed by Bureau of Reclamation as well as those constructed by the Corps. Fiscal Year costs were $313,000.

25. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, P.L. 738, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for administration of these regulations within

boundaries of their respective district. (See Table 27-J on inspection of completed flood control projects.)

Multiple Purpose Projects
Including Power

26. HARRY S. TRUMAN DAM AND RESERVOIR, Osage River, MO

Location. The Damsite is on the main stem of the Osage River about 1.5 miles northwest of Warsaw, Benton County, Missouri. Reservoir extends into Bates, Henry, Hickory, St. Clair, and Vernon Counties, Missouri.
Existing project. An earthfill dam about 5,000 feet long constructed to an average height of about 96 feet above streambed, including a gate-controlled overfall spillway and a power installation consisting of six inclined pump-generating units with a combined generating capability of 160,000 kilowatts. Total reservoir storage capacity is 5,202,000 acre-feet (3,918,000 for flood control, 244,000 for sediment reserve, and 1,040,000 multipurpose storage for power, low-flow regulation, and recreation). The operating purposes of the project are flood control, hydroelectric power, water supply, recreation, and fish and wildlife. Public Law 91-267, approved May 26, 1970, authorized a change in project name from Kaysinger Bluff Dam and Reservoir, Osage River Basin, Missouri, to the Harry S. Truman Dam and Reservoir. Initial cost of constructing the completed project was $550,909,000. Construction of relocated Missouri Highway M-13 was initiated September 1964 and completed May 1966. Construction of the dam and reservoir was initiated in October 1964. The project was operational for flood control in October 1979, and multipurpose pool was reached in November 1979. The first power unit was placed on line on December 22, 1979. Subsequent problems with the turbine bearings required remedial repair that was completed in FY 1999. Through September 2003, power generation totaled 5,872,556,000-kilowatt hours. Of the gross income from the sale of power by Southwestern Power Administration, $144,854,884 was allocated to the Corps of Engineers for project power operating costs, interest, and investment recovery.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operation during fiscal year. Visitation for FY 2003 was 10,480,021 visitor hours. Project is complete. During FY 2003, 57,410,000 kilowatt-hours of electrical power were generated. Maintenance activities consisted of ordinary operation and maintenance.

27. STOCKTON LAKE, SAC RIVER, MO

Location. The Damsite is on the Sac River about 49.5 miles above its confluence with the Osage River, and about 1 mile east of Stockton, Cedar County, Missouri. The lake extends into Dade and Polk Counties.
Existing project. A rock-shell dam with impervious core about 5,100 feet long constructed to an average height of about 128 feet, -----with a gated overfall spillway and a 45,200-kilowatt power installation. Total reservoir storage capacity is 1,674,000 acre-feet (774,000 for flood control, 25,000 for sediment reserve and 875,000 multipurpose storage for power and recreation). The authorized project purposes are flood control, hydroelectric power, water quality, water supply, recreation, and fish and wildlife. Initial cost of constructing the completed project was $75,715,300. Cost of the project, including $3,758,000 for downstream channel work and $502,057 for supplemental recreational development (Code 710), was $79,975,357. Construction was initiated in October 1963, and the project was placed in operation in December 1969. Power operation problems were encountered with the initial operation in March 1973 because the downstream channel did not have the capacity which earlier observations and computations indicated. As a result, it has been necessary to restrict the power operation to about the 30,000-kilowatt level. Right-of-way for construction of a channel cutoff and bridge at Horseshoe Bend were acquired, and construction completed. Sloughing easements downstream to Caplinger Mills were acquired. Completion assured downstream channel capacity to Caplinger Mills of 8,000 c.f.s. for powerplant operation. Discharge in this range will accommodate power operations at a 39,500-kilowatt level. Through September 2003 power generation totaled 1,762,332,000 kilowatt-hours. Of the gross income from the sale of power by Southwestern Power Administration, $39,971,632 was allocated to the Corps of Engineers for project operating costs, interest, and investment recovery.
Local cooperation. Section 2, Flood Control Act of 1938, applies.
Operations during fiscal year. Visitation for FY 2003 was 6,545,670 visitor hours. The project is complete and in operational status. During FY 2003, 18,801,000 kilowatt-hours of electrical power were generated. Maintenance: Activities consisted of ordinary operation and maintenance, preservation of archeological site known as “Big Eddie” and installation of prefab shower building.

Work Under Special Authorities

28. CONTINUING AUTHORITIES

Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act, Public Law 858, 80th Cong., June 30, 1948, as amended).
Each project selected must be complete in itself, economically and environmentally justified, and limited to a Federal cost of not more than $7 million. The local

sponsoring agency must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway bridge, and utility relocations and alterations; hold and save the Department of the Army free from damages; maintain and operate the project after completion; assume all project costs in excess of the Federal cost limit; and prevent future encroachments on improved channels. The non-Federal sponsors of Section 205 projects are required to pay 50 percent of all feasibility study costs over $100,000. For structural flood control projects, the sponsor must pay in cash during the construction at least 5 percent of the construction cost. The sponsor's cash and other contributions must equal 35 percent of the total construction cost, but will not be required to exceed 50 percent.

There were no Section 205 projects under construction in FY 2003.

See Table K for expenditures under Section 205 during 2003.

Emergency Streambank Protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946) as amended.

Each project selected must be complete in itself, engineering feasible, economically justifiable environmentally acceptable, and limited to a Federal statutory cost of not more than $1,000,000. The local sponsoring entity must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway, highway bridge, and utility relocations and alterations required for project construction; provide over the period of construction, an amount equal to not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; operate, maintain, repair, replace, and rehabilitate the project upon completion; hold and save the Department of the Army free from damages arising from the construction, operation, and maintenance of the completed project; and assume all project costs in excess of the Federal statutory cost limit. Construction was completed on Phase II of the Eudora Bend Bridge protection project of the Kansas River, and the Missouri Route 169 Bridge protection project , on the Grand River.

See Table 27-K for Emergency Streambank Protection expenditures during FY 2003.

Project Modifications for Improvement of Environment (Section 1135, Water Resources Development Act of 1986, Public Law 662, 99th Cong., November 17, 1986).

Section 1135 authorizes review of the operation of completed water resources projects to determine need for modifications for the purpose of improving environmental quality. Construction of Phase II of the Milford Lake Section 1135 project at the north end of Milford Lake was completed, and significant progress was made on the design of Phase III in FY2003. Overall, the project will provide over 2,000 acres of wetland habitat restoration to the Milford lake project on lands adversely by the lake project or previously in crop production. The overall project is estimated to complete in FY 2005.

See Table 27-K for Section 1135 studies status and expenditures for FY 2003.

Aquatic Ecosystem Restoration (Section 206, Water Resources Development Act of 1996, Public Law 303, 104th Cong., October 12, 1996).

Section 206 authorizes small aquatic ecosystem restoration projects to improve the quality of the environment if in the public interest and cost effective.

Construction was completed on the Lake Nemaha wetland restoration project near Seneca, Kansas on the south fork of the Big Nemaha River, project in FY2003. Located in northeastern Kansas, the project will provide approximately 150 acres of wetland habitat complex, with about 10 acres of deeper water fisheries habitat. The sponsor is the Kansas Division of Wildlife and Parks, with funding also provided by a local stakeholder group. Construction was also completed on the Straightwater Marsh wetlands project in Seward County, Nebraska, three miles north of Goehner, NE. The project will provide approximately 150 acres of marsh habitat and 83 acres of wetland fringe habitat in a critical zone of the migratory bird central flyway.

See Table 27-K for Section 206 Studies status and expenditures for FY 2003.

29. EMERGENCY RESPONSE ACTIVITIES

A. Disaster Preparedness Program.

(1) The Disaster Preparedness Program (DPP) involves planning, training, inspection, supplies and equipment, and personnel. Planning activities involve development of District response and recovery plans in support of natural/national disasters and terrorist activities.

(2) Activities to support disaster preparedness in FY03 included training of the District's Emergency Water Planning and Response Team (PRT). Primary and alternate team members participated in a HQ sponsored training/exercise during the fourth quarter of FY03. Several District employees took interactive ENGLink training on-line provided by the Readiness Support Center in Mobile. Each training session lasts from 15 minutes to an hour and participation is on a voluntary basis. ENGLink messages are sent periodically reminding all of scheduled training.

(3) EM personnel participated in drought assessment meetings with the states of Kansas and Missouri as drought

conditions continued throughout the District during FY03. No requests for drought assistance were received by CENWK during FY03.

(4) Disaster preparedness includes operational readiness, maintaining the necessary supplies and equipment to support disaster response. To support flood-fighting efforts, an inventory is maintained of over 1.4 million sandbags, 53 pumps and 2 sandbag filling machines. Three IDIQ Emergency Flood Fight contracts were renewed during FY03 and are in-place should they be needed.

(5) Response operations included activating the EOC for the May Severe Storms and Tornadoes in Missouri and Kansas. The Stockton Lake Project Office was severely damaged in the storm. As a result of the storms, the District was assigned FEMA technical assistance missions for Debris Removal and Temporary Housing. A Debris Removal PRT, Temporary Housing PRT Management elements, and an ESF #3 Team Leader were deployed to assist the States of Missouri and Kansas. In response to Hurricane Isabel devastation on the east coast in September; John Connor, Rapid Needs Assessment (RNA); Justin Pummell, (GIS); and Vira Dobbins and Marge Whipple, Logistics Management (LM) team members were mobilized and deployed. CENWK's Water PRT was also mobilized and deployed to Virginia in response to Hurricane Isabel. Water PRT members deployed included Paul Flamm, Pete Hentschel, Margie Slavens, Alice Jeffres, and Greg Huber.

(6) EM personnel began deploying District volunteers to Afghanistan and Iraq in response to the Global War on Terrorism (GWOT). Thirteen District employees were deployed and 4 returned prior to the end of FY 03. This effort is expected to increase during FY04.

B. Public Law 84-99. Rehabilitation of Flood Control Works. Approximately 50 inspections of active PL 84-99 Program non-Federal Levees were completed during FY03. Flooding during May and June 2002 caused damage to a Federal Levee known as Missouri River Levee System (MRLS) L-246. The contract to repair these damages was awarded in March 2003 and all repair work was completed in September 2003.

C. **Catastrophic Disaster Response Planning. New Madrid/Cascadia/COOP.**

(1) Emergency Management Branch conducted and hosted the New Madrid Earthquake Seminar in November with approximately 80 attendees. An After Action Report (AAR) was subsequently prepared.

(2) In October 2002, the Commander was briefed by COOP team members on the Continuity of Operations (COOP) OPLAN prepared in FY 02. The OPLAN focuses on relocating essential employees to an alternate location for a period up to 30 days and accomplishing critical essential business recovery functions of the district headquarters. The Commander approved the COOP OPLAN and the suggestion was made to prepare site specific COOP Plans for Project Offices as well.

(3) Emergency Management Branch attended FEMA Region VII Regional Interagency COOP Exercise Design Team Training. Monthly COOP Work Group Meetings and Exercise Design Team Meetings began in the 3rd Qtr of FY 03 in preparation for the FY 04 Kansas City Corporate Group COOP Tabletop Exercise.

(4) Emergency Management Branch participated in the Bagnell Dam Emergency Action Plan Tabletop Exercise the 4th Qtr of FY03 at Lake Ozark, Missouri.

(5) Emergency Management Branch attended the FEMA Regional Interagency Steering Committee Meeting addressing animal airborne diseases in 4th Qtr FY 03

30. GENERAL INVESTIGATIONS

Fiscal year 2003 costs totaled $2,321,074 for all General Investigations activities. See Table 27-L, which covers Surveys, Collection and Study of Basic Data and Preconstruction Engineering and Design expenditures in FY 2003.

Other Activities

31. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

FY 2003 expenditures of $117,546 provided for activities required for local and national preparedness.

32. MISSOURI RIVER BASIN COLLABORATIVE WATER RESOURCES, PLANNING/ PARTNERING PROCESS

Missouri River Basin Association and the Corps will manage and facilitate the process of collaboration for some limited studies. The collaborative effort allows input from the states, tribes, and Federal agencies economic and environmental interest groups and the general public on both the operation issues, i.e. Master Manual, and non-operational issues. In addition, the collaborative process could address recreation industry development, ecosystem management, streambank erosion, project mitigation, structural changes for endangered species, environmental monitoring tribal water rights, and support to navigation and agriculture. Fiscal Year 2003 costs were $43,350.

33. REGULATORY PROGRAM

Statutes. The Corps of Engineers is charged with protecting the public interest in all waters of the United States, including wetlands. This is accomplished through a Department of the Army permit program pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

Operations during fiscal year 2003. The Kansas City District completed 2,277 permit actions during the year. A total of 75 violations were reported and evaluated - 81 were resolved by issuance of permits, voluntary restoration, administrative action or other means. Special projects and significant actions during the year included initiation of the biannual monitoring data collection for 12 permitted commercial dredging operations on the Kansas River to aid in ongoing permitting efforts; continued informal consultation with the U.S. Fish and Wildlife Service for the reissuance of 8 expiring commercial dredging permits, and one new permit, on the Missouri River; completed one merged NEPA/Section 404 project with the Federal Highway Administration/Missouri Department of Transportation and initiated 1 new merged project with the Federal Highway Administration/Kansas Department of Transportation; completed a new General Permit for watershed dams constructed by the Natural Resources Conservation service in Missouri; completed a Final Environmental Impact Statement for the South Lawrence Trafficway in Kansas (provided Final EIS for public comment); continued ongoing consultation with Tribal Governments and other interested parties to address potential project-related impacts associated with the proposed South Lawrence Trafficway; Fiscal Year costs totaled $3,085,534.31 for all regulatory activities. See Table M for Permit Evaluation, Enforcement, Administrative Appeals and Environmental Impact Statement expenditures.

TABLE 27-A **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
1.	Missouri River,	New Work:					
	Sioux City, IA	Approp.	--	--	--		237,942,190 1/
	to Mouth (Rulo,	Cost	--	--	--		237,942,190 1/
	NE, to Mouth)	Maint.					
	(Federal Funds)	Approp.	5,460,000	4,351,000	5,942,332	4,788,242	357,133,106 2/
		Cost	5,460,505	4,351,000	5,694,232	5,036,342	357,921,348 3/
	Contributed Funds	New Work:					
		Approp.	--	--	--	--	816,190
		Cost	--	--	--	--	816,190
		Maint.					
		Approp.	--	--	--	--	22,642
		Cost	--	--	--	--	22,642
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	238,758,380 1/
		Cost	--	--	--	--	238,758,380 1/
		Maint.					
		Approp.	5,460,000	4,351,000	5,942,332	4,788,242	357,943,990 2/
		Cost	5,460,505	4,351,000	5,694,232	5,036,342	357,943,990 3/
2.	Missouri River Fish	New Work:					
	& Wildlife Mitigation,	Approp.	5,462,000	6,818,400	5,461,000	7,747,000	46,618,400
	IA, NE, KS & MO	Cost	5,509,102	6,832,746	5,465,854	7,678,428	46,469,207
3.	Blue River Basin	New Work:					
	Kansas City, MO	Approp.	294,000	243,000	200,000	354,000	1,937,000
		Cost	298,719	226,421	216,099	352,908	1,936,168
4.	Blue River Channel	New Work:					
	Kansas City, MO	Approp.	10,002,000	8,906,250	10,366,300	3,884,100	186,501,821
	(Federal Funds)	Cost	8,705,818	10,138,014	10,382,769	3,904,409	186,434,677
	Contributed Funds	New Work:					
		Approp.	--	1,000,000	2,121,031	0	9,859,072
		Cost	155,295	250,693	1,745,059	1,474,203	9,570,144 5/
	Consolidated	New Work:					
	Summary	Approp.	10,002,000	9,906,250	12,487,331	3,884,100	196,360,893
		Cost	8,861,113	10,388,707	12,127,828	5,378,612	196,004,821 5/
5.	Brush Creek,	New Work:					
	Kansas City, MO	Approp-	--	--	--	--	14,390,000
	(Federal Funds)	Cost	39	11,000	4,909	992	14,390,059
	Contributed Funds	New Work:					
	Authorized Project	Approp.	--	--	--	--	1,225,767
		Cost	--	--	--	--	1,225,767
	Expanded Project[6]	New Work:					
		Approp.	--	--	--	--	5,785,235
		Cost	--	--	--	--	6,051,500 6/
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	21,401,002
		Cost	39	11,000	4,909	992	21,667,326 6/
6.	Clinton Lake,	New Work:					
	Wakarusa	Approp.	--	--	--		57,415,433
	River, KS	Cost	--	--	--		57,415,433 7/
		Maint.					
		Approp.	1,517,000	1,700,000	2,351,000	2,045,227	34,248,227
		Cost	1,517,000	1,700,000	2,346,000	2,029,397	34,227,397

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
7.	Harlan County	New Work:					
	Lake, Republican	Approp.	--	--	--	--	47,111,926
	River, NE	Cost	--	--	--	--	47,111,926 8/
		Maint.					
		Approp.	2,309,000	2,075,000	2,131,958	1,857,615	44,318,557
		Cost	2,309,000	2,031,000	2,171,958	1,861,615	44,318,557
		Rehab.					
		Approp.	--	--	--	--	1,017,623
		Cost	--	--	--	--	1,017,623
8.	Hillsdale Lake,	New Work:					
	Big Bull	Approp.	--	--	--	--	64,161,400
	Creek, KS	Cost	--	--	--	--	64,161,400
		Maint.					
		Approp.	905,000	759,000	869,000	702,910	16,489,780
		Cost	905,000	752,500	875,500	702,910	16,489,780
9.	Kanopolis Lake,	New Work:					
	Smoky Hill	Approp.	--	--	--	--	12,577,227
	River, KS	Cost	--	--	--	--	12,577,227 9/
		Maint.					
		Approp.	1,255,000	1,597,000	1,680,000	1,545,830	40,476,142
		Cost	1,255,000	1,597,000	1,680,000	1,545,830	40,476,142
10.	Little Blue River	New Work:					
	Lakes, Little Blue	Approp.	--	--	--	--	140,809,200
	River, MO	Cost	--	--	--	--	140,809,200 10/
		Maint.					
		Approp.	936,000	748,065	710,000	757,275	12,913,124
		Cost	936,000	748,065	710,000	757,275	12,913,124
11.	Long Branch Lake	New Work:					
	Little Chariton	Approp.	--	--	--	--	18,216,177
	River, MO	Cost	--	--	--	--	18,216,177
		Maint.					
		Approp.	814,000	843,000	852,600	872,562	14,493,712
		Cost	814,000	843,000	852,600	872,562	14,493,712
	Contributed	New Work:					
	Funds	Approp.	--	--	--	--	1,139,455
		Cost	--	--	--	--	1,139,332 11/
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	19,355,632
		Cost	--	--	--	--	19,355,509
12.	Melvern Lake	New Work:					
	Osage (Marais des	Approp.	--	--	--	--	37,436,530
	Cygnes) River, KS	Cost	--	--	--	--	37,436,530
		Maint.					
		Approp.	1,957,000	1,950,000	2,197,000	2,062,975	39,633,129
		Cost	1,957,000	1,950,000	2,197,000	2,062,975	39,633,129
13.	Milford Lake,	New Work:					
	Republican River,	Approp.	--	--	--	--	49,566,492
	KS	Cost	--	--	--	--	49,566,492
		Maint.					
		Approp.	1,896,000	2,089,000	2,190,003	2,099,961	50,194,904
		Cost	1,896,000	2,039,000	2,240,003	2,080,961	50,175,904

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
14.	Missouri River Levee System IA, NE, KS and MO (Federal Funds)	New Work:					
		Approp.	2,926,000	2,140,600	7,834,479	14,728,800	95,290,730
		Cost	2,900,539	2,156,871	7,827,614	14,730,826	95,240,685
	Contributed Funds	New Work:					
		Approp.	--	53,500	1,250,000	12,200,500	13,504,000
		Cost	--	655	115,872	13,182,631	13,299,158 12/
	Consolidated Summary	New Work:					
		Approp.	2,926,000	2,194,100	9,084,479	26,929,300	108,794,730
		Cost	2,900,539	2,157,526	7,943,486	27,913,457	108,539,843 12/
15.	Perry Lake, Delaware River, KS	New Work:					
		Approp.	--	--	--	--	49,095,918
		Cost	--	--	--	--	49,095,918
		Maint.					
		Approp.	1,984,000	2,307,000	3,569,000	3,073,344	50,652,687
		Cost	1,984,000	2,282,000	3,285,000	3,372,344	50,642,687
17.	Pomme de Terre Lake, Pomme de Terre River, MO	New Work:					
		Approp.	--	--	--	--	17,365,452
		Cost	--	--	--	--	17,365,452
		Maint.					
		Approp.	1,948,282	2,155,000	2,212,172	2,104,979	46,226,894
		Cost	1,948,282	2,155,000	2,212,172	2,104,979	46,226,894
18.	Pomona Lake, One Hundred Ten Mile Creek, KS	New Work:					
		Approp.	--	--	--	--	14,003,238
		Cost	--	--	--	--	14,003,238
		Maint.					
		Approp.	1,667,064	2,251,000	2,012,000	1,909,894	41,912,028
		Cost	1,667,064	2,091,000	2,172,000	1,909,894	41,912,028
19.	Rathbun Lake, Chariton River, IA	New Work:					
		Approp.	--	--	--	--	27,622,159
		Cost	--	--	--	--	27,622,159
		Maint.					
		Approp.	2,045,000	2,361,000	2,405,000	2,408,892	53,094,103
		Cost	2,045,000	2,361,000	2,405,000	2,399,892	53,085,103
20.	Smithville Lake, Little Platte River, MO	New Work:					
		Approp.	--	--	--	--	87,685,314
		Cost	--	--	--	--	87,685,314
		Maint.					
		Approp.	944,000	1,082,000	1,075,000	1,135,945	22,408,793
		Cost	944,000	1,082,000	1,075,000	1,127,945	22,400,793
21.	Tuttle Creek Lake Big Blue River, KS	New Work:					
		Approp.	--	--	--	1,800,000	82,384,079 13/
		Cost	--	--	--	1,593,939	82,178,018
		Maint.					
		Approp.	2,283,000	3,111,000	3,543,000	1,839,230	54,290,462
		Cost	2,282,000	2,904,000	2,875,186	2,364,026	53,939,444
22.	Wilson Lake, Saline River, KS	New Work:					
		Approp.	--	--	--	--	20,463,367
		Cost	--	--	--	--	20,463,367
		Maint.					
		Approp.	1,551,000	1,834,000	1,728,000	1,696,187	37,921,791
		Cost	1,551,000	1,834,000	1,728,000	1,696,187	37,921,791

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
24.	Scheduling Flood Control Reservoir Operations	Maint. Approp.	293,000	302,000	313,000	263,117	58,399,569
		Cost	293,000	302,000	313,000	263,117	58,399,569
25.	Inspection of Completed Flood Control Projects	Maint. Approp.	401,500	423,000	510,000	495,800	11,431,731
		Cost	401,500	423,000	510,000	495,800	11,431,731
26.	Harry S. Truman Dam & Reservoir Osage River, MO	New Work: Approp.	--	--	--	--	550,909,000
		Cost	--	--	--	--	550,908,965
		Maint. Approp.	7,063,583	7,626,059	7,894,119	7,307,396	154,189,319
		Cost	7,063,583	7,621,059	7,860,119	7,234,553	154,077,476
27.	Stockton Lake, Sac River, MO	New Work: Approp.	--	--	--	--	79,975,357
		Cost	--	--	--	--	79,975,357
		Maint. Approp.	3,200,810	3,674,000	3,918,101	3,814,933	77,275,003
		Cost	3,200,810	3,674,000	3,909,101	3,772,843	77,223,913
30.	Mississippi River Main Stem Model Development	Maint. Approp.	--	--	--		90,000
		Cost	--	--	--		90,000
31.	Catastrophic Disaster Response Planning	Maint. Approp.	92,600	114,935	117,546	0	4,153,431
		Cost	97,600	114,935	117,546	0	4,153,431
32.	Missouri River Basin Collaborative Effort	New Work: Approp.	13,500	48,000	43,350		508,850
		Cost	13,500	48,000	43,350		508,850
33.	Anti-Terrorism/Force Protection	New Work:	--	--	748,750	82,029	830,779
		Approp.	--	--	613,086	165,042	778,128
		Cost					

1. Includes $8,665,595 cost of new work for previous project.
2. Includes $738,109 for maintenance of previous project.
3. Includes funds appropriated under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo NE to Mouth, $40,000; and Milford Lake, KS, $40,000
4. Includes funds expended under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo, NE to Mouth, $1,119,854; Milford Lake, KS, $45,526; and Tuttle Creek Lake, KS, $53,087.
5. Exclude $35,296 non-Federal contribution not required for authorized Blue River Channel project (Blue River Channel Mobay Chemical (1984-1987)
6. Corps built Brush Creek Expanded Project requested by sponsor, City of Kansas City, MO, with all costs of betterments and enhancements not required by authorized project funded by sponsor. Excludes sponsor's contributions of $2,548,121 for Kansas City, MO, PED (FWKCM) 1987 through 1997; Park Features $2,159,888 for Park Design; $1,071,274 for Water Pollution Control during construction and $1,729,155 for Public works Department.
7. Excludes $118,805 non-Federal contribution not required for authorized Clinton Lake project (1973-1979).
8. Excludes cost of materials furnished Harlan County project without charge in the amount of $24,198.
9. Excludes cost of materials furnished Kanopolis Lake project without charge in the amount of $7,885.
10. Excludes $2,732,554 thru FY 1990 non-Federal contributions not required for authorized Little Blue Lakes project.
11. Corrected total. Excludes $42,149 interest during construction at Long Branch Lake project, and $500,000 work-in-kind.
12. Corps is relocating utilities requested by sponsor, City of Riverside, MO, that is required for the authorized project.

TABLE 27-B **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
1.		**MISSOURI RIVER, SIOUX CITY, IA, TO MOUTH (RULO, NE, TO MOUTH)**	
	Jul 25, 1912	Project adopted for securing a permanent navigable channel of 6-foot depth from Kansas City, MO to mouth.	H. Doc. 1287, 61st Cong., (contains latest published map). P.L. 241-62
	Aug 8, 1917	Fixed upstream limit of improvement at upper end of Quindaro Bend (274.8 miles from mouth) and provided for dredging.	H. Doc. 463, 64th Cong., (contains latest published map).
	Mar 3, 1925	For a minimum width of 200 feet and depth of 6 feet, with a reasonable additional width around bends, mouth to upper end of Quindaro Bend, Kansas City, MO.	P.L. 585-68
	Jan 12,1927	Appropriation of $12 million authorized for securing a 6-foot channel depth between Kansas City, MO, Quindaro Bend, and Sioux City, IA.	H. Doc.1120, 60th Cong., P.L. 560-70
	Jul 3, 1930	Appropriation of $15 million additional authorized; Additional allotments totaling $29,153,108 were made by Public Works Administration under provisions of National Industrial Recovery Act of 1933, and $9,669,791 allotted under provisions of Emergency Relief Appropriation Act of 1935.	P.L. 67-73 H.R. 11781 P.L. 520-71
	Aug 30, 1935	Completion of improvement from mouth to Sioux City, IA.	H. Doc. 238, 73d Cong., (contains latest published map). P.L. 409-73
	Mar 2, 1945	Securing a navigable channel of 9-foot depth and a minimum width of 300 feet.	H. Doc. 214, 76th Cong., (contains latest published map). P.L. 14-79
2.		**MISSOURI RIVER FISH AND WILDLIFE MITIGATION, MO, KS, IA & NE**	
	Nov 17, 1986	Project for mitigation of fish and wildlife losses Missouri River Bank Stabilization and Navigation Project, MO, KS, IA & NE: April 24, 1984, Report of Chief of Engineers, authorized at estimated cost of $51,900,000.	Title VI, Section 601(a), Water Resources Development Act of 1986, P.L. 99-662.
	Aug 17, 1999	The above act is modified to increase by 118,650 acres the amount of land and interest in land to be acquired for the project.	Title III, Section 334, Water Resources Development Act of 1999, P.L. 106-53
3.		**BLUE RIVER BASIN, KANSAS CITY, MO**	
	Oct 12,1996	Project for flood control along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1 1/4 miles in Jackson County, MO, to the Bannister Federal Complex levee: Report of the Chief of Engineers, dated Sep 5, 1996, at a total cost of $17,082,000, with an estimated Federal cost of $12,043,000 and an estimated non-Federal cost of $5,039,000.	Title I, Section 101(a), Water Resources Development Act of 1996, P.L. 104-303

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
4.		**BLUE RIVER CHANNEL, KANSAS CITY, MO**	
	Dec 31, 1970	Adopted plan for Blue River Basin and authorized $40,000,000 for initiation and partial accomplishment.	H. Doc. 91-332, 91st Cong.
5.		**BRUSH CREEK, KANSAS CITY, MO**	
	Nov 17, 1986	Project for flood control on Brush Creek, a tributary of the Blue River, Kansas City, MO, authorized at estimated total cost of $16,100,000.	Sec. 401(a), Water Resources Development Act of 1986, P.L. 99-662
	Nov 28, 1990	Modified to authorize the Secretary of the Army to Construct the project substantially in accordance with the Post Authorization Change Report, dated April 1989 (revised January 1990), at a total cost of $26,200,000.	Water Resources Development Act of 1990, P.L. 101-640.
6.		**CLINTON LAKE, WAKARUSA RIVER, KS**	
	Oct 23, 1962	The project for the Kansas River, KS,NE and CO is authorized at an estimated cost of $88,070,000.	1962 Flood Control Act, H. Doc 578, 87th Cong. P.L. 87-874.
7.		**HARLAN COUNTY LAKE, REPUBLICAN, NE**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
8.		**HILLSDALE LAKE, BIG BULL CREEK, KS**	
	Sep 3, 1954	The comprehensive plan for the Missouri River Basin, Approved by the Act of June 28, 1938, and as amended and supplemented is further modified to include the project for flood protection on the Kansas River and tributaries. It is further modified to include the project for flood protection on the Osage River and tributaries.	P.L. 780, 83rd Cong., H. Doc. 549, 81st Cong.
9.		**KANOPOLIS LAKE, SMOKY HILL RIVER, KS**	
	June 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 7th Cong., P.L. 761.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
10.		**LITTLE BLUE RIVER LAKES, MO**	
	Aug 13, 1968	Additional $38 million for prosecution of general comprehensive plan for Missouri River Basin	P.L. 90-483, H. Doc. 169, 90th Cong.
11.		**LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO**	
	Oct 27, 1965	The project for flood protection on the Chariton and Little Chariton Rivers and tributaries, IA and MO, is authorized at an estimated cost of $9,167,000.	1965 Flood Control Act P.L. 89-298, H. Doc. 238, 89th Cong
12.		**MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Docs. 642, 549 1/ and 561, 81st Cong.; 83rd Cong., P.L. 780
13.		**MILFORD LAKE, REPUBLICAN RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Doc. 549 1/, 81st Cong.; P.L. 780
14.		**MISSOURI RIVER LEVEE SYSTEM, IA, NE, KS AND MO**	
	Aug 18,1941	Levees along both sides of river from Sioux City to Kansas City.	H. Doc 821, 76th Cong. P.L. 77-228
	Dec 22, 1944	Extended project from Kansas City to the mouth and Provided for increased protection.	H. Doc 475 and S. Docs. 191 and 247, 78th Cong.
15.		**PERRY LAKE, DELAWARE RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Docs. 642, 549 1/, and 561, 81st Cong.; 83rd Cong., P.L. 780
16.		**PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DISTRICT)**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22,1944	Expanded general comprehensive plan for Missouri River and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.
	Jul 24, 1946	Additional expenditure of $150 million for prosecution of General comprehensive plan for Missouri River Basin.	
	May 17, 1950	Additional expenditure of $250 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Docs. 642 and 549 1/ 81st Cong.; 83rd Cong., P.L. 780
	May 2, 1956	Modified general comprehensive plan for Missouri River River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	
	Jul 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 409, 84th Cong.
	Jul 14, 1960	Additional expenditure of $207 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Dec 30, 1963	Additional expenditure of $80 million for prosecution of General comprehensive plan for Missouri River Basin and modified plan to include bank protection or rectification works below Garrison Dam.	
	Jun 18, 1965	Additional $116 million for prosecution of general comprehensive plan for Missouri River Basin.	
	May 12, 1967	Additional $20 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Aug 13, 1968	Additional $38 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Dec 24, 1970	Change comprehensive plan name to Pick-Sloan Missouri River Basin Program.	S. Doc. 91-1100, 91st Cong.
	Dec 23, 1971	Additional $101,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	S. Doc. 92-222, 92nd Cong.
	Mar 7, 1974	Additional $72,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
17.		**POMME DE TERRE LAKE, POMME DE TERRE RIVER, MO**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial Accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 642, 549 1/, and 561, 81st Cong.; 83rd Cong., P.L. 780.
18.		**POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 561, 81st Cong.; 83rd Cong., P.L. 780
19.		**RATHBUN LAKE, CHARITON RIVER, IA**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 561, 81st Cong., 83rd Cong., P.L. 780
20.		**SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO**	
	Oct 27, 1965	The project for flood protection on the Platte River and tributaries, MO and IA, is authorized at an estimated cost of $26,889,000.	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong.)
21.		**TURKEY CREEK BASIN, KS & MO**	
	Aug 17, 1999	Project for flood control at the lower reaches of Turkey Creek Basin in Kansas City, KS and Kansas City, MO. Report of the Chief of Engineers dated April 21, 1999, at a total cost of $42,875,000, with an estimated Federal cost of $25,596,000 and an estimated non-Federal cost of $17,279,000.	Title I Section 101(a) Water Resources Development Act of 1999, P.L. 106-53
	Feb 20, 2003	Authorizing to construct the project in accordance with the plans and subject conditions, recommended in a final report of the Chief of Engineers completed by December 31, 2003 at a total project cost of $73,380,000 with estimated Federal cost of $45,304,000 and estimated non-Federal cost of $28,076,000	Title I Section 101(a) Water Resources Development Act of 2003, P.L. 108-7, Sec.v 123
22.		**TUTTLE CREEK LAKE, BIG BLUE RIVER, KS**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 645
23.		**WILSON LAKE, SALINE RIVER, KS**	
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 534
	Jul 14, 1960 2/	Additional expenditure of $207 million for prosecution of general comprehensive plan for Missouri River Basin	S. Doc. 96, 86th Cong., P.L. 645
24.		**HARRY S. TRUMAN DAM AND RESERVOIR, OSAGE RIVER, MO**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 81st Cong.; 83rd Cong., P.L. 780
	Oct 23, 1962	The Kaysinger Bluff Reservoir is hereby modified in accordance with recommendations of the Chief of Engineers in H. Doc. 578, 87th Cong., at an estimated additional cost of $43,245,000; provided, that nothing in this Act shall be construed as authorizing the acquisition of additional lands for the establishment of a national wildlife refuge at the reservoir.	1962 Flood Control Act, H. Doc. 578, 87th Cong., P.L. 87-874
25.		**STOCKTON LAKE, SAC RIVER, MO**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 81st Cong.; 83rd Cong., P.L. 780

1/ Contains latest published maps of Missouri River

2/ Report of Chief of Engineers on justification of Wilson Dam and Reservoir, submitted in compliance with Public Law 505, 84th Congress, published as Senate Document 96, 86th Congress, was approved July 14, 1960 (Public Law 645).

TABLE 27-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to September 2003 Construction	Cost to September 2003 Operation and Maintenance
Fort Leavenworth Bridge removal	Complete	1965	270,393	--
Gasconade River, MO 1/2/	Complete	1931	139,003	85,077

1/ Improvement, adequate for existing needs. Project for maintenance only. Curtailment of project in H. Doc. 467, 69th Cong.

2/ Inactive portion of project deauthorized Jan 1, 1990 in accordance with Section 1001(b)(1) of Water Resources Development Act (WRDA) of 1986 (P.L. 99-662).

TABLE 27-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Operation and Maintenance
Abilene, KS	Completed	1961	1,099,350	--
Atchison, KS	Completed	1973	4,099,590	--
Barnard, KS 1/	Completed	--	127,860	--
Bartley, NE	Completed	1953	118,269	--
Bedford, East Fork, 102 River, IA 1/	Completed	1974	652,414	--
Big Blue River, Seward, NE 1/	Completed	--	126,887	--
Big Stranger Creek, KS 1/	Completed	--	337,131	--
Blue River Basin, Overland Park, KS				
Indian Creek Channel Modification 1/	Completed	1994	269,288 2/	--
Chariton-Little Chariton Basin, MO (1965 Act) 3/	Completed	1977	692,706 3/	--
Chariton River, MO (1944 Act)	Completed	1973	8,052,990	--
Elk Creek, Clyde, KS 1/	Completed	1984	989,015	--
Fairbury, Little Blue River, NE	Completed	1973	726,966	--
Frankfort, Black Vermillion River, KS	Completed	1966	1,271,025	--
Gypsum, Gypsum Creek, KS 1/	Completed	1984	2,782,793 4/	--
Indianola, NE	Completed	1950	67,275	--
Kansas City, Kansas River, KS (62 Mod)	Completed	1984	25,010,500 5/	--
Kansas Citys on MO and KS Rivers,				
MO and KS	Completed	1980	42,434,197 6/	--
Lawrence, Kansas River, KS	Completed	1985	8,773,488 7/	--
Little Blue River Channel Improvement,				
Little Blue River, MO	Completed	1989	25,530,083	--
Manhattan, Kansas River, KS	Completed	1967	2,488,585	--
Missouri River at New Haven, MO				
(Sec 212, 1950 Act)	Completed	--	139,883	--
Osawatomie, Pottawatomie Creek, KS	Completed	1973	2,036,624	--
Ottawa, Osage, (Marais des Cygnes) River, KS	Completed	1966	4,462,661	--
Perry Lake Area (Road Improvements), KS	Completed	1982	5,315,168	--
Rathbun Lake Fish Hatchery	Completed	1975	700,000	--
Salina, Smoky Hill River, KS	Completed	1967	3,878,668	--
Seward, NE 1/	Completed	--	126,887	--
Stonehouse Creek, Jefferson Co., KS 1/	Completed	1972	246,995	--
Topeka, Kansas River, KS	Completed	1974	21,174,593	--
Trimble Wildlife Area, Smithville Lake, MO	Completed	1990	1,570,000	--

1/ Authorized by the Chief of Engineers under Section 205, Public Law 858, 80th Congress, as amended.
2/ Required non-Federal contributions $129,680.
3/ Inactive units Little Chariton River (East and Middle Fork) and Mussell Fork were deauthorized Jan 1,1990 by Section 1001(b)(1) of the Water Resources Development Act of 1986, P.L. 99-662. Construction cost includes $481,106 cost of completed Shoal Creek Unit and $211,600 cost of deauthorized Little Chariton River and Mussell Fork units.
4/ Includes $130,841 non-Federal contributions.
5/ Inactive units Kansas Avenue Bridge and Approach, and Lower Argentine Units were deauthorized July 9, 1995 in accordance with Section 1001(b)(2) of WRDA of 1986, P.L. 99-662. Construction cost above includes $67,500 for deauthorized Bridge and Approach Unit; does not include $1,181,000 non-Federal Contributions.
6/ Includes $619,787 non-Federal contributions for work desired by local interests, but not required under the project. The project as a whole is complete except for Turkey Creek facilities in Central Industrial District Unit.
7/ Includes $153,377 non-Federal contributions.

TABLE 27-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Arlington Lake, MO	1948	Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	$8,651	--	Aug 5, 1977
Beatrice, Big Blue River, NE	1965	Flood Control Act approved September 3, 1954	16,317	--	May 6, 1981
Braymer Lake, Shoal Creek, MO	1966	1965 Flood Control Act P.L. 89-298, (H. Doc. 241, 89th Cong., 1st sess.)	--	--	Jul 16, 2002
Brookfield Lake, Yellow Creek, MO	1976	1965 Flood Control Act P.L. 89-298, (H. Doc. 241, 89th Cong., 1st sess.)	451,400		Jul 16, 2002
Chariton-Little Chariton Basin, MO (1965 Act)-- Inactive Units Little Chariton River (East and Middle Fork) and Mussell Fork Units only 1/	1977	1965 Flood Control Act P.L. 89-298 (H. Doc. 238, 89th Cong., 1st sess.)	211,600	--	Jan 1, 1990
Dry Fork and East Fork Lakes, Fishing River, MO	1974	1965 Flood Control Act P.L. 89-298 (H. Doc. 281, 89th Cong., 1st sess.)	51,989	--	Jan 1, 1990
East Muddy Creek, MO	1966	Authorized by 1965 Flood Control Act P.L. 89-298	--	--	Jul 16, 2002
Fort Scott Lake	1976	1954 Flood Control Act (H. Doc. 549, 81st Cong. 2nd Sess)	757,500	--	Apr 5, 1999
Garnett Lake, Pottawatomie Creek, KS	1973	Flood Control Act approved September 3, 1954	71,466	--	Nov 17, 1986
Gasconade River Navigation, MO	1931	Curtailment of project in H. Doc. 467, 69th Cong. 1928	2/	--	Jan 1, 1990
Grand River, MO					
Lower Grand River (1965 Act)	1966	1965 Flood Control Act P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess.)		--	Jul 16, 2002
Upper Grand River 1965 Act	1966	1965 Flood Control Act P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess.)	--	--	Jul 16, 2002
Grove Lake, Soldier Creek, KS	1977	1962 Flood Control Act (S. Doc. 122, 87th Cong. 2d sess.)	1,754,019	--	Nov 17, 1986
Hackleman Corners Lake, Cedar Creek, MO	--	Authorized by Flood Control Act approved September 3, 1954	--	--	Aug 5, 1977
Harry S Truman Dam and Reservoir, MO (Downstream Fish and Wildlife Mitigation)	--				Jul 16, 2002
Hays, Big Creek, KS 3/	1974	1965 Flood Control Act P.L. 89-298 (S. Doc. 22, 89th Cong., 1st sess.)	499,200	--	Jan 18, 1978

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Indian Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332 91st Cong., 2d sess.)	127,297	--	Nov 17, 1986
Kansas City, Kansas River, KS (62) Mod)--Inactive Units Kansas Avenue Bridge Approach, and Lower Argentine Units Only	1984	1962 Flood Control Act, S. Doc. 122, 87th Cong., P.L. 87-874	67,500 4/	--	Jul 9, 1995
Kansas River Navigation	1980	1965 Flood Control Act, P.L. 89-298, Sec. 201	259,900	--	Nov 17, 1986
Lawrence, Kansas River, KS, South Lawrence Unit	1981	1954 Flood Control Act (H. Doc. 642, 81 st Cong., 2d sess.)	--	--	Apr 5, 1999
Marysville, KS	--	Flood Control Act of September 3, 1954	133,682	--	Jan 1967
Melvern Lake and Pomona Lake (Road Improvements) KS (1974 Act)	--	Water Resources Development Act of 1974, Section 17	--	--	Jan 1, 1990
Mercer Lake, Weldon River, MO	1976	1965 Flood Control Act, P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess)	432,245		Jul 16, 2002
Merriam, Turkey Creek, KS	1970	Flood Control Act approved September 3, 1954	39,708	--	Nov 27, 1973
Mill Lake, Blue River, MO	1971	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	--	--	Nov 17, 1986
Missouri River Levee System, IA, KS, MO, and NE Deauthorized by Sec. 1002 Water Resources Development Act of 1968, P.L. 99-662, Section 1002: Units R402; R393-395; and R414	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	57,500	--	Nov 17, 1986
Deauthorized in accordance with WRDA Section 1001(b)(1): Units L36; R42; L51; R55-59-61; L68-92; R70; L78; R87; L94; L99; L103; R104; R107; R112; L117; L121; L124; L129; L134; L137-139; L145; R150; L154;	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	1,631,700	--	Jan 1, 1990

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
L157; R161; L164; R169; L175; R179-184; L191-196; L205; L217; R226; R240; R251; L256; R259; L263-270 5/; R272; R284; R302; R336; L353; L357; R361; L362; L392; L419-426; L435; R512-513, Section III					
L330-345;L319-325; L294;L504-512-519;R-331;R-328;L-100					
Onaga Lake, Vermillion Creek, KS		Flood Control Act of 1962, October 23, 1962 (P.L. 87-874)	2,178,261	--	Nov 17, 1986
Osage River Navigation, MO, lock and dam	1952	Original lock and dam authorized Mar 3, 1899; improvement authorized in 1928; placed in standby status Jul 1952 and operation & maintenance discontinued.	658,076 6/	--	Jan 1, 1990
Pattonsburg Lake, Grand River, MO					
1965 Act	1976	1965 Flood Control Act, P.L. 89-298	--	--	Jul 16, 2002
I-35 Highway Relocation	1976	(H. Doc. 241, 89th Cong., 1st sess)	393,623	--	Jan 1, 1990
Town Relocation	1976		91,929	--	Jan 1, 1990
Pioneer Lake, KS	1952	Flood Control Act approved June 28, 1938, as modified by Flood Control Act of August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	95,692	--	Aug 5, 1977
Platte River, MO Channel Improvement	1973	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong., 1st sess)	222,193		Jul 16, 2002
Pomme de Terre Lake (Power Addition), MO	1954 1974	Flood Control Act of 1954 (H. Doc. 549, 81st Cong., 2d sess.)	--	--	Nov 17, 1986
Richland Lake, MO	1948	Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 2, 1944	8,548	--	Aug 5, 1977
Smithville Channel, Little Platte River, MO	1973	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong., 1st sess)	6,896		Jul 16, 2002
Tomahawk Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	77,189	--	Nov 17, 1986
Trenton Lake, Thompson River, MO	1966	1965 Flood Control Act, P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess)	--	--	Jul 16, 2002

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Tuttle Creek Lake, KS (Road Improvement--1974 Mod.)	1977	Sec. 18 of Water Resources Development Act of 1974	3,000	--	Nov 17, 1986
Tuttle Creek Lake, KS Road and Bridge (1976 Act)	--	Water Resources Development Act of 1976, Section 189, P.L. 94-587	--	--	Jan 1, 1990
Wolf-Coffee Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	1,095,020	--	Nov 17, 1986

1/ For completed Shoal Creek unit of Chariton-Little Chariton Basin, MO, see Table 27-E.

2/ For completed project see Table 27-C. Deauthorized under Sec. 1001(b)(1) WRDA of 1986, P.L. 99-662.

3/ Hays, Lincoln Draw, KS, Section 205 feasibility study terminated in March 1991 due to lack of identifiable project that would meet dam safety concerns.

4/ For completed Argentine, Amourdale, and Central Industrial Units of project, see Table 27-E.

5/ Incorrectly shown as R263-270 in the deauthorization act.

6/ Operation and maintenance costs $850,495. Deauthorized under Sec. 1001(b)(1) of WRDA, P.L. 99-662.

MISSOURI RIVER LEVEE SYSTEM
TABLE 27-H (See Section 14 of Text)

Unit	Miles of Levee	Status
R512-513 Richardson Co. D.D. No. 7	19.1	Complete--1958
R500 Iowa Point D. D. No. 4	4.1	Complete--1954
Kimsey Holly Creek	4.4	Complete--1970
L497 Forest City L. D.	16.0	Complete--1962
L488 Holt Co. D. D. No. 7	11.5	Complete--1955
R482 Burr Oak D. D. No. 3	8.2	Complete--1954
L476 Amazonia L. D.	10.8	Complete--1956
R460-471 Elwood-Gladden L. D.	13.8	Complete--1968
L455 S. St. Joseph L. D.	15.6	Complete--1967
L443-448 Halls L. D.	17.3	Complete--1957
R440 Atchison & Doniphan Co. D. D.	10.7	Complete--1959
L408 Farley-Beverly D. D.	12.2	Complete (Levee raise modification)--1972
L400 Waldron L. D.	7.6	Complete--1957
L385 Riverside-Quindaro D. D.	6.5	Construction underway
R351 Atherton L. D.	15.9	Complete--1966
L330-345 Orrick L. D.	43.4	Inactive
L319-325 Henrietta-Crooked River D. D.	35.0	Inactive
L246 Brunswick-Dalton D. D.	20.0	Complete--1983
L142	6.0	Planning underway
Remaining units		Detailed planning not initiated

KANSAS CITY DISTRICT PROJECTS INCLUDED IN PICK-SLOAN MISSOURI BASIN PROGRAM

TABLE 27-I **(See Section 16 of Text)**

Project	Status 1/	Federal Cost 2/	Non-Federal Cost 3/	Non-Federal Reimbursable 4/
Abilene, Smoky Hill River, KS	C	$1,099,350	$287,000	
Bartley, Republican River, NE	C	118,269	9,500	
Fort Scott Lake, Marmaton River, KS	D	71,186,000	19,314,000	$44,800,000 5/
Garnett Lake, Pottawatomie Creek, KS	D	71,466	--	
Harlan County Lake, Republican River, NE	C	48,129,549	--	
Harry S. Truman Dam and Reservoir, Osage River, MO	C	550,908,965	--	138,385,000 6/
Hillsdale Lake, Big Bull Creek, KS	C	64,161,400	--	21,145,338 5/
Indianola, Republican River, NE	C	67,275	7,592	
Kanopolis Lake, Smoky Hill River, KS	C	12,577,227	--	
Lawrence, Kansas River, KS	C	8,620,111	2,130,000	
Manhattan, Kansas River, KS	C	2,488,585	265,000	
Melvern Lake, Osage (Marais des Cygnes) River, KS	C	37,436,530	--	7,131,834 7/
Melvern Lake and Pomona Lake (Road Improvement), KS (1974 Authorization)	D	--	--	
Milford Lake, Republican River, KS	C	49,566,492	--	12,162,134
Missouri River Levee System, Rulo to the Mouth 8/	A	93,553,000	37,216,000	
Osawatomie, Osage (Marais des Cygnes) River, KS	C	2,036,624	348,300	
Ottawa, Osage (Marais des Cygnes) River, KS	C	4,462,661	876,000	
Perry Lake, Delaware River, KS	C	49,095,918	--	8,551,805 5/
Pomme de Terre Lake, Pomme de Terre River, MO	C	17,365,453	--	
Pomona Lake, Osage River Basin, KS	C	14,003,238	--	862,923 5/
Salina, Smoky Hill River, KS	C	3,878,668	1,960,000	
Stockton Lake, Sac River, MO	C	79,975,357	--	24,206,593 9/
Topeka, Kansas River, KS	C	21,174,593	10,383,492	
Tuttle Creek Lake, Big Blue River, KS	C	80,584,079	--	2,333,916 5/
Tuttle Creek Lake, KS--Road and Bridge (1976 Act)	D	--	--	
Tuttle Creek Lake (Road Improvement), KS (1974 Modification)	D	3,000	--	
Wilson Lake, Saline River, KS	C	20,463,367	--	

1/ Status: A = Active; C = Completed; D = Deauthorized; I = Inactive.

2/ Actual appropriations for completed and deauthorized projects; estimated appropriation requirements for active and inactive projects.

3/ Estimated cost during construction.

4/ Future reimbursement of initial Federal cost.

5/ Estimated reimbursement costs allocated to water supply.

6/ Estimated reimbursement costs allocated to power.

7/ In accordance with the Memorandum of Understanding between the State of Kansas and the Dept. of the Army dated 1985, payment in full of $7,131,834 for 50,000 acre-feet of water supply was made in March 1995.

8/ Active portion of project. Currently estimated cost (2001): Deferred portion of project--$46,753,000 Federal and $4,336,000 non-Federal; Inactive portion of project--$104,791,000 Federal and $11,296,000 non-Federal. Actual cost of deauthorized units (1990) is $1,689,200 Federal.

9/ Includes $22,116,864 estimated reimbursement costs allocated to power, and $2,089,729 estimated reimbursement costs allocated to water supply.

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
TABLE 27-J (See Section 25 of Text)

Project	Month Inspected
Missouri River Main Stem	
R482, R500, R440 and Atchison, KS	Apr-2003
L497, L488, L476	Apr-2003
Kimsey Holley Creek, MO	Apr-2003
Birmingham, MO	May-2003
Fairfax Jersey Creek (KCK)	Apr-2003
North Kansas City, MO (Lower Section	May-2003
L408, L400, R471-460 and R351-I	May-2003
KCMO Units - CID (MO), East Bottoms, NKC Airport	Jun-2003
L448-443	Aug-2003
L455	May-2003
L246, Lower Chariton, MO and New Haven, MO	Aug-2003
R512-513	Oct-2003
Kansas River	
North Topeka, Soldier Creek	Apr-2003
South Topeka Units-Oakland, South Topeka, Auburndalr and Waterworks Unit	Apr-2003
Manhattan, KS	Apr-2003
Ft Riley, KS	Oct-2003
Lawrence, KS	Sep-2003
Kaw Valley--Argentine, Armourdale, Lower Fairfax, CID (KS) Lower Fairfax (all KCK)	Oct-2003
Osage River (MO) Marais des Cygnes (KS)	
Ottawa, KS	Jun-2003
Osawatomie, KS	Jun-2003
Smokey Hill, Saline, Solomon Rivers & Tributaries (KS)	
Abilene, KS	May-2003
Salina, KS	Sep-2003
Barnard, KS	Sep-2003
Gypsum, KS	Sep-2003
Republican River	
Clyde, KS	May-2003
Indianola, NE	Sep-2003
Big and Little Blue Rivers (KS & NE)	
Frankfort, KS	Apr-2003
Fairbury, NE, Seward, NE	Sep-2003
Blue River (MO)	
GSA Complex (KCMO)	May-2003
Blue River Channel & Brush Creek (KCMO)	Jun-2003
Little Blue River Channel, Jackson County, MO	
R351-II	May-2003
Little Blue River Channel, Jackson, MO	Jun-2003
Lake City AAP, MO	Jun-2003

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

TABLE 27-J (continued) **(See Section 25 of Text)**

Project	Month Inspected
Miscellaneous – Improved Channels	
Bedford, IA	May-2003
Shoal Creek, MO	Aug-2003
Macon-Adair Project, Kirksville, MO	Aug-2003
Stonehouse Creek, KS and Stranger Creek, KS	Oct-2003

TABLE 27-K **WORK UNDER SPECIAL AUTHORITIES**
(See Section 28 of Text)

Study	Status 1/	Fiscal Year Cost
Flood Control Activities Pursuant to Section 205, 1948 Flood Control Act Public Law 858, 80th Congress, June 30, 1948, as Amended		
Section 205 Coordination Account	--	$16,944
Blacksnake Creek, St. Joseph—170801	F	49,513
Brush Creek, Plaza to State Line, KS—172425	F	6,366
Eureka Creek, Manhattan, KS --178482	I	48,178
Birmingham Wastewater Trtmnt Plt--182608	F	1,945
Wears Creek, MO--165565	F	356
St. Joseph, MO--160262	F	15
Parkville, MO --160264	F	33
TOTAL ALL SECTION 205 ACTIVITIES		$123,350
Emergency Streambank Protection—Sec 14, 1946 Flood Control Act Public Law 526, 79th Congress, July 24, 1946, as Amended		
Section 14 Coordination Account	--	$ 30,080
Argosy Road Bridge, Riverside, MO	I	7,959
Big Nemaha River Bridge #3434P, NE	D	14,186
Blue River, KCMO, Kansas City, MO	D	11,633
Delaware River Water Intake, Kickapoo Res, KS	C	-1,991
Flat Creek, MO	D	363
Grand River Salt Creek Bridge	D	45
Hinkson Creek, Columbia Sewer Main, Mo	D	83
Kansas River, Eudora Bend Bridge, KS	C	493,299
Middle Fork, Grand US 169, MO	C	147,576
Petite Saline Creek, MO	D	51,695
Rush Creek, Parkville, MO	D	29,832
Sandy Hill Bridge, Medicine Creek	D	10,397
South Fork Clear Creek, Route FF, Maryville	D	40,885
Stranger Creek at K32, KS	D	11,013
Thompson River, Trenton, MO, Rt 6	D	18,464
West Fork Medicine Creek, Galt Bridge	D	38,065
TOTAL ALL SECTION 14 ACTIVITIES		$903,587

TABLE 27-K (continued)

Study	Status 1/	Fiscal Year Cost
Project Modifications for Improvement of Environment Section 1135, Water Resources Development Act of 1986, Public Law 662, 99th Congress, November 17, 1986		
Coordination Account Funds	--	$ 24,634
Blue Valley, Jackson County, MO	I	11,874
Brush Creek, K.C., MO	I	22,607
Fairbury Fish Pass, NE	F	90,274
Honey Creek Wetlands, (Greenville) IA	I	123,388
Kansas River Riverfront, Mo	F	229,533
Long Branch Lake Ecosystem Rest.	F	635
Long Branch Lake, St Park, (Bloomington) MO	I	7,625
Milford Hatchery Wetlands	I	1,422
Milford Lake Habitat Restoration, KS	C	928,520
Rathbun Lake Habitat Restoration, KS	P	10,772
Smithville Aquatic Plantings	I	63,346
Stumps Wetlands Kanopolis Lake Proj	I	60,730
TOTAL ALL SECTION 1135 ACTIVITIES		$1,575,360
Acquatic Ecosystem Restoration Section 206, Water Resources Development Act of 1996, Public Law 303, 104th Congress, October 12, 1996		
Coordination Account Funds	--	$ 24,811
Preliminary Restoration Funds	I	808
Big Nemaha Basin Wetland, Johnson Cty, KS	I	9,076
Chariton River/Rathbun Lake Watershed	D	341,118
David City Wetlands, NE	D	676
Lake Nemaha Wetlands, KS	C	17,338
Monkey Mountain Wetlands, Jackson Cty, MO	I	3,995
Rainwater Basin, MO	D	298
Straightwater Marsh Wetland Habitat	C	27,990
TOTAL SECTION 206 ACTIVITIES		$ 426,110

1/ Status: I = Initial; D = Planning and Design Analysis; F = Feasibility; C = Construction; P = Plans and Specs O = Operational

TABLE 27-K (continued)

Emergency Response Activities
(See Section 29 of Text)
Emergency Flood Control Activities – Repair
Flood Fighting, and Rescue Work –
Public Law 99, 84th Congress
And Antecedent Legislation

Activity	Approp 96X3125 FY 03 Expenditures	Total by Category
FLOOD CONTROL AND COASTAL EMERGENCIES		
Disaster Preparedness Program – 100		
Planning Activities	$438,779	
Training and Exercise	0	
Facilities	15,746	
Total Disaster Preparedness Program	$454,525	
Emergency Operations--200		
Response Operations—210	17,113	
Acquisition of Supplies & Equipment	0	
Operational Deployment	0	
Total Emergency Operations	$17,113	
Rehabilitation--300		
Federal Flood Control Works	$229,543	
Non-Federal Flood Control Works	0	
Field Investigation	0	
Inspections	114,312	
Total Rehabilitation	$343,855	
Emergency Water Supplies and Draught Assistance--400		
Field Investigations		
Total	$0	
Hazard Mitigation--600		
Hazard Mitigation Team Activities	$0	
FLOOD CONTROL AND COASTAL EMERGENCIES TOTAL FEDERAL NON-REIMBURSEABLE ACTIVITIES		$815,493
	Rivers and Harbors Contributed Funds Approp 96X8862 Expenditures	
SPONSOR'S CONTRIBUTED FUNDS		
Maintenance—300	$176,866	$176,866
TOTAL ALL EMERGENCY RESPONSE ACTIVITIES EXPENDITURES		**$992,359**

TABLE 27-L **ACTIVE GENERAL INVESTIGATIONS**
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 03	Total by Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Kansas Citys, MO & KS--13268	458,951	
Manhattan, KS--013394	32,977	
Swope Park Industrial, KC, MO—012821	1,300	
Topeka, KS—081396	55,923	
Upper Turkey Creek, KS—(Recon & Feas) 014411	304,247	
Wears Creek, Jefferson City – 081377	34,655	
Subtotal	$888,053	
Comprehensive Studies (150)		
Missouri & Mississippi Rivers Enhancement--010642	$76,933	
Review of Authorized Projects (160)		
MRLS, Units L455 and R460-471—013267	$125,066	
Miscellaneous Activities (170)		
Special Investigations--017250	$61,053	
Interagency Water Resources Development--014713	3,990	
North American Waterfowl Mgmt--053904	2,694	
Subtotal	$67,737	
Coordination with Other Agencies and Non-Federal Interests (180)		
Coop with Other Water Resources Agencies (181)--053907	$4,483	
Planning Assistance to States (186)	145,307	
Subtotal	$149,790	
TOTAL SURVEYS (Category 100)		**$1,307,579**
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management Service Unit--082030	$41,759	
Technical Services--082040	23,101	
Quick Responses--082045	4,987	
Flood Plains Management Study--082500	1,227	
Special Studies		
SS Platte County, Approx Study, MO—083944	11,030	
SS Union County, Approx Study, IA—083945	28,598	
Subtotal	$110,702	
Hydrologic Studies (260)		
General Hydrology Studies--053820	$11,993	

TABLE 27-L (continued) **ACTIVE GENERAL INVESTIGATIONS**
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 03	Total by Category
TOTAL COLLECTION AND STUDY OF BASIC DATA (Category 200)		**$122,695**
PRECONSTRUCTION ENGINEERING AND DESIGN		
Flood Control Projects (Project Not Fully Authorized) (Category 450)		
Swope Park Industrial KC, MO--012821	$85,809	
Flood Control Projects (Fully Authorized Project) (Category 600)		
Turkey Creek KS & MO Cost Sharing	$272,808	
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN		**$358,617**
GRAND TOTAL GENERAL INVESTIGATIONS		$1,788,891

TABLE 27-M

REGULATORY PROGRAM
(See Section 34 of Text)

Item and PWI Number	Federal cost FY 02
PERMIT EVALUATION (100)	
REG--Permit Evaluation--008204	$2,477,836
ENFORCEMENT (200)	
REG--Enforcement--008205	554,796
ENVIRONMENTAL IMPACT STATEMENT (500)	
--088870	0
ADMINISTRATIVE APPEALS (600)	
--013579	7,354
GRAND TOTAL REGULATORY PROGRAM	$3,039,986

PORTLAND, OR DISTRICT

The territorial limits of the Portland District include the Pacific coastal drainage area of the State of Oregon, the portions of the States of Oregon and Washington which lie within the Columbia River watershed downstream of the Umatilla Bridge below McNary Dam, and south central Oregon west of the Malheur River and the Steens Mountains, but not including that part which drains into the Klamath Lake and River.

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Navigation

1. CHETCO RIVER, OR

Location. Rises in Siskiyou Mountains of Coast Range at an elevation of 4,000 feet, flows for about 51 miles in a circuitous route, and empties into Pacific Ocean at Brookings, OR, 300 miles south of entrance to Columbia River and 345 miles north of San Francisco Bay. (See National Oceanic and Atmospheric Administration Charts 18600 and 18203).

Existing project. Provides for two jetties at the mouth of the river. Modification of 1965 authorized an entrance channel 120 feet wide by 14 feet deep; a barge turning basin about 250 feet wide, 650 feet long, and 14 feet deep; and a small boat access channel 100 feet wide by 12 feet deep. Also authorized was a 450-foot extension of north jetty with an increase in elevation of existing portion and a protective dike about 1,800 feet long with a top elevation of 18 feet. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 6.9 feet and extreme is about 12 feet.

Construction of jetties was completed December 1957. Removal of rock pinnacles and an abandoned bridge structure was accomplished in June 1959. Under authorized modification of October 1965, two contracts were completed. Construction of entrance channel and extension of north jetty was completed in July 1969. Construction of a protective dike, turning basin and small boat access channel was completed in March 1970. The authorization was modified by WRDA 92 to "direct the Secretary of the Army to assume maintenance of the approximately 200-foot long access channel to the south commercial boat basin consistent with authorized project depths". This channel will be maintained in lieu of the small boat access channel.

Local cooperation. Fully complied with.

Terminal facilities. The Port of Brookings has developed two large boat basins, one for commercial fishing boats and the other for sport boats, and a public boat-launching ramp. There are four fish receiving docks and a sea-going barge dock for lumber loading and storage. There is also a privately owned marina and a Coast Guard Station.

Operations during fiscal year. Maintenance: the U.S. hopper dredge Yaquina removed a total of 35,770 cubic yards of material.

2. COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA AND PORTLAND, OR

Location. The Columbia River rises in British Columbia, through which it flows for 425 miles. It enters the United States in northeastern Washington, and empties into the Pacific Ocean 645 miles north of San Francisco Bay and 160 miles south of Strait of Juan DeFuca. Total length of river is 1,210 miles. (See NOAA Charts 18520, 18521, 18522, 18523, 18524, 18526, and 18531; also Geological Survey Map of Washington.) Willamette River rises in Cascade Range in western Oregon, flows northerly, and empties into Columbia River about 100 miles from the sea. Its length from source of Middle Fork is about 294 miles. Project embraces 103.5 miles of Columbia River below Vancouver, WA, and 14.6 miles of Willamette River below Portland, OR. (See NOAA Chart 18526 and Geological Survey Map, State of Oregon.)

Existing project. Provides for a channel 35 feet deep and 500 feet wide from River Mile 106.5 to 105.5, the distance between existing highway and railroad bridges; a channel 40 feet deep and 600 feet wide from Vancouver, WA, River Mile 105.5 to mouth of Columbia River, River Mile 3; a turning basin at Vancouver, WA, 40 feet deep, 800 feet wide, and about 5,000 feet long; a turning basin at Longview, WA, 40 feet deep, average width of 1,200 feet, and about 6,000 feet long; and a channel 40 feet deep in the Willamette River with varying widths of 600 to 1,900 feet from the mouth (River Mile 0) to Broadway Bridge (River Mile 11.6) which encompasses Portland Harbor area, subject to provisions that channel from mouth of Willamette River to turning basin at Vancouver, WA, be limited to 500 feet in width until need for additional width is demonstrated by developed traffic. Existing project also provides for auxiliary channels 10 feet deep and 300 feet wide near Cathlamet, WA; 30 feet deep and 300 feet wide in St. Helens, (Oregon); and 30 feet deep and 500 feet wide connecting upper end of St. Helens Channel with main ship channel of Columbia; 24 feet deep and 200 feet wide along frontage of town of Rainier, OR, extended to its upper and lower ends to deep water in Columbia River, 8 feet deep and 150 feet wide from this depth in Columbia River through old mouth of Cowlitz River to a point about 3,000 feet upstream from present terminus of harbor line; a channel from Longview Port dock downstream along pier head line and past Weyerhaeuser Timber Co. plant at Longview to a connection with main ship channel below Mount Coffin, the downstream 2,400 feet of this channel to be 30 feet deep and 300 feet wide and remainder to be 28 feet deep and 250 feet wide; construction of a small boat mooring basin at Astoria, OR, to include a sheet pile, sand-filled breakwater about 2,400 feet long with a 30-foot roadway along its full length, and steel pile shore wings totaling about 1,460 feet long and for stone-and-pile dikes and revetments. Plane of reference in estuary from mouth of Harrington Point is mean lower low water; thence to Portland and Vancouver, adopted low water. Tidal range between mean lower low water and mean higher high water at mouth of Columbia is about 8 feet, and at Portland and Vancouver, about 3 feet at low stage of rivers. Extreme tidal ranges are about 13 and 3 feet, respectively. Annual freshets have little effect on stage of tide at mouth of Columbia; at Portland and Vancouver, they average about 12 feet, while highest know reached a stage of 33 feet above water at Portland.

Work on the 40-foot channel in Columbia River from Portland, OR, and Vancouver, WA, to the sea was completed in 1976. Auxiliary channel in vicinity of Longview was completed in 1949, and improvement of mouth of Cowlitz River and small boat mooring basin at Astoria were completed in 1950. Project depths are maintained all year except for the period immediately following the annual freshet in May-June when shoaling occurs at several locations. Timing of vessel movement with tidal fluctuations permits maximum draft conditions. In Columbia and Willamette Rivers between mouth and Broadway Bridge at Portland a depth of 40 feet at low tide and 42 feet at high tide is practicable all year. In Columbia River between mouth of Willamette River and Vancouver, WA, depths of 40 and 42 feet at low and high tide, respectively, are practicable all year. (For details relating to previous project, see pages 1995 and 1998 of Annual Report for 1915 and page 1746 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-3 of FY 1981 Annual Report.

Terminal facilities. At Portland, OR, there are six Port of Portland terminals consisting of 43 berths equipped to handle general cargo, bulk cargo, lumber, automobiles, lift-on-lift-off and roll-on-roll-off containers, and break-bulk vessels. The Port of Portland owns and operates a major ship repair yard, which includes the west coast's largest, and the world's third largest, floating dry dock. Also available in the harbor area are privately operated facilities for receiving, storing and out loading petroleum, wood chips, grain, logs, sand and gravel, cement, and steel products.

At Astoria, OR, there is a terminal with facilities for receiving and handling all types of general cargo.

At Vancouver, WA, there are municipal facilities capable of berthing five ships simultaneously. Each berth is completely outfitted with mechanical and lift facilities for receiving and handling all types of cargo. The port has a low dock to handle roll-on-roll-off and side-port discharging vessels. The grain terminal has a storage capacity of 4,500,000 bushels.

Port of Longview has a public terminal on Columbia River and a privately owned grain elevator with a capacity of 6,900,000 bushels. This port also has a heavy lift facility, with a capacity of 600 tons.

Port of Kalama has two berthing areas, one port owned and one private.

At other locations on Columbia River between Portland and Columbia River entrance there are sufficient private facilities to accommodate river vessels and fishing craft. These facilities, with planned extensions, are considered adequate for existing commerce. (For details, see Port Series Nos. 33 and 34, Corps of Engineers, published in 1974 and 1975 respectively.)

Operations during fiscal year. Maintenance: A total of 6.5 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed

2.9 million cubic yards, the U.S. hopper dredge Yaquina removed 595,461 cubic yards, the pipeline dredge Oregon removed about 2.9 million cubic yards, and the contract hopper dredge Sugar Island removed 99,864 cubic yards.

3. COLUMBIA RIVER AT BAKER BAY, WA

Location. Baker Bay is a shallow body of water about 15 square miles in extent on the north side of Columbia River Estuary near its mouth. The bay is separated from the river by Sand Island, a low-lying sand bar only a few feet above high tide level. (See NOAA Chart 18521.)

Existing project. A mooring basin 10 and 12 feet deep, about 20 acres in extent with protecting breakwaters; and a west channel 16 feet deep and 200 feet wide for the first 2,000 feet, then 16 feet deep and 150 feet wide to the boat basin; a channel east of Sand Island to Port of Ilwaco, a distance of about 4 miles. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

Channel extending through easterly passage of Sand Island was completed in 1934. This portion of authorized project is not passable and is not maintained at the present time. Dredging west channel to 8 feet was accomplished September 1948. Deepening west channel to 10 feet, and boat basin and breakwater construction at Ilwaco, WA, was finished December 1957, and again, deepening of the west channel to 16 feet completed in August 1985 under Section 107, finished the project.

Local cooperation. Fully complied with.

Terminal facilities. Wharves, floats, ramps, and berths, for fishing craft, barges and towboats. Small-boat basin and protecting breakwater provides moorings for numerous fishing and recreational craft all year. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A total of 101,000 cubic yards of material was removed from the project.

4. COLUMBIA RIVER BETWEEN CHINOOK, WA, AND HEAD OF SAND ISLAND

Location. At easterly end of Baker Bay, lying on north side of Columbia River near mouth. (See Coast and Geodetic Survey Chart 6151.)

Existing Project. Channel 10 feet deep and 150 feet wide, extending from head of Sand Island to Chinook; a turning and mooring basin at upper end of channel, 10 feet deep, 660 feet long, and ranging from 275 to 500 feet wide; reconstruction of easterly 393 feet of existing breakwater; and extension of existing breakwater easterly and thence northerly to connect with shore in vicinity of Portland Street, Chinook, WA. Tidal range between mean lower low water and mean higher high water is about 8 feet and extreme about 13 feet.

Project as originally authorized was completed in 1940. The 10-foot channel depth modification was accomplished September 1958. Rehabilitation of existing breakwater was completed September 1962.

Local cooperation. Fully complied with.

Terminal facilities. Wharves, floats, ramps, and berths, for fishing craft, barges and towboats. Small-boat basin and protecting breakwater provides moorings for numerous fishing and recreational craft all year. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A total of 144,000 cubic yards of material was removed from the project.

5. COLUMBIA RIVER AT THE MOUTH, OR AND WA

Location. The Columbia River entrance is 645 miles north of San Francisco Bay. Project is about 120 miles downstream of Portland, OR and Vancouver, WA. For description of Columbia River see Section 3.

Existing project. Provides for a one-half-mile-wide channel across a bar 55 feet deep (mean lower low water) for the northernmost 2,000 feet, and 48 feet deep (mean lower low water) along the southern 640 feet, to be secured by two rubble mound jetties, spur jetty "A" on the north shore and by dredging. The north jetty is about 2.5 miles long and the south jetty about 6.6 miles long; spur jetty "A" is about 0.3 miles long. Tidal range on bar between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

The originally authorized project depth of 40 feet was completed in 1918, south jetty completed in 1914 and north jetty in 1917. A spur jetty (jetty "A") was completed in 1939 (repaired in 1961) for the purpose of channel stabilization. Spur jetty "B" currently is classified "inactive." Dredging of the 48-foot bar channel started April 1956 was completed in September 1957. South jetty rehabilitation started June 1962 was completed September 1964. North jetty rehabilitation started January 1965 was completed April 1965. Additional rehabilitation of the south jetty was initiated in May 1982 and completed in September 1982. Deepening bar channel to 55 feet completed September 1984. In FY 95 a 500-foot section of the south jetty was removed to allow unimpeded access by fisheries resources to 603 acres of intertidal habitat under Section 1135 authority. Project dimensions were available at end of fiscal year. (For details relating to previous projects,

see page 1999, Annual Report for 1915 and page 1740 of Annual Report for 1938.)

Local cooperation. Fully complied with. Local interests contributed $500,000 toward construction of the north jetty, which was completed in 1917.

Terminal facilities. Chinook Packing Company owns a wharf for receiving fresh fish, and one additional fish buying company is located at Chinook. A portion of wharf is also used as a public landing. At upper end of channel there is a turning and mooring basin with facilities for mooring 350 fishing and recreational craft. Adequate terminal and mooring facilities include a public launching ramp, hoist with 10-ton capacity and suitable supply facilities.

Operations during fiscal year. Maintenance: A total of 3.3 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed 1.5 million cubic yards, and the contract hopper dredge Sugar Island removed 1.8 million cubic yards.

6. COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR

Location. On Columbia River, between Interstate Bridge at Vancouver, WA, 106.5 miles above mouth and The Dalles, OR, mile 191, a distance of 84.5 miles. For description of Columbia River, See Section 3, "Columbia and Lower Willamette Rivers Below Vancouver, WA, and Portland, OR."

Existing project. Channel 27 feet deep at low water and 300 feet wide between Vancouver, WA, and The Dalles, OR, 84.5 miles; a channel 10 feet deep at low water and 200 feet wide at upstream entrance to Oregon Slough, OR; a suitable turning basin adjacent to site of port development in vicinity of Camas and Washougal, WA; a boat basin at Hood River, OR, 500 by 1,300 feet and 10 feet deep at normal Bonneville pool level, with a connecting channel of same depth to deepwater, and a protecting breakwater on easterly side; a barge channel to waterfront at Bingen, WA, 10 feet deep at normal Bonneville pool level, 200 feet wide and about 1 mile long, and an access channel 7 feet deep at normal Bonneville pool level, 100 feet wide and about 1,000 feet long, to a natural mooring basin for small boats near east end of channel; and construction of The Dalles small boat basin, to provide a breakwater and shear boom protected basin about 400 by 800 feet in size with depth of 8 feet below a pool elevation of 72.5 feet at mean sea level. Tidal range between mean lower low water and mean higher high water at Vancouver is about 3 feet and at Bonneville about 0.2 foot at low stages of the river. Extreme tidal ranges are about 4 feet and 0.4 foot, respectively.

Existing project is complete. Construction of The Dalles small boat basin was completed in 1949. Channel dredging at upper end of Oregon Slough was accomplished in 1957. Project depth of 27 feet between Bonneville and The Dalles, OR, was achieved April 1959. The 27-foot channel depth between Vancouver, WA, and Bonneville, OR, was completed May 1938. Improvement of lower entrance of Bonneville Dam lock was completed in May 1961. At the present time, the channel is maintained to a depth of 17 feet, which is adequate for user traffic. Construction of a boat basin at Hood River, OR, and of Camas-Washougal, WA, turning basin was accomplished February 1962. Construction of a barge channel in Columbia River near Bingen, WA, was completed September 1963. Small boat recreation channel 100 feet wide 6 feet deep at South Channel Government Island completed 1985 under section 107.

Local cooperation. Fully complied with.

Terminal facilities. At Vancouver, WA, upstream of Interstate Highway Bridge at River Mile 108.1 on site of former shipyard are numerous shipbuilding facilities equipped with railway and river moorage facilities. Also in this area are a paper-storage warehouse with barge slip, two boat-building businesses, and a storage dock with gantry crane. Sites are available for development to suit lessee.

At Camas, WA, about 13.5 miles upstream from Vancouver, there is a private wharf used for transfer of paper-mill supplies and paper to and from barges, and facilities for discharging bulk oils from barges.

At Port of The Dalles (mile 44 above Bonneville) there is a municipal wharf 125 by 1,100 feet for use by tugs and barges. There is a one-story timber and corrugated iron warehouse, 94 by 461 feet, on this wharf. A private elevator with a capacity of 40,000 bushels and a public elevator of 1,113,800-bushel capacity for handling bulk grain to barges are also at The Dalles. Public elevator has rail, truck, and water connections. There is a port owned rail connection about three-fourths mile below municipal wharf where certain types of cargo may be handled between railroad cars and barges.

At numerous locations along the entire waterway there are facilities for transfer of logs to water from trucks and public and private boat basins. Facilities are considered adequate for present commerce.

Operations during fiscal year. Maintenance: Condition surveys were performed. U.S. hopper dredge Yaquina removed 96,760 cubic yards of material.

7. COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR

Location. The project area includes the Lower Columbia and Willamette Rivers. Work includes deepening the navigation channel to 43 feet, construction of wildlife mitigation features and environmental restoration features. The Columbia

River section extends from the mouth near river mile (RM) 3 to RM 106.5. The Willamette River section extends from the mouth to RM 11.6. The Willamette River portion of the project has been deferred and will be reevaluated in a subsequent NEPA document after resolution of cleanup issues associated with its being named to the federal National Priorities List by USEPA under the Comprehensive Environmental Response, Compensation, and Liability Act.

Existing project. Refer to Columbia & Lower Willamette Rivers below Vancouver, WA and Portland, OR project

Local cooperation. The project is sponsored by the six lower Columbia River Ports: Port of Portland, Port of St Helens on the Oregon side and the Port of Vancouver, Port of Woodland, Port of Kalama, and Port of Longview on the Washington side.

Operations during fiscal year. New Work: The primary effort for the fiscal year was spent conducting data collection and monitoring action related to requirements in the NOAA Fisheries and USFWS biological opinions. In January 2003 the Final Supplemental Integrated Feasibility Report and Environmental Impact Statement was issued for public review. In June 2003 the States of Oregon and Washington issued water quality certification and concurred with conditions to the Corps Coastal Zone Management Consistency determination.

8. COOS BAY, OR

Location. On Oregon coast 200 miles south of mouth of Columbia River and 445 miles north of San Francisco Bay. It is about 13 miles long and 1 mile wide, with an area at high tide of about 15 square miles. (See NOAA Charts 18580 and 18587.)

Existing project. Two rubble mound, high-tide jetties at entrance; a channel across the outer bar 47 feet deep and 700 feet wide, reducing gradually to 37 feet deep and 300 feet wide near River Mile 1 and continuing to about mile 9; thence a channel 37 feet deep and generally 400 feet wide to mile 15; Note-anchorage is gone, remove this piece an anchorage area 35 feet deep, 800 feet wide, and 1,000 feet long at Empire (River Mile 5.5); turning basins at North Bend (River Mile 12.5) and Coal bank (River Mile 14.7) 37 feet deep, 650 feet wide and 1,000 feet long; a channel 22 feet deep and 150 feet wide from Smith's Mill (River Mile 15) to Millington (River Mile 17); a small boat basin, about 500 by 900 feet at Charleston, with a connecting channel, 16 feet deep, 150 feet wide and 6,200 feet long, to deep water in Coos Bay, and construction of a protecting breakwater and bulkhead. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 7 feet and extreme is about 11 feet at both the entrance and at Coos Bay.

South jetty was completed in 1928, north jetty in 1929, and 24-foot channel in 1937. The south jetty was restored in 1941 and 1942 by construction of a concrete cap for full length of the jetty. Excavation of channel to 30 feet deep and generally 300 feet wide from entrance of Isthmus Slough was completed in 1951. Dredging outer bar channel to a depth of 40 feet, decreasing to 30 feet at Guano Rock was completed in 1952. Construction of the Charleston Channel and small-boat basin was completed in September 1956. Rehabilitation of south jetty was started in June 1962 and completed December 1963. Repair of north jetty was completed in August 1989. Construction of the deeper and wider channel to mile 15 was completed in 1979. Deepening of Charleston channel and turning basin was completed in 1985 under Section 107. (For details relating to previous projects, see page 1987 to Annual Report for 1915 and page 1728 of Annual Report for 1938.)

A modification to the existing project was authorized in the FY 1996 Energy and Water Development Appropriations Act, Public Law 104-46, November 13, 1995. This authorization provided for deepening the channel by 2 feet to 47 feet below mean lower low water (MLLW) from the entrance to Guano Rock (river mile 1) and to 37 feet below MLLW from river mile 1 to 15. Public Law 104-46 also provided for deepening by two feet and expanding the turning basin at river mile 12 by 100 feet from 800 by 1000 feet to 900 by 1000 feet. The excavation material for the channel deepening was transported to the ocean for disposal. The cost for preparation of the plans and specifications and the construction of the project was $11,616,000, of which $8,116,000 was federal and $3,500,000 was non-federal. In addition, the sponsor paid 100 percent of the estimated cost for dredging the berth areas.

Local cooperation. Fully complied with. Requirements are described in full on page 37-5 of FY 1981 Annual Report.

The sponsor, International Port of Coos Bay, signed a Project Cooperation Agreement on May 8, 1996 for the project modification to deepen the channel as authorized in Public Law 104-46. In accordance with cost sharing requirements of the Water Resources Development Act of 1986, the Federal Government provided 75 percent of the costs associated with the general navigation features of the project. The non-federal sponsor was required to provide 25 percent of the total construction cost of the general navigation features up front. The sponsor was also required to provide an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years.

Terminal facilities. At North Bend there is a municipal dock 649 feet long fronting on channel,

about 2,380 feet of privately owned mill docks, and three oil receiving terminals in vicinity.

At Coos Bay there is a privately owned dock with a frontage of 1,345 feet, open to the public on equal terms; several small landings for fishing and harbor craft; and three lumber docks with 1,300-foot, 576-foot and 500-foot frontages, respectively.

In the North Spit industrial area, there is one woodchip loading facility having a frontage of 1200 feet and a smaller T-dock operated by the Port of Coos Bay.

At Eastside, on Isthmus Slough, there is a 200-foot dock.

At Empire there is a privately owned lumber dock with frontage of 510 feet, and an oil terminal, owned by Port of Coos Bay, for receipt of petroleum products by barge. A barge slip also owned by the Port was completed in 1986.

At Charleston there are wharves, for receipt of fresh fish and shellfish and large seafood receiving and processing plant. There are also two municipally owned small-boat basins, open to all on equal terms, capable of mooring 250 fishing and recreation craft. Servicing facilities for small craft are available at all facilities, and public launching ramps have been constructed in Charleston area by private interests. A privately owned floating moorage on Joe Ney Slough has facilities for mooring about 50 fishing vessels.

At Jordan Cove area there is a dock, 248 feet long, for wood chip ships.

Operations during fiscal year. Maintenance: The US hopper dredge Yaquina removed 101,991 cubic yards, the clamshell dredge Sea Vulture removed 9,554 cubic yards and Sugar Island removed 662,916 cubic yards.

9. COQUILLE RIVER, OR

Location. Rises in Coast Range, flows generally westerly for about 100 miles, and empties into Pacific Ocean at Bandon, OR, 225 miles south of mouth of Columbia River and 420 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18186.)

Existing project. Two rubble mound high-tide jetties at river mouth, south jetty 2,700 feet long and the north, 3,450 feet long; and a channel 13 feet deep at mean lower low water and of suitable width from the sea to a point 1 mile above old Coquille River Lighthouse, and snagging to State highway bridge at city of Coquille. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth is 7 feet and extreme about 10 feet.

Jetties were completed in 1908 and entrance channel in 1933. North jetty was reconstructed in 1942 and a 750-foot extension to easterly end was constructed in 1951. South jetty was repaired in 1954 and north jetty in 1956. Coquille Lighthouse rehabilitation was completed June 21, 1976. Port of Bandon constructed boat basin facility in conjunction with protective breakwater and entrance channel construction in 1985, under Section 107. (For details relating to previous projects, see page 1986 of Annual Report for 1915 and page 1727 of Annual Report for 1938.)

A plan to deepen the entrance channel of the Coquille River from 13 feet to 18 feet was approved in May 1988. The economics were reevaluated in FY1993 and the project was not economically feasible at that time.

Local cooperation. Restoration of lighthouse using Code 710, Recreation Facilities at Completed Projects funding, required 50 percent cost sharing with non-Federal sponsor (Oregon State Parks).

Terminal facilities. At Bandon: A publicly owned wharf, and a small-boat basin open to all on equal terms.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 37,506 cubic yards of material from the entrance channel.

10. DEPOE BAY, OR

Location. Harbor on Oregon coast 100 miles south of mouth of Columbia River. (See Coast and Geodetic Survey Chart 5902.)

Existing project. Two rubble mound high-tide jetties at river mouth, south jetty 2,700 feet long and the north, 3,450 feet long; and a channel 13 feet deep at mean lower low water and of suitable width from the sea to a point 1 mile above old Coquille River Lighthouse, and snagging to State highway bridge at city of Coquille, and a Small Boat Basin channel 13 feet deep, 300 feet long and 100 feet wide and access channel 500 feet long and 50 feet wide. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth is 7 feet and extreme about 10 feet.

Local cooperation. Fully complied with.

Terminal facilities. Facilities, in inner basin, consist of landings and floats to accommodate operators of excursion and commercial fishing boats. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Preparation of Plans and Specifications for landslide stabilization behind the seawall. Initiation of a construction contract to stabilize the landslide.

11. PORT ORFORD, OR

Location. On Oregon coast 250 miles south of Columbia River entrance and 390 miles north of San

Francisco Bay. (NOAA Chart 18203 and Geological Survey Quadrangle, Port Orford, OR)

Existing project. Improvement of harbor by 55-foot extension of existing locally constructed breakwater and dredging of a channel 16 feet deep, 90 feet wide, and 750 feet long. Breakwater was completed October 1968. Channel was completed September 1971. The authorization was modified by WRDA 92 to allow the Corps to maintain the authorized navigation channel within 50 feet of the port facility.

Local cooperation. Fully complied with.

Terminal facilities. In FY 2000 local interests replaced the aging wooden pile dock with a sheet pile bulkhead and backfill dock. This dock provides almost 3 acres of dock area and two large-capacity cranes.

Operations during fiscal year. Maintenance: During the summer months a clamshell Sea Vulture removed 27,500 cubic yards of material. A winter dredging contractor removed 1,834 cubic yards

12. ROGUE RIVER HARBOR AT GOLD BEACH, OR

Location. Rises in Cascade Range in southwestern Oregon; flows westerly through Coast Range, and empties into Pacific Ocean 264 miles south of mouth of Columbia River and 381 miles north of San Francisco Bay. (See NOAA Chart 18202.)

Existing project. Two jetties at entrance, and a channel 13 feet deep and 300 feet wide from ocean to a point immediately below State highway bridge, about 1 mile, including widening channel at a point about 0.25 mile below bridge to form a turning basin 13 feet deep, 500 feet wide, and 650 feet long, and a Boat Basin Channel 10 feet deep by 100 feet wide approximately 2,500 feet long. At request of local interests, turning basin was located in south portion of estuary downstream from a point 0.25 mile below bridge. This change was effected to permit adequate terminal facilities to be constructed adjacent to turning basin. Mean lower low water is plane of reference. Range of tide between mean lower low water and mean higher high water is 7 feet, and extreme about 14 feet.

Project as authorized has been completed. Construction of two jetties at entrance was completed September 1960. Dredging river channel by contract and entrance bar by government plant was completed October 1961. North jetty rehabilitation along channel side was completed October 1966. Breakwater construction and dredging, under contract awarded in September 1964, was 17 percent accomplished when flood of December 1964 destroyed all completed works. Contract was terminated as further construction at that location was considered unfeasible. Bank protection work at Wedderburn location was completed in October 1972. A breakwater, constructed by Port of Gold Beach, was completed during 1973. In 1985, three pile dikes, located on the south side of channel ocean ward of the boat basin entrance, were completed. In 1997, at the direction of Congress, the boat basin entrance channel was relocated approximately 1,000 feet upstream to a new opening in the breakwater provided by the Port of Gold Beach.

Local cooperation. Fully complied with.

Terminal facilities. There are various landings for fishing and recreational craft. At Wedderburn, across river from Gold Beach, is a facility to accommodate excursion passengers and small freight items destined for various private landings between Wedderburn and Agness, OR. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 50,983 cubic yards of material from the entrance channel.

13. SIUSLAW RIVER, OR

Location. Rises in coast range, flows about 110 miles westerly and empties into Pacific Ocean about 160 miles south of entrance of Columbia River and 485 miles north of San Francisco Bay, CA. (See NOAA Charts 19583 and 18580.)

Existing project. Provides for 2 high-tide, rubble mound jetties 750 feet apart at the outer end, the north jetty 8,390 feet long (600 feet un-constructed) and the south jetty 4,200 feet long; an entrance channel 18 feet deep and 300 feet wide from deep water in ocean to a point 1,500 feet inside the outer end of existing north jetty; thence a channel 16 feet deep, 200 feet wide with additional widening at bends, and about 5 miles long, to a turning basin, 16 feet deep, 400 feet wide, and 600 feet long, opposite Siuslaw dock at Florence; a channel 12 feet deep, 150 feet wide from Florence to mile 16.5; and at River Mile 15.5 a turning basin 12 feet deep, 300 feet wide, and 500 feet long. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth of river is 7 feet and extreme about 11 feet. During low stages of river, tidal effect extends to Mapleton, 20.5 miles above mouth. (For details relating to previous project, see page 1988 of Annual Report for 1915.)

A modification to the existing project was authorized by public law 96-367, October 1, 1980. North and south jetty modifications were completed in FY 86. Modifications provide for extending the north and south jetties by 1,900 and 2,300 feet respectively. The jetty extensions terminate at approximately the minus 25-foot contour. Spur jetties were constructed on each jetty extension to reduce long shore currents from transporting material around

the heads of the jetties. Each spur jetty is 400 feet long and originates approximately 900 feet shoreward of the jetty head. The north jetty spur is oriented 45 degrees to the north of the existing jetty alignment and the south jetty spur 45 degrees to the south of the jetty alignment.

In cooperation with local interests and the U.S. Coast Guard, the entrance channel was realigned in FY00. This has resulted in a safer entrance and reduced dredging.

Local cooperation. Fully complied with.

Terminal facilities. Port dock at Florence, 150 feet wide and 350 feet long, is about 5.3 miles above river entrance and accommodates a fish-receiving station at east end of wharf which maintains a 2-ton capacity winch and supplies gasoline, oil and ice to fishermen. Other facilities at Florence consist of various floatways that provide docking facilities for fishing vessels and other small craft and a floating dock with accommodations for 75 commercial fishing vessels. Adjacent to commercial basin is mooring basin with accommodations for 200 sport boats of all sizes.

Modern docks for loading ocean-going barges with packaged lumber is maintained at Mapleton and owned by the Davison Lumber Company.

There are also a number of private landings and log booms between Cushman and Mapleton to accommodate river traffic. These facilities are considered adequate for existing traffic.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 87,748 cubic yards of material.

14. SKIPANON CHANNEL, OR

Location. In tidal waterway extending south 2.7 miles from deep water in Columbia River. Channel enters Columbia about 10 miles above mouth and 4 miles below Astoria, OR. (See NOAA Chart 18523.)

Existing project. Channel 30 feet deep and generally 200 feet wide extending from deep water in Columbia River to railroad bridge at Warrenton, OR, distance of 1.8 miles, turning basin of same depth, mooring basin 12 feet deep at mean lower low water at Warrenton, OR, and channel 7 feet deep, generally 40 feet wide, with increased widths at log dumps and terminals, for 4,500 feet via cutoff channel above railroad bridge. Channel is maintained to 17 feet, which is adequate for user traffic. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet; extreme is about 13 feet.

Project as authorized is complete. Dredging river channel and turning basin was completed in 1939. Construction of small-boat mooring basin at Warrenton, OR, was completed October 1957, and fill stabilization work was accomplished in August 1958.

Local cooperation. None required.

Terminal facilities. City of Warrenton owns wharf with a 300-foot frontage open to pubic on equal terms. One privately owned cannery wharf with a 300-foot frontage is used for unloading fish and handling fishnets. One privately owned boatyard has floats and moorage facilities for use by a maximum of 80 small boats. Small-boat basin has facilities for numerous fishing and recreation craft, and a privately owned lumber mill has a barge loading facility for chips and lumber. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Project condition surveys and dredging at the confluence was performed. A total of 15,000 cubic yards of material was removed from project.

15. TILLAMOOK BAY AND BAR, OR

Location. Bay is on Oregon coast about 50 miles south of mouth of Columbia River. (See NOAA Charts 18520 and 18558.)

Existing project. Provides for a jetty about 5,700 feet long on north side of entrance and a jetty 8,000 feet long on south side; a channel through bar 18 feet deep and of such width as can be practically and economically obtained; for a channel 200 feet wide and 18 feet deep from deep water in bay to Miami Cove; and for initial dredging to 12 feet deep of a small-boat basin and approach thereto at Garibaldi, OR. Project also provides for improvement of Bay ocean Peninsula, OR, by construction of sand and rock fill dike 1.4 miles long, on alignment extending between Pitcher Point and town of Bay Ocean. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet; extreme is about 14 feet. Hobsonville Channel portion of project is inactive.

Except for construction of Hobsonville Channel portion, classified inactive, channels were completed in 1927, north jetty in 1933, improvement of Bay ocean Peninsula in 1956 and small-boat basin in 1958. The north jetty was rehabilitated in 1965 and again in 1991. South jetty construction was initiated in 1969, extended in 1974, and completed to the authorized 8,000 feet in 1978. 18-foot channel to Miami Cove is inactive due to mill closure. (For details relating to previous projects, see page 1989 of Annual Report for 1915 and page 1474 of Annual Report for 1936.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-9 of FY 1981 Annual Report.

Terminal facilities. At Garibaldi: A facility owned by the Port of Bay City, for shipping lumber

and receiving logs, a public landing suitable for mooring fishing vessels, towboats, and other craft. Small-boat basin has adequate facilities for mooring fishing and recreational craft. A privately owned boat ramp and moorage is available for recreational craft.

At Bay City: A privately owned wharf used exclusively for receipt of fresh fish and shellfish. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A major maintenance study of the North and South Jetty continued.

16. UMPQUA RIVER, OR

Location. Rises in Cascade Range, flows westerly about 120 miles, and empties into Pacific Ocean 180 miles south of Columbia River and 465 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18584.)

Existing project. A jetty on north side of entrance about 8,000 feet long, a south jetty 4,200 feet long extending to a point 1,800 feet south of outer end of north jetty; dredging to provide a usable entrance channel 26 feet deep, and a river channel 22 feet deep and 200 feet wide, from mouth to Reedsport, a distance of about 12 miles with a turning basin at Reedsport 1,000 feet long, 600 feet wide, and 22 feet deep; deepening of channel at Winchester Bay to 16 feet deep by 100 feet wide for 3,100 feet, then adding 16 feet deep by 100 feet wide for 500 feet, and 12 feet deep by 75 feet wide for 950 feet beyond boat basin making up the East Boat Channel. A new West Boat Channel was added 16 feet deep by 100 feet wide for 4,300 feet and completed in 1984. Project was modified in 1951 to provide a channel in Scholfield River, but this portion of the project is currently inactive. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at river mouth is 7 feet, and extreme range is about 11 feet.

North jetty was completed in 1930. Extension to original south jetty was completed in 1938. Dredging a 22-foot channel from mouth of river to Reedsport was completed in 1941. Gardiner Channel and turning basin was completed in 1949 and Winchester Bay Channel and mooring basin in 1956. Rehabilitation of south jetty was completed August 1963. Extension of training jetty was completed October 9, 1980. Deepening Winchester Bay East Channel and new West Channel completed 1984 under Section 107. (For details relating to previous projects, see page 2967 of Annual Report for 1898 and page 1732 of Annual Report for 1938.)

Local cooperation. None required.

Terminal facilities. At Gardiner there is about 650 feet of wharf frontage. Also there is an oil unloading facility owned by International Paper Co. for exclusive use of tanker barges (note, International Paper is out of business). Port of Umpqua owns one wharf with 456 feet of water frontage, of which 228 feet is usable for vessels and another with about 75 feet of water frontage which has not been used generally for commercial shipping.

On Bolon Island across the river from Reedsport a wharf was constructed which has about 5 acres of open storage for lumber and available to all on equal terms.

At Winchester Bay, 2 miles from river entrance there is a major sports and commercial fishing harbor. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 99,558 cubic yards of material, and the clamshell Sea Vulture removed 13,963 cubic yards of material from Winchester Channel.

17. WILLAMETTE RIVER AT WILLAMETTE FALLS, OR

Location. Locks and dam covered by this project are at Willamette Falls, a rocky reef in Willamette River at Oregon City, OR, about 26 miles above mouth of river.

Existing project. Canal and locks were originally constructed by private interest in 1873 and were purchased by the United States in April 1915 for $375,000. Final report on purchase and rehabilitation of canal and locks is in the Annual Report for 1923, when project was reported 98 percent complete. The project includes four locks a canal basin and an extra guard lock used to prevent flooding when river levels are high. The system acts as a fluid staircase between the upper and lower reaches of the Willamette River. Total length of existing canals and locks is about 3,500 feet. Principal features of existing canal and locks at Willamette Falls are set forth-in Table 28-J. Ordinary fluctuation of stage of water above locks is 12 feet and extreme, due to flood conditions, 20 feet. Below locks, ordinary fluctuation is 15 feet and extreme 50 feet.

Until the 1940's, the gates were opened manually. Now, the gates are operated by hydraulic pumps controlled by switches in two control stations with the aid of closed-circuit television and radio communication. All the gates have been replaced under minor rehabilitation funds. Existing locks and grounds are in good condition and in continuous operation. New service building was completed in 1988 costing $523,000. The project was placed on the National Register of Historic Places in 1974, and was established as an Oregon Civil Engineering Landmark in 1991.

As a result of the mill closure in 1996, one of two shifts was eliminated and hours of operation reduced.

Local cooperation. Fully complied with.

Terminal facilities. Simpson Paper closed the mill in 1996 after over 100 years of operations. The mill was sold to West Linn Paper. West Linn Paper has a timber wharf about 850 feet long, extending to and supported by a concrete division wall built in lock canal by the United States. The use of the wharf for operations purposes by the mill may be changed due to shipping changes by the new owner.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

18. YAQUINA BAY AND HARBOR, OR

Location. Yaquina Bay is on Oregon coast, 113 miles south of mouth of Columbia River. (See NOAA Charts 18580 and 18581.)

Existing project. Two high tide rubble mound jetties at entrance, north jetty 7,000 feet, and south jetty 8,600 feet long; a spur jetty on channel side of south jetty 4,700 feet from its sea end, 800 feet long; five groins channel ward from south jetty; channel 40 feet deep for a general width of 400 feet across bar and at outer end of entrance channel; a channel 30 feet deep and 300 feet wide to a turning basin of same depth, 900 to 1,200 feet wide and 1,400 feet long, and a channel 18 feet deep and 200 feet wide from 30-foot channel at about mile 2.4, thence upstream to abandoned railroad terminus at Yaquina, a distance of about 4.5 miles. Project also provides for two small boat-mooring basins at Newport, OR. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet and extreme is about 12 feet. At mile 1.2 a 1,300 foot long breakwater protecting the Port of Newport South Beach Marina together with an entrance channel 8 feet long by 100 feet wide for a distance of 2,035 feet.

Project as originally authorized was completed in May 1952. Restoration of jetties was completed in 1934 and extension of north jetty 1,000 feet seaward was completed in 1940. Construction of mooring basin at Newport and dredging of channel and turning basin to project dimensions, were completed during fiscal year 1949. Restoration of north jetty was again accomplished in 1956. Under modification of July 3, 1958, extension of north jetty was completed in September 1966, dredging of 40-foot bar channel and 30-foot river channel was completed in October 1968, and extension of south jetty was completed in June 1972. The north jetty was rehabilitated in 1978, in 1988, and again in 2001. (For details relating to previous projects see Annual Report for 1893, part 4, page 3314, and Annual Report for 1938, page 1736.)

Local cooperation. None required.

Terminal facilities. At McLean Point, on north side of bay, about 2 miles from entrance, Port of Newport has two berths capable of serving ocean-going vessels, one 435 feet long, the second 520 feet long. At the time the second berth was dredged, a retaining wall and fill of 6 acres were constructed adjacent to deep water. There now is 40 acres of filled land adjacent to deep water, and of this total 7 acres were constructed in 1956-57. This facility has necessary carriers and lifts trucks for handling lumber cargoes, warehouse for covered cargo storage, and is open to all on equal terms.

Port of Newport also has a public wharf with 300 feet of frontage for servicing fishing boats. In addition, Port of Newport maintains 510 berths for mooring commercial and sport fishing vessels. There are several seafood companies on the bay, which have their own facilities for handling fresh fish and crab. Supplies and petroleum products are readily available for small vessels. On south side of bay about 1.2 miles above entrance, Port of Newport has constructed South Beach Marina which can handle approximately 600 pleasure craft and shallow draft fishing boats. Public facilities include public automobile and boat trailer parking, boat launching ramp, fuel dock, fishing pier, and picnic area. A dry boat moorage of 120 boats is complete. A swing hoist with 3-ton capacity is currently available and one with 60-ton capacity is planned.

About 2.0 miles above entrance, Oregon State University, in conjunction with the Marine Science Center on 52 acres, maintains a 220-foot pier for docking large and small research vessels and a 100-foot float for docking small boats. Docking facilities are restricted to research vessels and State of Oregon small boats.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 170,455 cubic yards of material and the Sugar Island removed 150,000 cubic yards of material.

19. YAQUINA RIVER, OR

Location. Rises in Coast Range, flows about 50 miles in a westerly direction, and empties into Yaquina Bay, on Oregon coast. (See US Coast and Geodetic Survey Charts Nos. 5802 and 6058.)

Existing project. Provides for two controlling half-tide dikes of piling, brush, and stone, each about 1,100 feet long (constructed by local interests), and for a channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Slough, extending from town of Yaquina near RM 4.0 to Toledo at RM 14.4.

Mean lower low water is plane of reference. Tidal range between lower low water and mean higher high water is 8 feet and extreme about 12 feet. Freshet heights are about 12 feet at mouth of Depot Slough. Channel work authorized March 1913 was completed

in 1914. Additional work authorized in 1960 was completed in 1969.

Local cooperation. Fully complied with.

Terminal facilities. Near town of Yaquina at river mouth, which is also head of Yaquina Bay, there is a moorage for small vessels and a small-craft shipyard. The Port of Toledo has public-terminal facilities for accommodation of local craft. There are also privately owned facilities for loading lumber barges, receipt of bunker fuel, and log rollways for receipt of logs. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Environmental studies performed.

20. PROJECT CONDITION SURVEYS

Hydrographic surveys are conducted to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis for the current fiscal year. Soundings in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Fiscal year costs were $35,521. See Table 28-I for surveys conducted during FY03.

21. NAVIGATION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended. In addition to general requirements, each project is limited to a federal statutory cost of not more than $4,000,000. The local sponsor must agree to provide an amount, in cash, not less than 10 percent or more than 50 percent of total project cost for navigation depending upon the planned depth of channel or basin; pay an additional 10 percent of the construction costs in cash over a period not to exceed 30 years after project completion. The non-federal sponsor must also agree to provide, maintain, and operate an adequate public parking, landing or wharf, service facilities, berthing areas, floats, pier, slips and similar marina and mooring facilities. The remaining portion of the project, such as the access channel or breakwater structure, is maintained by the Corps of Engineers at Federal expense within a limited amount. Federal expenditures for operation and maintenance under the Section 107 authority are administratively limited to the greater of $4,500,000, or 2.25 times the Federal costs of the project including costs for the feasibility through the construction phases. No projects were under construction during the fiscal year.

Navigation Activities to Section 111 of the 1968 Rivers and Harbors Act Public Law 483, 90th Congress, as Amended. In addition to general requirements, each project is limited to a federal statutory cost of not more than $5,000,000. The non-federal sponsor must agree to provide a cost share amount in the same proportion as the cost sharing provisions applicable to the project causing the damage. The non-federal sponsor must also provide interests in real estate in the same manner required for the project causing the shore damage. The non-federal sponsor must also agree to operate and maintain the mitigation measures, and, in the case of interest in real property acquire in conjunction with nonstructural measures, to operate and maintain the property for public purposes in accordance with regulations prescribed by the Corps of Engineers. No projects were under construction during the fiscal year.

Shore Protection

22. SHORE PROTECTION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Protection of the shores of publicly owned property from hurricane and storm damage pursuant to Section 103 of the River and Harbor Act of 1962, Public Law 874, 87th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than $3,000,000 per year. Costs for protection of Federally owned properties are 100 percent Federal. Costs assigned to areas meeting public use criteria are 35 percent non-Federal. Costs assigned to protection of privately owned undeveloped lands and shores that are not open to the public are 100 percent non-Federal.

See Table 28-L for expenditures under Section 103 during the fiscal year.

No projects were under construction during the fiscal year.

Flood Control

23. APPLEGATE LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR, on Upper Applegate River, a tributary of Rogue River, at River Mile 46, about 23 airline miles southwest of Medford, OR.

Existing project. A gravel-fill embankment dam, 242 feet high from streambed to crest with an overall length of 1,300 feet. A gate-controlled concrete chute-type spillway on the left abutment, and a regulating outlet conduit, and intake tower with multilevel intakes. Applegate Lake, 5 miles long, provides 75,000 acre-feet of usable storage for flood control and water conservation utilization. Project controls runoff from a drainage area of 223 square miles. In addition to flood control, the reservoir is operated to provide irrigation, fish and wildlife enhancement, water quality control, and recreation

benefits. Recreation facilities were provided by the Corps of Engineers, with operation and maintenance by the USFS under a memorandum of agreement. Project is complete and operating.

Freshets regulated by Applegate Lake on Applegate River and Rogue River is shown in Table 28-K.

Local cooperation. Authorizing act requires that State of Oregon insure maintenance of stream flow released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent consistent with reclamation laws and policies. Oregon Department of Fish and Wildlife made filing May 31, 1962 with State Engineer for water rights for use of stored water and natural flows for fish habitat improvement in amounts and at times specified in project authorization. The U.S. Bureau of Reclamation has made a feasibility study of Applegate Irrigation Division. The results of the study indicate that at present there does not appear to be a feasible Federal irrigation project for the Applegate River valley. Local interests have furnished all local cooperation specified by the 1970 Flood Control Act. The Secretary of the Army approved the assurances on May 8, 1975.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

24. BLUE RIVER LAKE, OR

Location. On Blue River, a major tributary of McKenzie River, 1.8 miles above confluence of the two streams at the confluence of Quartz Creek and Blue River and about 42 miles easterly of Eugene, OR.

Existing project. A gravel-filled embankment dam of 1,329 feet long at crest including spillway and 319 feet above the lowest point of the general foundation. A concrete gravity chute-type spillway with two gates is located on left abutment. Outlet works are in left abutment. On left shore of reservoir an earth-and-gravel fill embankment, about 1,535 feet long and 70 feet high, closes a low saddle between Blue River and McKenzie River. Project controls runoff from drainage area of 88 square miles. Reservoir provides 85,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigation and other purposes. The U.S. Forest Service under a Memorandum of Agreement provides recreation facilities. Project is complete. Construction of dam and appurtenant works was initiated in May 1963 and operation for flood control was effective in October 1968. Settlement of claims was completed in May 1974.

Eugene Water and Electric Board (EWEB) were granted a FERC license in November 1989 to install two small hydropower units at Blue River Lake project. EWEB has delayed their plans for hydropower units pending the conclusion of a Corps proposal to add water temperature control to the regulating outlet tower. Refer to the Willamette River Temperature Control project write-up for additional information.

Freshets regulated by Blue River Lake project on Blue River, a major tributary of McKenzie River, are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance work performed.

25. COTTAGE GROVE LAKE, OR

Location. On Coast Fork of Willamette River, 29 miles from mouth. Coast Fork raises in Douglas County, OR, on western slope of Cascade Range and northern slope of Calapooia Range, flows north for 49 miles, and unites with Middle Fork to form main Willamette River.

Existing project. An earth fill dam, 1,750 feet long at crest, 114 feet high from lowest point of the general foundation, a concrete gravity free overflow spillway 264 feet long near the right abutment, and a concrete gravity non-overflow section 96 feet long forming the right abutment. Total length of dam is 2,110 feet. Outlet works, consisting of three gate-controlled conduits, pass through spillway section. Reservoir provides 30,060 acre-feet of usable flood control storage and controls runoff of drainage area of 104 square miles. Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flow for navigation and for other purposes. Recreational development consists of day use and overnight facilities at five sites operated by the Corps of Engineers. Construction of project initiated August 1940 was completed April 1952. Dam and reservoir have been in continuous operation since September 1942.

Freshets regulated by Cottage Grove Lake on Coast Fork Willamette River are shown in Table 28-K.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of park facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance work continued.

26. DORENA LAKE, OR

Location. On Row River, OR, 7 miles from mouth. Row River rises in Lane County on western slope of Cascade Range, flows northwest for 19

miles, and enters Coast Fork of Willamette River 19.5 miles above mouth.

Existing project. An earth fill embankment dam of, 3,352 feet long at crest and 145 feet high from lowest point of the general foundation. Concrete gravity free-overflow spillway, 200 feet long, forms right abutment. Outlet works on five slide-gate-controlled conduits pass through spillway section. Reservoir provides 70,500 acre-feet of usable flood control storage and controls runoff of 265 square miles. The Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigational and other purposes. Construction of project initiated June 1941 was completed October 1952 except for construction of additional recreation facilities that were funded under the Code 710 program. Future recreation facility construction will be accomplished in accordance with the cost-sharing contract with Lane County, OR. Dam and reservoir have been in continuous operation since November 1949.

Freshets regulated by Dorena Lake project on Row and Coast Fork Willamette Rivers are shown in Table 28-K.

Local cooperation. A multiple project cost sharing agreement has been in force with Lane County since Sept. 1976. It includes 4 projects and 14 parks. At Dorena Lake, 6 parks included in the agreement are managed by Lane County under a lease agreement. Future recreation development will require cost sharing.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Replaced water systems in recreation areas.

27. ELK CREEK LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR at River Mile 1.7 on Elk Creek, a tributary of Rogue River, about 26.5 miles northerly from Medford, OR.

Existing project. Construction work for the 249-foot high roller compacted concrete gravity dam, 2,600 feet long at the crest, with a gate controlled concrete chute spillway, regulating outlet conduits, power penstock and multiple use intake tower attached to the upstream face of the dam has been stopped due to a court injunction. The project would control runoff from a drainage area of 135 square miles, and provide future municipal and industrial water supply, irrigation, fish and wildlife enhancement, water quality control, and recreation benefits.

Funds to initiate preconstruction planning were appropriated in FY65, and for construction in FY71. Construction was deferred in FY77 due to a lack of state support. Following significant review, evaluation, and a public hearing, the Water Policy Review Board reversed its position and in April 1981 voted to support Elk Creek. Funds were appropriated in FY82 and FY83 to update and continue project design, plans, and specifications. Funds were appropriated in FY85 to resume construction. After initiation of construction, an injunction was placed against completion of the project and additional analysis under National Environmental Policy Act (NEPA) was required in order to remove the injunction. Construction of the project was terminated with the project at 83 feet, one-third its design height.

After completion of the final Environmental Impact Statement Supplemental #2, the Department of Justice filed a motion with the Court to remove the injunction. The Ninth Circuit Court of Appeals issued a ruling on April 21, 1995. In a 2-1 decision, the Court also reversed the District Court decision that EISS #2 met the requirements of the earlier Ninth Circuit opinion and awarded attorneys fees to the plaintiffs. The case was remanded with instructions to prepare a third supplement adequately addressing all issues raised under the NEPA process.

Due to the Ninth Circuit Court of Appeals decision and the current Federal budgetary climate, the Corps does not plan to perform the environmental studies under NEPA necessary to remove the Federal court injunction against completion of the project. Therefore, an evaluation of the requirements for long term of the project in its uncompleted state will be required.

The FY 97 Energy and Water Development Appropriation Act provided funds for long-term management in an uncompleted state, including passive fish passage. Since 1998 the Corps has attempted to remove a section of the Dam to provide a long-term fish passage solution at the project. A National Marine Fisheries Service January 2001 Biological Opinion stated that this was not the only option available to avoid jeopardy to listed Coho Salmon. The Opinion also stated that there was the potential that risks associated with a new trap haul facility could be reduced to an acceptable level. Based on concerns raised by locally elected officials, the Assistant Secretary of the Army for Civil Works determined a need to conduct an agency level review of our plan to remove a section of the Dam. In order to allow for this review, our effort to remove a section of the Dam was deferred in FY 02. Until a permanent fish passage solution is implemented, fish passage around the project will be provided through operation of a temporary trap and haul facility.

Local cooperation. Authorizing act requires that State of Oregon take action prior to construction to insure maintenance in stream of flow to be released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent

consistent with the U.S. Bureau of Reclamation laws and policies. On February 24, 1966, State of Oregon Water Resources Board filed for withdrawal rights of 25 cubic feet per second to maintain a minimum flow for fish. Development of recreation facilities requires a local sponsor willing to cost share in recreation development and assume operations and maintenance of park facilities.

Operations during fiscal year. New Work: Operation during construction continued. The Detail Design Report for the permanent trap and haul facility proceeded to the 30% level and the location for the permanent facility was selected.

28. FALL CREEK LAKE, OR

Location. On Fall Creek, a tributary of Middle Fork Willamette River, about 7 miles above confluence of the streams and about 19 miles southeasterly of Eugene, OR.

Existing project. An earth-and-gravel fill embankment about 5,100 feet long at crest and 193 feet high from lowest point of the general foundation. A gated concrete gravity spillway is in left abutment. Outlet is in right abutment. Reservoir provides 115,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigation and other purposes.

Construction of project began May 1962 and was essentially complete November 1965. Reservoir storage for flood control was effective October 1965. Sky Camp Lodge was completed October 1978. Future recreation facilities will be provided in accordance with the cost-sharing contract with Bethel School District. Bethel School District has a sub-agreement with the Springfield Kiwanis Club for management of this facility. The Corps manages one park at the project.

Freshets regulated by Fall Creek Lake project on Fall Creek, a tributary of the Middle Fork, Willamette River are shown in Table 28-K.

Local cooperation. Fall Creek parks are managed by Oregon State Parks under lease agreement. Future development will not require a cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

29. FERN RIDGE LAKE, OR

Location. On Long Tom River, 23.6 miles from the mouth. Long Tom River rises in Lane County, OR, on eastern slope of Coast Range, flows north for 50 miles, and enters Willamette River 147 miles above its mouth.

Existing project. A main dam of 6,624 feet long at crest and 49 feet high from lowest point of the general foundation and two auxiliary dikes, 915 and 3,929 feet long, along northeasterly boundary of lake. Main dam consists of an earth fill embankment dam 6,330 feet long, a concrete gravity spillway near left abutment with a non-overflow structure 46 feet long, containing outlet works, and an overflow structure, 248 feet long, controlled by six automatic gates. Project includes rectification of channel of Long Tom River downstream of dam. Reservoir provides 110,000 acre-feet of usable flood control storage and controls runoff of tributary drainage area of 275 square miles. Reservoir protects Long Tom River Valley and is operated as a unit of coordinated reservoir system to protect Willamette River Valley generally and to increase low water-flows for navigation and other purposes. Dam was originally constructed in 1941 to height of 47 feet. Provision of additional storage for flood control was obtained in 1965 by raising embankments 2 feet to 49 feet above lowest point of the general foundation.

Construction of project initiated April 1940 was completed August 1951, except for provision of additional storage for flood control authorized in 1962 and completed April 1965, and construction of additional recreation facilities funded through the Code 710 program. Construction of three water flow impoundments was completed in 1994 under Section 1135 authority. Dam and reservoir have been in continuous operation since December 1941. Development of future recreation facilities will be in accordance with the cost-sharing contract with Lane County, and requires a 50 percent contribution by the county. Development is subject to availability of funds by the Government and the county.

Freshets regulated by Fern Ridge Lake project on Long Tom River are shown in Table 28-K.

Local cooperation. Fern Ridge Lake is included in the Lane County multiple project cost sharing agreement. Three parks are managed by Lane County under lease agreements. Future development will require cost sharing. The Oregon Department of Fish and Wildlife manages 5,000 acres of land and water for migratory waterfowl under a lease agreement

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Deterioration of main dam drainage system discovered. Remedial actions investigated.

30. LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA.

Location. On the Columbia River and tributaries between Sandy River, OR, and mouth of Columbia River.

Existing project. Provides for construction of 224,000 linear feet of bank protection works at 96 locations along Lower Columbia River below River Mile 125 and along principal tributaries in this reach,

to protect existing improvements such as levees and developed industrial lands from further erosion. Existing project is a unit of general comprehensive plan for flood control, navigation, and other purposes in Columbia River Basin. Construction of project began in July 1961 and is 88 percent complete. A total of 191,000 linear feet of bank protection work at 84 locations has been completed. Estimated Federal cost is $28,000,000.

Local cooperation. Flood Control Act of 1950 provides local interests furnish lands and rights-of-way; make necessary highway, highway bridge, and utility alterations; hold the United States free from damages; and maintain and operate completed works. Under Section 103 of the Water Resources Development Act of 1986, Local Interests will also be required to make cash contribution for construction of each site. Estimated costs for all requirements of local cooperation are $2,000,000.

Operations during fiscal year. New Work: Coordination with sponsors and evaluation of local erosion problems continued.

31. MOUNT ST. HELENS SEDIMENT CONTROL, WA.

Location. On the North Fork Toutle River, 2 miles upstream from its confluence with the Green River, in Cowlitz County, southwest Washington. The river systems impacted by the project include Toutle, Cowlitz and Columbia Rivers. Most of the population affected by the problems resides in the communities of Longview, Kelso, Lexington, and Castle Rock, Washington.

Existing project. The project was authorized by the Supplement Appropriations Act, 1985 (Public Law 88, 99th Congress, August 15, 1985). The Act includes authorization "... to construct, operate and maintain a sediment retention structure near the confluence of the Toutle and Green River, Washington, with such design features and associated downstream actions as are necessary, in accordance with the Feasibility Report of the Chief of Engineers dated December 1984." As authorized, the project will provide a permanent solution to potential flooding on the Cowlitz River from sedimentation problems created by the eruption of Mt. St. Helens. The Decision document recommended construction of a single sediment retention structure (SRS) with a 125-foot high spillway at the Green River site on the North Fork Toutle River, improvements to the levee system at Kelso, Washington, and dredging downstream from the SRS for the near term solution to the sedimentation problem.

Local cooperation. Local interests were responsible for provision of all lands, easements, and rights-of-way for the sediment retention structure, dredging disposal areas, and levee improvements. Local interests were also responsible for all alterations and relocations of buildings, roads, bridges and other structures or utilities made necessary by implementation of the project. In addition, operation and maintenance of fish facilities, the levee system at Kelso and dredged material disposal sites are the responsibility of local interests. Cowlitz County offers visitor services in their viewpoint area. Non-federal cash contribution is $3,600,000 and the estimated non-federal land, easements, right-of-ways, and relocations costs are $21,000,000.

Operations during fiscal year. New Work: New Cowlitz River monitoring stream gages were installed to annually verify forecasted rates of sediment movement and fill in the river, and ultimately flood protection levels at the authorized communities. The Annual Sediment Survey documenting the volume of sediment above the SRS was completed as well.

Maintenance: Routine operation and maintenance continued.

32. WILLAMETTE RIVER BASIN BANK PROTECTION, OR.

Location. On Willamette River and tributaries, between Cascade Range and Coast Range, from a point south of Eugene to Portland, OR.

Existing project. Provides for clearing, sloping, and reveting riverbanks; construction of pile and timber bulkheads and drift barriers; minor channel improvements; and maintenance of existing works for control of floods and prevention of erosion at various locations along Willamette River and its tributaries. The current scope of the project is a total of 510,000 linear feet of bank protection at 236 locations. Estimated Federal cost is $30,700,000.

Construction of project began in 1938 and is 96 percent complete. A total of 489,795 linear feet of bank protection work at 230 locations consisting of revetment of riverbanks, pile and timber bulkheads, drift barriers, and channel improvements, have been completed on Willamette River and tributaries.

Local cooperation. Section 3, Flood Control Act of 1936 and Section 103, Water Resources Development Act of 1986 applies. Estimated costs for all requirements of local cooperation under terms of project authorization were $2,300,000.

Operations during fiscal year. Maintenance: 178 bank protection projects were inspected by helicopter in FY03. All repairs continue to be on hold pending development of an "Inventory and Evaluation Report". The report is a requirement of the Draft Willamette River Basin biological opinion. There were no critical facilities requiring repair.

33. WILLOW CREEK LAKE, HEPPNER, OR.

Location. On Willow Creek immediately upstream from Heppner and just downstream from junction of Balm Fork and Willow Creek in Section 35, Township 2 South, Range 26 East, Willamette Meridian.

Existing project. Project provides flood protection to the city of Heppner and downstream area by controlling runoff from a drainage area of 96 square miles. The dam is a roller compacted concrete structure 160 feet high at crest elevation 2,130. Ancillary features include a center uncontrolled spillway with a maximum flood capacity of 93,300 cfs (cubic feet per second), an outlet works with a capacity of 500 cfs, a minor flow works and diversion works. Gross storage capacity of the project is 13,250 acre-feet, consisting of 7,750 acre-feet for exclusive flood control, 1,750 acre-feet for joint flood control and irrigation, 1,750 acre-feet exclusive irrigation, and 2,000 acre-feet dead storage for fish, wildlife, recreation, sediment accumulation, and aesthetics. Limited recreation facilities are being provided.

Willow Creek Parks and Recreation District has leased recreation facilities at Willow Creek Lake. A courtesy handling dock was constructed by the Recreation District utilizing Oregon State Marine Board funds. A playfield area below the dam has been leased to the City of Heppner.

The final Environmental Impact Statement was filed with the Environmental Protection Agency on December 20, 1979. The provisions of the Clear Water Act were met by a Section 404(b)(1) Evaluation and a public notice issued January 12, 1980, and a section 401 certification from the State of Oregon on February 15, 1980. Land acquisition is about 99 percent complete.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

34. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Funds appropriated for inspection of completed local flood protection works are used to determine maintenance condition of completed works, and to ascertain whether local interests properly maintain those works. Numerous levied areas and bank protection works were inspected at various locations along both banks of Lower Columbia River below Bonneville Dam, along Oregon Coast, in eastern Oregon, in southern Oregon and in Willamette River Basin. A representative of sponsoring districts accompanied the Portland District representatives performing the levee inspections. Deficiencies in maintenance and need for repairs were discussed with sponsoring districts' representatives and a report were sent to each sponsor with recommendations for improving maintenance. The program to improve maintenance of completed Federal projects initiated by House Appropriations Committee on Civil Functions was continued.

Refer to Table 28-Q for information relating to completed works.

35 SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Corps of Engineers monitored flood control operations at four Bureau of Reclamation projects (Prineville, Ochoco, Emigrant, and Scoggins), one local project operated by Douglas County (Galesville), and one municipal power project operated by Tacoma City Light (Mossyrock). The projects were partially constructed with flood control funds, thereby subjecting project operation to monitoring by the Corps of Engineers under Section 7, Flood Control Act of 1944.

The four Bureau of Reclamation projects, the Douglas County project and Mossyrock project were operated during the fiscal year within the flood control regulations specified for each project. Reservoir levels returned to more normal levels during November and December, as the dry conditions of 2002-2003 returned to more average conditions. Total cost of monitoring and flood control direction of the six projects during the fiscal year was $67,550.

36. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Flood Control Activities Pursuant to Section 205 of the 1948 Flood Control Act, Public Law 858, 80th Congress, as Amended: In addition to general requirements, each project selected is limited to a federal statutory cost of not more than $7,000,000. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. No projects were under construction during the FY.

No projects were under construction during the fiscal year.

Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended: Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended: In addition to general requirements, each project is limited to a federal statutory expenditure of not more

than $1,000,000 in any one year. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. No projects were under construction during the fiscal year.

Multiple-Purpose Projects, Including Power

37. BONNEVILLE LOCK AND DAM - LAKE BONNEVILLE, OR AND WA

Location. Project is on Columbia River, 40 miles east of Portland, OR, about 146 miles above mouth of river. For description of Columbia River, see Section 2.

Existing project. A dam, power plant, and lock for power and navigation. Spillway dam extends across main channel from Cascade Island shore to Bradford Island. Overflow crest at 24 feet above mean sea level is surmounted by 18 vertical-lift steel gates, 16 with remote control hoists placed between piers which extend to elevation 99 feet where a service roadway provides access, and two 350-ton gantry cranes for regulating gates. Powerhouse No. 1 extending across Bradford Slough to the Oregon shore has an installation of 10 units, consisting of one unit of 48,000 kilowatts, one unit of 59,500 kilowatts, and eight units of 60,000 kilowatts each, totaling 587,500 kilowatts. Ordinary and extreme fluctuations of river at lower lock gate are about 21 and 47 feet respectively. Project includes fish ladders to serve main channel, Bradford Slough Channel, and Powerhouse II channel. Navigation lock and powerhouses are founded on andesite, and main dam rests on solidified sedimentary rock of volcanic origin. The pool created by dam provides a navigable channel 27 feet deep between Bonneville and The Dalles Dams, a distance of 47 river miles. Principal data concerning navigation lock, spillway dam, and power plant are set forth in Table 28-N.

Dam, navigation lock, 10-unit power generating installation, fishways, and attendant buildings and grounds cost $83,239,395, of which $6,072,480 is for navigation facilities, $39,350,824 for power facilities and $37,816,091 for joint facilities, consisting of dam, fishways, buildings and grounds, and headwall section of power units 0 to 6, cost of which $2,106,000 is allocated to dam and lake facilities.

In response to flow regulations and peakings from upstream plants operating under conditions of Canadian storage and Pacific Northwest-Southwest Intertie, two modifications were undertaken at the Bonneville project. The modification for peaking project was undertaken to minimize adverse environmental effects under rapidly changing flow conditions from upstream dams. The project was completed in 1978 at a cost of $27,195,000. The second modification provided for increased power installation by building a second powerhouse located on the Washington shore adjacent to the end of the existing spillway. The new powerhouse contains eight units of 66,500 kilowatts each and two fish attraction turbine generator units of 13,100 kilowatts each for a combined capacity of 558,200 kilowatts, bringing the entire Bonneville capacity to 1,145.7 megawatts. Additional fish facilities consist of the powerhouse collection system, second fish ladder on the Washington shore, transportation channel connecting the Cascade Island fish ladder with new exit control section, and fingerling bypass facilities which include fish screens in both the powerhouses. To provide for the anticipated increased visitor use, onsite visitor facilities are included. Under authority of the Bonneville Project Act (August 20, 1937), a letter from Bonneville Power Administration to North Pacific Division dated January 21, 1965, requested construction of a second powerhouse.

Construction of original project started October 1933, was completed February 1943. Modification of powerhouse control equipment started March 1957, was completed September 1958. First two power units were placed in operation during fiscal year 1938. Powerhouse with complete installation of 10 units was in operation December 1943.

Construction of modification for peaking work commenced in September 1970 and was completed in September 1978.

Construction of second powerhouse is complete. Final environmental impact statement was filed with Council on Environmental Quality in April 1972. In response to increasing visitation which now exceeds 600,000 a year at the dam site itself and 2,700,000 project wide, a visitor center with windows into the fish ladders, a 60-seat theatre, exhibits and displays was completed in 1975. Units 11 through 18 were on-line by October 1982. The visitor facility for the new powerhouse (which does not require cost-sharing) is an integral part of that structure. The total cost for construction of the second powerhouse was $678,945,000.

In June 1993 work began on the rehabilitation of the First Powerhouse. In the first phase the existing circuit breakers and ten transformers were replaced and the switchyard was rehabilitated. Circuit breaker work was completed in 1995. The remaining work was completed in 1997. Phase I cost was $24,120,000. The second phase consists of replacing the windings of six generators and replacing ten turbines. Second phase work was contracted in 1994 and is scheduled to complete in 2009. Phase II will cost an estimated $110,800,000.

The first powerhouse, spillway, navigation lock and associated facilities have been designated as a National Historic District in 1987.

Development of recreation facilities at Home Valley was completed in FY 1989.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. None required, except for non-federal cost sharing for development of recreational facilities.

Operations during fiscal year New work: Construction is complete on the Bonneville 2 Corner Collector. This ½ mile long flume is designed to increase the survival of juvenile fish past the dam.

Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included rehabilitation of aging fish passage structures, removal of obstructions from the turbine environments, and an upgrade to the adult fishways automation system. Continued HTRW site investigation and risk assessment of Bradford Island landfill. Capital improvements include repair/replacement of the generic data acquisition and control system, exciters, governors, cranes, power plant efficiency improvements, replacement oil, main unit circuit breakers, and headgates. Replacement of the potable water system was initiated.

Major Rehabilitation: A contract to rehabilitate the generators and turbines in the first powerhouse is in progress. Four units have been rehabilitated to date.

38. COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA

Location. This project provides for construction of 31 sites along the Columbia River on Bonneville pool, John Day pool, and The Dalles pool.

Existing project. Congress has provided authority through public law to implement a wide range of land management, transfer, acquisition and development actions to provide fishing access for Indian tribes who exercise treaty fishing rights on the Columbia River. The law designates certain federal sites on Bonneville, John Day, and The Dalles pools for fishing access. The improvements required at the access sites are specified in the authorizing legislation. They include all weather access roads, camping facilities, boat ramps, docks, sanitation, and fish cleaning facilities. Construction of these facilities will greatly improve access by the four tribes, which have fishing rights along this reach of the Columbia River.

Local cooperation. None required.

Operations during fiscal year. New work: Construction of the second phase sites continued with five new sites substantially completed, bringing the total to 28 sites. The transfer of these sites was delayed until FY 04.

39. COUGAR LAKE, OR

Location. At mile 4.4 on South Fork McKenzie River which joins McKenzie River about 56.5 miles above its confluence with Willamette River. Project is about 42 miles east of Eugene, OR.

Existing project. A rockfill dam with an impervious earth core, about 1,738 feet long at crest and 445 feet high above the streambed. Reservoir is 6 miles long with storage capacity at full pool of 219,000 acre-feet and controls runoff of tributary drainage area of 210 square miles. Spillway is on right abutment and outlet and power tunnels in left abutment. Outlet tunnel is provided with a chute and stilling basin. Power plant consists of two 12,500-kilowatt units with minimum provisions for installing a third unit of 35,000 kilowatts for future peaking capacity. Improvement functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin Recreation facilities are provided by the U.S. Forest Service. Also authorized (but un-constructed) is a re-regulating dam, Strube Lake, below Cougar Lake, which would permit Cougar to operate as a peaking power plant. The Strube dam would contain two units totaling 4,600 kilowatts. Estimated Federal cost of Strube Lake and Cougar Additional Units is $114,000,000.

Construction of project initiated June 1956 is complete, excluding Strube Lake and Cougar Additional Unit for which planning is essentially complete. Also, plans and specifications for the first construction contract (relocations) have been completed. Generating units 1 and 2 were placed in commercial operation March 23 and February 4, 1964, respectively. Physical in-service date for flood control was November 29, 1963.

Freshets regulated by Cougar Lake on South Fork McKenzie River are shown on Table 28-K.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Refer to the Willamette River Temperature Control project write-up for additional information.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Initiated remediation of hazardous materials discovered during construction of the temperature control structure. Capital improvements included

repair/replacement of exciters and main unit circuit breakers.

40. DETROIT LAKE - BIG CLIFF, OR

Location. On North Santiam River with dam 50 miles from mouth 40 miles southeast of Salem, OR. North Santiam River flows north and west for 85 miles, and unites with South Santiam River to form Santiam River, which 10 miles downstream enters Willamette River 108 miles above its mouth.

Existing project. Main dam and a re-regulating dam, both with power-generating facilities. Detroit Dam is a concrete gravity structure about 1,522 feet long and 454 feet high from lowest point of the general foundation to roadway deck. Spillway is a gate-controlled overflow section, and outlet works are gate-controlled conduits through dam. Powerhouse with two units having a capacity of 50,000 kilowatts each is in right abutment immediately below dam. Reservoir has a storage capacity at full pool of 454,900 acre-feet and controls runoff of tributary drainage area of 438 square miles. It is being operated as a unit in coordinated reservoir system to protect Willamette Valley from floods, to increase low water flows in interest of navigation and irrigation, to generate power, and for other purposes. Re-regulating dam 3 miles downstream at Big Cliff site is concrete gravity type, about 191 feet high from lowest point of the general foundation to roadway deck. Power installation consists of one unit with a capacity of 18,000 kilowatts. Reservoir has a storage capacity of 5,930 acre-feet at full pool. Project is a unit of comprehensive plan for flood control and other purposes in Willamette Basin. Recreation facilities are provided by the U.S. Forest Service, Oregon State Park System and the town of Detroit.

Construction of project begun in May 1947 was completed December 1960. The two powerhouse generating units were placed in commercial operation June and October 1953. At Big Cliff powerhouse, single generating unit was placed on-line June 1954. Use of Big Cliff Dam for re-regulating fluctuating flow from Detroit units was effective October 1953.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by the Detroit Lake project on North Santiam River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit circuit breakers, and remote control modifications.

41.GREEN PETER-FOSTER LAKES, OR

Location. At approximate mile 5.5 on Middle Santiam River which joins South Santiam River about 56.8 miles above its confluence with Willamette River. Dam is about 30 miles southeast of Albany in Linn County, OR.

Existing project. Main dam and a re-regulating dam, both with power-generating facilities. Green Peter Dam is a concrete gravity structure, 1,400 feet long and 385 feet high above the lowest point of the general foundation with a gate-controlled spillway. Outlet works consist of two conduits through spillway, discharging into a stilling basin. Power plant, on right bank adjacent to spillway stilling basin, consists of two units with an installed capacity of 80,000 kilowatts. Reservoir provides storage capacity at full pool of 430,000 acre-feet, extending 6.5 miles up Quartzville Creek and some 7.5 miles up Middle Santiam River above creek junction, forming a Y-shaped pool. Reservoir controls runoff of tributary drainage area of 277 square miles.

Foster Dam, 7 miles downstream from Green Peter Dam is located on South Santiam River about 38 miles above its confluence with Santiam River and 1.5 miles below its confluence with Middle Santiam River. Foster Dam consists of an earth, gravel, and rock-filled embankment, 146 feet high from lowest point of the general foundation and a concrete gravity gate controlled spillway and stilling basin for a total length of 4,800 feet. Power installation consists of two units with capacity of 20,000 kilowatts. Foster Lake has a storage capacity, at full pool, of 61,000 acre-feet. Project functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin.

All construction on Green Peter-Foster Lakes project initiated June 1961 is completed. Green Peter Lake was placed in operation for useful flood control June 1967 as a unit of coordinated reservoir system for protection of the Willamette River Basin. First power-generation unit was placed on the line June 9, 1967 and second, June 28, 1967. Use of Foster Lake for re-regulating fluctuating flows from Green Peter units was effective December 1967. First power generation unit was placed on-line August 22, 1968 and second, September 6, 1968.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Green Peter Lake project on Middle Santiam River are shown in Table 28-K.

Local cooperation. Future recreation development at Foster or Green Peter will require cost sharing. Recreation facilities at Foster Lake include 4 parks and 2 parks at Green Peter Lake. Five of these parks were developed by the Corps and are

operated by Linn County under lease agreement. One park is operated by the Corps.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit exciters.

42. HILLS CREEK LAKE, OR

Location. On the Middle Fork, Willamette River, 47.8 miles from mouth and 26.5 miles upstream from Lookout Point Dam. Middle Fork, Willamette River rises on west slope of Cascade Range and flows northwesterly to its junction with Coast Fork, Willamette River. Dam is about 45 miles southeast from Eugene, OR.

Existing project. An earth-and-gravel-fill dam about 2,150 feet long at the crest and 338 feet above lowest point of the general foundation. A gate-controlled concrete gravity chute-type spillway is in right abutment. Diversion tunnel, outlet tunnel and power tunnel are in same abutment. Powerhouse with two 15,000-kilowatt units is located next to spillway. Hills Creek Lake is about 8.5 miles long and provides storage capacity at full pool of 356,000 acre-feet. Project controls runoff of drainage area of 389 square miles and is an integral unit of comprehensive plan for development of water resources of Willamette River Basin. Hills Creek Lake and Lookout Point Lake are operated as a unit for control of floods and generation of power on Middle Fork Willamette River. These projects, in conjunction with Dexter re-regulating dam and Fall Creek Lake flood control system, will effectively control floods on Middle Fork and provide maximum efficient generation of hydroelectric power. The U.S. Forest Service provides recreation facilities. Hills Creek power units are remote controlled from Lookout Point.

Construction of project, initiated May 1956, was completed June 1963. The project was placed in service for useful flood control in November 1961. On May 2, 1962, the two power units were placed on-line.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Hills Creek Lake on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit exciters.

43. JOHN DAY LOCK AND DAM – LAKE UMATILLA, OR AND WA

Location. On Columbia River about 3 miles downstream from mouth of John Day River and about 215 miles above mouth of Columbia River.

Existing project. A dam, power plant, navigation lock, fish ladders, and appurtenant facilities with a slack-water lake about 75 miles long extending to McNary Lock and Dam. Included is relocation of railroads, highways, utilities, and communities affected by the impoundment. The project as originally authorized would have provided 2,000,000 acre-feet of flood control storage. As modified, the project provides 500,000 acre-feet of flood control storage between elevations 257 and 268. The structure is 5,900 feet in length and stands about 161 feet above streambed. Powerhouse has space for 20 generating units of 135,000 kilowatts each; 16 units have been installed for a present capacity of 2,160,000 kilowatts. In 1998, synchronous condensing capability was added to four units. It was done to provide increased stability to the BPA transmission system. Principal project data are set forth in Table 28-N.

A detailed description of project as authorized and modified is on pages 1992 and 1993 of Annual Report for 1962 under the Walla -Walla District.

Construction began July 1958 and the project was opened to navigation April 1968. The main dam contract is complete. Lock rehabilitation work begun in FY 1980 was completed in FY 1986.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Recreation facilities at 5 parks are operated and maintained by local agencies under lease agreement with the Corps. Six developed recreation areas are operated and maintained by the Corps of Engineers. Any future recreation development will require cost sharing.

Operations during fiscal year.. Maintenance: Routine operation and maintenance continued. Increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included removal of obstructions from turbine environments, rehabilitation of the adult auxiliary water pumps, and improvements to the debris removal system in the smolt monitoring facility. Major repairs on the navigation lock continued. Capital improvements included repair/replacement of exciters, generic data acquisition and control system, and powerhouse emergency battery system.

44. LOOKOUT POINT - DEXTER LAKES, OR

Location. On Middle Fork, Willamette River at Meridian site, 21.3 miles from mouth. Middle Fork, Willamette River, rises in Lane County on western

slope of Cascade Range and flows northwesterly to its junction with Coast Fork, which is head of mainstream Willamette River. Dam is about 22 miles southeast from Eugene, OR.

Existing project. A main dam at Meridian site and a re-regulating dam 3 miles downstream at Dexter site. Both dams are earth-and-gravel-fills with concrete spillways and have power generating facilities. Main dam is 258 feet high from lowest point of the general foundation to deck and is 3,381 feet long at crest forming a reservoir 14.2 miles long providing storage of 456,000 acre-feet at full-pool level. Reservoir controls runoff of tributary drainage area of 991 square miles. Spillway, 274 feet long, is a gate-controlled overflow type, forming right abutment. Outlet works consisting of slide-gate-controlled conduits pass through spillway section. Powerhouse has three main generating units with a capacity of 120,000 kilowatts. Dexter re-regulating dam has a maximum height of 107 feet above lowest point of the general foundation and is 2,765 feet long at crest, forming a full pool of 27,500 acre-feet extending upstream to main dam and providing pondage to regulate Lookout Point powerhouse water releases to a uniform discharge. Spillway consists of a gate-controlled overflow section 509 feet long forming right abutment.

Flow regulation is accomplished by use of spillway gates and releases through powerhouse, which contains one 15,000-kilowatt unit. Lookout Point and Dexter Lakes are operated as a single unit of a coordinated system of reservoirs to protect Willamette River Valley against floods; to provide needed hydroelectric power, and to increase low water flows for navigation, irrigation, and other purposes. Existing project authorized as a unit of comprehensive plan for flood control and other purposes in Willamette River Basin.

Construction of project initiated May 1947 was completed June 1961, except for construction of additional recreation facilities funded through the Code 710 programs. Future recreation facilities will be provided in accordance with the cost-sharing contract with Lane County and will require a 50 percent contribution by Lane County and is subject to funding availability by the Government and the County. At Lookout Point powerhouse, generating units 1,2, and 3 were placed in commercial operation December 1954, February 1955, and April 1955, respectively. At Dexter powerhouse the single unit was placed on-line May 1955. Dexter was placed in operation for re-regulation in December 1954.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lookout Point Lake project on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. Recreation opportunities are provided at 2 parks on Dexter Lake, which are operated by Oregon State Parks via lease instruments. The north shore of Lookout Point Lake is operated by the COE for recreation purposes; including Signal Point Boat Ramp, which was developed cooperatively with the State of Oregon. Future development will not require a cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included replacement of main unit circuit and station service circuit breakers. Began installation of physical security systems.

45. LOST CREEK LAKE, ROGUE RIVER BASIN, OR

Location. On Upper Rogue River at mile 153.6 about 30 miles northeasterly from Medford, OR.

Existing project. A rock and gravel-fill embankment dam about 327 feet high from streambed to crest, with an overall length of 3,750 feet with an impervious earth core and a gate-controlled concrete spillway. Powerhouse is on right abutment and houses two Francis-type turbines with installed capacity of 24,500 kilowatts each. Regulating outlet facility with provisions for temperature regulation for releases in interest of fishery enhancement is also on right bank. Reservoir 10 miles long provides 315,000 acre-feet of usable storage. Project provides control of runoff of drainage area of 674 square miles. In addition to flood control, project provides hydroelectric power generation, irrigation, municipal and industrial (M&I) water supply, fish and wildlife enhancement, water quality control and recreation benefits.

Construction of project initiated July 1967 is complete. Generating units 1 and 2 were placed in commercial operation July 6 and July 13, 1977, respectively. Physical in-service date for flood control was February 18, 1977. Final environmental statement was filed with Council on Environmental Quality in June 1972. Four parks at the project provide recreation opportunities. The State of Oregon operates 2 parks, including a 200-unit campground, part of Stewart State Park.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lost Creek Lake on Rogue River are shown in Table 28-K.

Local cooperation. Authorizing act required that local agencies furnish assurances prior to

construction that demands will be made for future use of water supply storage within a period that will permit repayment of costs, including interest, allocated to water supply within life of the project; that State of Oregon take action, prior to construction to insure maintenance in stream of flows to be released for fishery; in addition, costs allocated to irrigation would have to be repaid in manner and to an extent consistent with reclamation laws and policies; and costs allocated to power will be repaid on a system basis by revenue from sales of power in Pacific Northwest Federal system by Bonneville Power Administration. A survey in September, 1980 of M&I water supply needs showed nine communities with water supply needs. A contract for M&I supply has been completed with four of the communities. Assurances for municipal and industrial water supply were obtained from six communities in Rogue River Valley.

On February 26, 1966 Oregon State Department of Fish and Wildlife agreed to operate Cole M. Rivers Fish Hatchery for mitigation and enhancement of fish. The Corps provides full funding for the operation and maintenance of the hatchery. The hatchery became operational in 1972.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

46 THE DALLES LOCK AND DAM - LAKE CELILO, WA AND OR

Location. On Columbia River at head of pool behind Bonneville Dam, about 192 miles above mouth of river and 88 miles east of Portland, OR.

Existing project. A dam, power plant, navigation lock, and appurtenant facilities. Improvement provides for navigation and hydroelectric power generation. Dam is designed for a normal pool at elevation 160 feet at mean sea level. Normal pool forms a reservoir extending upstream about 23 miles providing slack water to John Day Dam site. The Dalles Dam is 8,700 feet long and consists of a rock, gravel, and sand river closure section from Oregon shore connecting to a non overflow section which in turn joins powerhouse, then concrete non overflow sections connecting spillway with powerhouse and spillway with navigation lock at right abutment on Washington shore. Fish-passing facilities including two ladders and a fish lock are provided. Powerhouse was constructed for 14 units initially with substructure for eight additional units, an ultimate total of 22 units. Initial installation, excluding two 13,500-kilowatt fish-water units, was 1,092,000 kilowatts. The total generating capacity with all units was 1,806,800 kilowatts. Structures are founded on Columbia River basalt.

Principal data concerning lock, spillway, and powerhouse are set forth in Table 28-N.

Major construction of project initiated February 1952, was completed October 1960 when unit No. 14 was placed in commercial operation. Initial contract for additional units 15-22 was awarded in September 1967. Additional 8-unit phase was completed when unit 22 was placed in commercial operation in November 1973. In 1998, synchronous condensing capability was added to six units. It was done to provided increased stability to the BPA transmission system.

Basic recreation facilities were developed with construction funds at 4 parks on Lake Celilo. These parks were further expanded with code 710 funds in the late 60's and early 70's. Washington State Park Commission operates two parks under a lease agreement.

Studies for adding power generation facilities to the North Shore Fish Ladder Auxiliary Water supply System were initiated in October 1979 and completed in December 1980. These facilities would provide base load generation (3.5 megawatts) and would not impact the present operation of the North Fish Ladder. However, it was determined that it was not within the Chief of Engineer's authority to add these power facilities. A local interest, North Wasco County Public Utility District pursued the construction of these power facilities through the FERC license processes and awarded a construction contract in September 1989.

Seufert Visitor Center was completed in September 1980.

In October 1996 work began on major rehabilitation of powerhouse units 1-14. Work includes rewind of nine generators, replacement of blades on twelve turbine units, refurbishment of blades on two turbine units, and refurbishment of two bridge cranes. The total cost for major rehabilitation is estimated at $101,000,000 with completion in September 2010.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Further recreation development will require cost sharing and assumption of operation and maintenance by local, non-federal sponsor.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included removal of obstructions from the turbine environment, repair of fish way entrance gates, and procurement of one-piece bulkheads. Replaced diffusion water gratings at the north fish ladder. Replaced station service generator #2 exciter, plus installed station service electronic governors and DC governor oil pump. Capital improvements

included repair/replacement of the generic data acquisition and control system, main unit circuit breakers, and powerhouse emergency battery system.

Major Rehabilitation: Continued generator rewind and exciter installation, initiated turbine efficiency testing and awarded roller gate contract.

Environmental

47. COLUMBIA RIVER FISH MITIGATION, OR AND WA

Location. At Bonneville, The Dalles, and John Day Dams on the Columbia River in the states of Oregon and Washington. This project encompasses work at five other locations within Walla Walla District.

Existing project. The eight Corps hydroelectric projects on the lower Columbia and Snake Rivers have been identified as a contributing factor in significantly reduced of runs of migrating salmon and steelhead. Ten stocks of salmon and steelhead that must pass through the project have been listed by NMFS as threatened or endangered under the Endangered Species Act. The Corps has recognized the need to reduce juvenile mortality and has undertaken measures that include fish bypass systems, surface bypass and barge and truck transportation. Spill, as an additional bypass route over the spillways, is being used to divert fish from entering turbine units, but it is a significant adverse economic factor due to forgone electric power generation. Congress passed and the President signed the FY 1989 Energy and Water Development Appropriations Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River Juvenile Fish Mitigation projects. Completion of the bypass facilities will increase the survival of migrating downstream juvenile fish and potentially reduce reliance on spill. Mitigation studies will determine the overall scope of the juvenile and adult fish bypass facilities for these Columbia and Snake River dams.

The plan of improvement within Portland District includes the following: (a) Bonneville - new juvenile fish monitoring facilities, bypass system improvements, outfall relocation, surface bypass and spill improvement; (b) The Dalles – enhanced sluiceway guidance and spillway improvements, potential new surface bypass or screened bypass system; (c) John Day - new juvenile fish monitoring facility, spillway improvements, bypass system improvements and potential surface bypass; (d) mitigation studies to analyze long-term alternatives including impacts of federal Columbia River system and other activities on estuary habitat, surface bypass technology, gas abatement and improved turbine passage to improve fish passage and survival through Corps dams on the Columbia and Snake Rivers.

The current fully funded total estimated Federal project cost is $1,516,000,000 which includes improvements in Walla-Walla District, and in Portland District and $9,783,000 provided by the Bonneville Power Administration for design of the Bonneville juvenile fish monitoring facility and contributions to the construction of the monitoring facility at John Day Dam. For information on the planned improvements in the upper Columbia and Snake Rivers, see Walla Walla District's Annual Report.

Local cooperation. None required.

Operations during fiscal year. New work: General: Continued to collect biological and hydraulic data at all projects, and develop alternatives to improve existing anadromous fish bypass methodology and systems, to reduce excess dissolved gas entrainment associated with use of the spillways and to improve turbine passage survival.

Bonneville Dam: Completed bio evaluation of the surface collection facility and extended length screen prototype at the first powerhouse.

Continued evaluations of fish passage survival and bypass guidance improvements at the 2nd powerhouse. Continued construction of surface bypass (corner collector) system at the second powerhouse. Completed adult passage improvements and adult passage monitoring facilities.

The Dalles Dam: Initiated construction of spillway passage improvements. Completed construction of the adult south fish ladder channel dewatering facility. Continue survival, additional spillway and forebay guidance evaluations.

John Day Dam: Continued testing of extended length (40 ft.) bypass screens for potential replacement of existing 20 ft. screens associated with the existing juvenile bypass system. Completed construction of adult ladder improvements. Continued passage efficiency and survival studies.

48. WILLAMETTE RIVER TEMPERATURE CONTROL, OR

Location. At the Blue River and Cougar Lake projects in the McKenzie River sub-basin of the Willamette River basin in western Oregon.

Project Description. Work consists of retrofitting the intake tower structures with movable weir intakes to allow modification of water temperatures downstream from the Blue River and Cougar projects. Water temperatures are currently cooler in the spring/summer and warmer in the fall/winter than pre-project conditions. This has impacted the fish resources in the McKenzie sub-basin, especially

Willamette spring Chinook salmon and bull trout, both species of national and regional significance.

The total project is estimated to cost $72,000,000.

Local cooperation. None required.

Operations during fiscal year. New Work: In FY 03 the cofferdam was completed and concrete placement on the new tower was made from its base (at about elevation 1407) to elevation 1600, about 100 feet from the top of the new wet well.

49. LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION

Location. The Lower Columbia River extends from the mouth of the Columbia River to river mile (RM) 145 at Bonneville Lock and Dam. The study areas include the estuary of the Columbia River and all of the tributaries of the Columbia River that are tidally influenced, which include the Willamette River up to Willamette Falls. The river divides the states of Oregon and Washington throughout this area.

Project Description. Section 536 of the Water Resources Development Act of 2000, Public Law 106-541. This program provides the authority to the Secretary to conduct studies and implement ecosystem restoration projects for the lower Columbia River and Tillamook Bay estuaries in Oregon and Washington. The projects will be for the protection, monitoring, and restoration of fish and wildlife habitat and are to have no adverse effect on specified water related needs or private property rights. Actions include protection and enhancement of 10,000 acres of tidal wetlands and other key habitats in the Columbia River estuary over 10 years, beginning in 2001, to rebuild productivity for listed salmon and steelhead populations. Operation and maintenance of projects is a non-Federal responsibility. Implementation costs of projects on Federal lands will be 100% Federal expense and the operations and maintenance will be the responsibility of the Federal agency that manages the lands.

Current year costs are shown in Table 28-A.

Local cooperation. Studies under Section 536 are subject to the cost sharing requirements of Section 105 of WRDA 1986, including studies on Federal lands. Projects implemented under Section 536 will be cost shared 35% Non-Federal and 65% Federal, and up to 50% of the non-Federal share of project implementation costs can be In-Kind services.

Operations during fiscal year. New Work: Activities included policy review and coordination, ecosystem restoration site identification, monitoring and coordination with local sponsors.

50. ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Modifications to Structures and Operations of Constructed Corps Projects to Improve the Quality of the Environment, Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended. This program provides the authority to modify existing civil works projects to restore the environment. A non-federal entity is required to sponsor the project. The project must accomplish restoration by modifying a Corps project or operation of a Corps project, or be located on Corps project lands. The project must be feasible and consistent with the authorized purpose. The non-federal sponsor generally must assume responsibility of the operation and maintenance associated with the project.

Planning studies, detailed design, and construction costs are shared by the Corps 75 percent and non-federal sponsor 25 percent. Total project costs cannot exceed $6.7 million with the federal share limited to $5,000,000 without specific congressional authorization.

See Table 28-L for expenditures under Section 1135 during the fiscal year.

Four projects were under construction during fiscal year 2003.

Lower Columbia Slough, OR

Location: The project modification is located in the City of Portland, Oregon along the Columbia Slough

Project description: Columbia Slough represents a portion of the historic flood plain of the Columbia River extending about 20 miles eastward from the Willamette River to the Sandy River. In its natural state, the flood plain was unstable and the Columbia River seasonally inundated this area. A network of lakes, waterways and wetlands spread over the entire area. It was thickly forested along shorelines and low areas, and was also made up of wetland prairie and oak savannah, bordered by riparian forest. It supported vast populations of waterfowl and other birds, elk, deer, river otter and other smaller mammals. In the 150 years since the first settlers began to adapt the flood plain to their own uses, the area has been transformed from a natural system of lakes, sloughs, and wetlands into a highly managed water system of levees and pumps to provide drainage and flood damage reduction. The project modifies channel and culvert conditions in the Columbia Slough, creates wetlands and restores portions of the riparian buffer/wildlife corridor along the slough. Specific actions include creation of wetland benches/islands along 7.5 miles of the slough replacement of 5 culverts within the slough system, and restoration of approximately 14 acres of riparian and open water habitat.

Local cooperation: The City of Portland signed a Project Cooperation Agreement (PCA) for the project on 28 September 2001.

Operations during fiscal year: Portions of the wetland bench construction were completed under a Cooperative Agreement with the Multnomah County Drainage District No. 1.

Fern Ridge Marsh, OR

Location: This project modification is located at the Fern Ridge Lake project on the Long Tom River, a Tributary of the Willamette River approximately 6 miles west of Eugene, Oregon.

Project description: The Fern Ridge Marsh Restoration Project entails marsh restoration and management actions on 347 acres in the western portion of the Fisher Butte Management Unit (West Fisher Butte sub-unit) at Fern Ridge Lake Project. The restoration will restore and provide for management of 347 acres of marsh habitat via construction of 7 water control structures, 15,900 lineal feet of dikes and rock dikes (carp excluders) within the drawdown zone of Fern Ridge Lake Project. The general intent of the proposed action is the restoration of a more diverse and productive marsh plant and wildlife community in areas currently dominated by reed canary grass. This species is an exotic plant found in extensive stands in shallow water areas around the reservoir perimeter. The total project cost, including lands, is estimated at approximately $540,000.

Local cooperation: The Oregon Department of Fish and Wildlife signed a local cooperation agreement for the project on July 19, 1999.

Operations during fiscal year: Construction continued from FY02. Activities included disking/tillage for reed canary grass, installation of a water supply line, and additional rock placement on carp excluding barriers.

Fox Creek, OR

Location: This project is located in the city Rainier, Oregon at the mouth of Fox Creek. Fox Creek enters the Columbia River at river mile 67+20.

Project description: The Fox Creek project modifies a dredged material disposal site associated with the Federal Navigation Channel. Flows from Fox Creek were routed through a 72–inch culvert during routine O&M maintenance dredge material disposal actions in 1985. Dredged material was then placed over the culvert. The project modification consists of excavating the dredged material from the former streambed (approximately 535 feet) and restoration of the creek to its approximate former course and gradient. Additionally, reed canary grass was removed over approximately 200 feet of the existing stream channel upstream of the dredged material disposal site. Native riparian trees will be planted along the entire length of the project.

Local Cooperation: The City of Rainier signed a Project Cooperation Agreement on 16 August 2001.

Operations during fiscal Year: No construction activities were performed during FY 2003. Re-vegetation activities will be completed in FY 2004.

Lower Amazon Creek Wetlands Restoration, OR

Location: This project modification is located along Amazon Creek at the western edge of the city of Eugene, Oregon. Amazon Creek is a major drainage channel for Eugene, conveying flows into the Long Tom River, a tributary of the Willamette River.

Project description: Prior to settlement in the 1850's, seasonal wet prairie habitat dominated the landscape of the lower Amazon Creek basin and much of the Willamette Valley. Since then, nearly all of this wetland type has been lost to agriculture and urban uses. The Amazon Creek Flood control Project built by the Corps in the 1950's further degraded the wetland hydrology when the creek and connecting drainages were canalized and lined with levees. It is estimated that less than one percent of the Willamette Valley's historic wet prairies remains today. The lower Amazon Creek Wetlands Project will restore the historic hydrology and vegetation community to almost 400 acres of wet prairie. All of the land within the project area is owned by the City of Eugene and BLM, having been acquired for wetland protection and restoration purposes. The total project cost, including lands and recreation facilities, is estimated at approximately $6.2 million.

Phase I involved removing existing levees along Amazon Creek and associated drainages and restoring the channels more natural meandering stream configurations. New levees were set back around the margin of the wetland restoration area to maintain the flood control function of the project. Interior wetland areas will now be subject to the high frequency flooding that occurred prior the flood control project. The new levees were seeded with a combination of native upland grass species. A slotted weir was constructed to maintain the complex flow relationship between the connected channels. Culverts, some gated, will also be installed to maintain drainage and to allow manipulation of surface hydrology for wetland management purposes. Disturbed areas along the stream channels and the old levee footprints will be seeded and planted with native wet prairie, emergent marsh and vernal pool species. The total cost for this completed in 1999 was $2.0 million.

Phase II involves removal of non-native plant materials on about 120 acres of wetlands and replacement with native wet prairie plants. A major portion of this effort has been the collection and propagation of native plants and seeds. Phase II also includes modification of surface hydrology through filling and restoration of old agricultural drainage channels draining into Amazon Creek. Phase II was initiated in 2000 and will continue through 2003.

Phase III construction of recreation facilities was initiated in Summer 2002 and completed in March 2003. Facilities included access points, viewing structures, interpretive displays and trails.

Local cooperation: The City of Eugene signed a Project Cooperation Agreement (PCA) for the project on October 26, 1998. The Bureau of Land Management under its West Eugene Wetlands Project also supports the project. In 1999 the City of Eugene requested that the agreement be modified to include the addition of recreation facilities in accordance with recent Corps guidance. The modified PCA was signed in Spring 2001

Operations during fiscal year: New Work: Phase I was completed in November 1999. Continue construction of Phase II. Phase II construction is to be completed in FY 04.

Restoration and Protection of Aquatic Ecosystems to Improve the Quality of the Environment, Pursuant to Section 206 of the Water Resources Development Act of 1996, Public Law 303, 104th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than $5,000,000 per year. The non-Federal share of the costs shall be 35 percent, however, the entire non-Federal share of the total project cost may be credited work-in-kind.

See Table 28-L for expenditures under Section 206 during the fiscal year.

East Birch Creek

Location: This project modification is located along an approximately 1-mile reach of East Birch Creek between river miles 8.0 and 9.5 (river km 12.9 and river km 15.2) in Umatilla County, Oregon approximately 8 miles (12.9 km) south of the town of Pilot Rock. East Birch Creek is a fork of Birch Creek, a headwater tributary of the Umatilla River, which empties into the Columbia River.

Project description: Historically, this reach was an important spawning and rearing area for summer run steelhead trout. The Umatilla stock of summer steelhead was designated part of the Mid-Columbia Evolutionarily Significant Unit (ESU) by National Marine Fisheries Service (NMFS) when it listed that stock as "Threatened" under the Endangered Species Act. Land use practices and channel modifications have resulted in physical changes that have degraded habitat quality to a considerable extent. Habitat degradation has resulted primarily from removal of riparian vegetation, disruption of natural geomorphic processes, alteration of stream flows and increased sediment input. Bioengineering techniques are being utilized to the extent practicable to restore salmonid habitat quality, reduce unnatural bank erosion, restore natural channel function, and associated aquatic and riparian biological processes in East Birch Creek. This approach involved development of plans for erosion resistant stream restoration treatments using primarily natural fluvial processes and natural materials. The riparian zone, essential for aquatic ecosystem restoration, has been re-vegetated with native species.

The other primary goal of the environmental restoration work is to restore geomorphic function of the channel, which will generally mean a narrower, deeper, more meandering channel with more stable, vegetated banks and more diverse instream habitat. This will result in a self-maintaining system that meets specific habitat needs of ESA listed summer steelhead. Summer steelhead uses the proposed project reach for spawning and rearing, therefore, our restoration plan will be based largely on habitat requirements for these life stages.

Local cooperation: Oregon Department of Fish and Wildlife signed a Project Cooperation Agreement (PCA) for the project on 16 August 2001.

Operations during fiscal year: Conducted additional construction in November, 2002 after observation of project functioning after the Spring 2002 run-off period. This showed that many of the river stabilization structures had not performed as designed and caused sediment deposition, erosion and higher than expected bank full levels in some areas. The repair work involved some realignment and/or raising or lowering key boulders in some of the river training structures. Some re-sloping and/or lowering of the thalweg were also required. After the spring run-off of 2003, the sponsor proposed some additional modifications to the project as betterments. NWW authorized the sponsor to conduct the betterments late in FY 2003 to be constructed in early FY 2004.

General Investigation

51. SURVEYS

Fiscal year costs were $905,055 of which $411,692 was for Special Studies, $126,805 for Comprehensive Studies, $243,761 for Miscellaneous Activities, and $122,798 for Coordination With Other Agencies. Contributed funds in the amount of

$127,732 were expended, $50,000 was contributed for the Planning Assistance to States Program and $149,572 was contributed by Tillamook County for the Tillamook Ecosystem Restoration Study.

52. COLLECTIONS AND STUDY OF BASIC DATA

Flood Plain Management Services. Flood Plain Management Services Program comes under Section 206 of the 1960 Flood Control Act, PL 86-645, as amended. Through technical services and planning guidance, the program encourages comprehensive flood plain management planning at all levels to reduce the potential for losses to life and property from floods. Federal and non-Federal agencies and the private sector are assisted with planning and development information for flood hazard areas. This assistance is in the form of local flood plain regulations, Federal Insurance Program requirements, and Executive Order 11988 guidelines. Such assistance may include factual flood information (available or determined) and interpretation on flood frequencies, extent of flooding, floodwater velocity, duration of flooding and floodway limits.

Fiscal year costs totaling $103,759 were associated with the following tasks under the Flood Plain Management Services Program: FPMS Unit $43,146; Technical Services $33,574 Quick Responses $3,578; and special studies $23,461.

Hydrologic Studies: Crest stage gages were constructed and installed on streams in an ongoing program to record data from flood events. Fiscal year costs were $11,408 to build 80 gages.

Other

53. FLOOD CONTROL AND COASTAL EMERGENCIES

Disaster Preparedness Program. This program encompasses all activities associated with preparing, responding to and recovering from natural disasters. It also provides for man-caused disaster planning. It includes publishing plans and procedures, establishing and training response teams, exercising plans and teams, and coordinating with Federal, state and local agencies. This program maintains response supplies and equipment used to supplement state and local requests for assistance. Significant activities for FY 2003: Flood Response Team trained. Sector Engineers completed county flood assessments of 5 counties. Crisafulli Pumps were overhauled. A new Emergency Communication plan was approved and exercised with new VHF hand held radios. An alternate Emergency Operation Center was designated and furnished with a fixed satellite phone system. Debris Management Team was fully staffed and trained. Two Contracting Division employees were recruited with the added responsibility in their job descriptions of being on the "Debris Team". Rapid Response Vehicle engaged by USCG and Navy for operation "Waterwatch" to provide command and control of security for Portland Rose Festival ships. Oregon Emergency Management Association elected the Chief, EMB as President Elect, providing greater access to all levels of government for coordination and planning. The Association of Oregon Counties and Oregon Chapter of the American Public Works Association continued to provide venues for outreach. Oregon Federal Executive Board selected Chief, EMB as Chair, Emergency Preparedness Committee, providing a broader network of ideas into District planning and closer coordination with the Federal Emergency Management Agency. The EPC provides workshops, exercises and training designed to help Federal executives recognize and prepare for emergencies/disasters.

Public Law 84-99 Response. FY 2003 was a dry and mild year. There were no requests for flood assistance, nor requests for drought assistance.

Public Law 84-99 Recovery. Clatsop #9 tide box rehabilitation effort continued through FY 2003. Replacement of the emergency-temporary tide box that had been placed in December 2000 was stopped by contracting complications and environmental coordination issues with NOAA Fisheries. As such, the District set a precedence for PL 84-99 rehabilitation by entering into a Cooperative Agreement with the public sponsor. The Task Order funds their manufacture and placement of the tide box by June 2004.

Public Law 93-288 Assistance to FEMA. From December 10, 2002 - January 15, 2003, eight members of the Portland District Debris Team worked in Guam in response to Super Typhoon Pongsona. This was the first Debris team to respond to the disaster. The team successfully set up contracts and field actions to begin the recovery process. By the time the team departed for home, an estimated 50,000 cubic yards of debris had been removed, and the debris removal, recycling and disposal process was in full production. Subsequent Corps Debris Teams completed the recovery process.

Continuing Eligibility Inspections. The district completed all inspections of Federal and non-Federal Flood Control Works. Kaiser Oregon Levee was added to the Inspection of Completed Works and Prineville Channel was added to the non-Federal Inspection Program

Catastrophic Disaster Response Planning. In FY 2003, funding under O&M, General, Appropriation 3123, was discontinued for this effort. Earthquake planning for district continuity of operations and receipt of FEMA recovery mission

assignments continued under the Disaster Preparedness Program.

Emergency Work in Support of Other Federal Agencies. Portland District provided FFE support to the Department of Defense for operations in support of Enduring Freedom/Noble Eagle/CEGRD. The district conducted recruitment, pre-deployment training, preparation for overseas movement (appropriate deployment forms, medical examinations, etc.) for 40 volunteers, and coordinated the re-deployment activities for all returning volunteers.

TABLE 28-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
1.	Chetco River, OR	**New Work**					
		Approp.	---	---	---	---	2,043,713 [1]
		Cost	---	---	---	---	2,043,713 [1]
		Maint.					
		Approp.	424,000	520,065	352,000	359,000	11,895,738
		Cost	423,401	520,428	352,369	359,242	11,895,577
2	Columbia and Lower Willamette Rivers Below Vancouver, WA and Portland, OR (Federal Funds)	**New Work**					
		Approp.	---	---	---	---	28,349,304 [2]
		Cost	---	---	---	---	28,349,304 [2]
		Maint.					
		Approp.	18,265,000	18,336,413	16,686,000	17,447,000	477,237,259 [3]
		Cost	18,228,597	17,071,417	17,822,000	17,634,455	477,271,411 [3]
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	665,954 [4]
		Cost	---	---	---	---	665,954 [4]
3.	Columbia River at Baker Bay, WA	**New Work**					
		Approp.	---	---	---	---	941,252
		Cost	---	---	---	---	941,252
		Maint.					
		Approp.	1,071,000	2,994	24,000	736,000	6,508,081
		Cost	1,070,716	2,997	24,297	735,998	6,507,749
4	Columbia River Between Chinook, WA, and Head of Sand Island	**New Work**					
		Approp.	---	---	---	---	220,283 [5]
		Cost	---	---	---	---	220,283 [5]
		Maint					
		Approp.	741,000	5,987	31,000	877,000	9,565,864
		Cost	741,561	5,991	31,052	864,229	9,552,959
5.	Columbia River at The Mouth, OR and WA	**New Work**					
		Approp.	---	---	---	---	24,913,661 [6]
		Cost	---	---	---	---	24,913,661 [6]
		Maint.					
		Approp.	7,133,000	6,829,081	10,820,000	8,466,000	199,450,434 [7]
		Cost	7,113,210	6,817,980	10,843,698	8,472,587	199,450,434 [7]
		Major Rehab.					
		Approp	---	---	---	---	7,322,878
		Cost	---	---	---	---	7,322,878
6.	Columbia River Between Vancouver, WA and The Dalles, OR	**New Work**					
		Approp.	---	---	---	---	5,989,509 [8]
		Cost	---	---	---	---	5,989,509 [8]
		Maint					
		Approp.	578,000	674,232	324,000	262,000	17,033,591 [9]
		Cost	570,010	683,886	323,510	262,537	17,033,379 [9]
7.	Columbia River Channel Improvements, OR (Federal Funds) (Contributed Funds)	**New Work**					
		Approp.	---	2,530,000	-143,200	1,348,000	3,734,800
		Cost	---	851,228	1,271,068	1,591,166	3,713,462
		New Work					
		Contrib	---	300,000	415,200	640,333	1,355,533
		Cost	---	---	401,842	284,925	911,026

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
8.	Coos Bay, OR	**New Work**					
	(Federal Funds)	Approp.	---	---	---	---	37,866,092 [10]
		Cost	---	---	---	---	37,866,092 [10]
		Maint					
		Approp.	4,647,000	3,634,089	4,852,000	3,867,000	131,589,007 [11]
		Cost	4,649,648	3,646,226	4,845,709	3,874,056	131,588,594 [11]
		Major Rehab					
		Approp.					2,335,966
		Cost					2,335,966
	(Contributed Funds)	**New Work**					
		Contrib	---	--	---	---	3,986,680
		Cost	49,739	5,933	---	---	3,917,729
9.	Coquille River, OR	**New Work**					
		Approp.	---	---	---	---	693,366 [12]
		Cost	---	---	---	---	693,366 [12]
		Maint.					
		Approp.	133,000	256,320	238,000	326,000	9,908,307 [13]
		Cost	130,982	257,705	238,463	326,172	9,908,197 [13]
10.	Depoe Bay, OR	**New Work**					
		Approp	---	---	---	---	367,364
		Cost	---	---	---	---	367,364
		Maint.					
		Approp.	233,000	362,219	-2,000	504,000	2,854,936
		Cost	231,484	119,624	242,275	503,643	2,854,267
11.	Port Orford, OR	**New Work**					
		Approp	---	---	---	---	758,692 [14]
		Cost	---	---	---	---	758,692 [14]
		Maint.					
		Approp.	446,000	553,490	590,000	561,000	9,331,707
		Cost	430,018	551,345	610,570	560,418	9,331,066
12.	Rogue River Harbor	**New Work**					
	At Gold Beach, OR	Approp.	---	---	---	---	4,156,252 [15]
		Cost	---	---	---	---	4,156,252 [15]
		Maint.					
		Approp.	557,000	793,622	704,000	415,000	21,756,016 [16]
		Cost	563,828	794,022	704,083	415,730	21,755,917 [16]
		Major Rehab					
		Approp.	---	---	---	---	635,783
		Cost	---	---	---	---	635,783
13.	Siuslaw River, OR	**New Work**					
	(Federal Funds)	Approp.	---	---	---	---	29,502,212 [17]
		Cost	---	---	---	---	29,502,212 [17]
		Maint.					
		Approp.	297,000	572,232	598,000	425,000	19,154,616 [18]
		Cost	291,933	575,993	598,775	414,882	19,143,922 [18]
		Major Rehab					
		Approp.	---	---	---	---	879,285
		Cost	---	---	---	---	879,285
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	493,611
		Cost	---	---	---	---	493,611
14.	Skipanon Channel, OR	**New Work**					
		Approp.	---	---	---	---	280,854
		Cost	---	---	---	---	280,854
		Maint.					
		Approp.	291,933	21,622	15,000	185,000	5,637,686
		Cost	1,272,419	21,729	15,485	184,442	5,636,920

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
15.	Tillamook Bay and Bar, OR	**New Work**					
		Approp.	---	---	---	---	22,434,827 [19]
		Cost	---	---	---	---	22,434,827 [19]
		Maint.					
		Approp.	297,000	68,682	174,000	227,000	7,572,764 [20]
		Cost	292,250	73,715	174,290	226,580	7,572,297 [20]
		Major Rehab.					
		Approp	---	---	---	---	2,839,799
		Cost	---	---	---	---	2,839,799
16.	Umpqua River, OR	**New Work**					
		Approp.	---	---	---	---	17,718,877 [21]
		Cost	---	---	---	---	17,718,877 [21]
		Maint.					
		Approp.	716,000	698,944	769,000	588,000	37,377,037
		Cost	707,546	707,546	705,899	588,445	37,421,858
		Major Rehab.					
		Approp.	---	---	---	---	2,500,677
		Cost	---	---	---	---	2,500,677
17.	Willamette River at Willamette Falls, OR	**New Work**					
		Approp.	---	---	---	---	520,005 [22]
		Cost	---	---	---	---	520,005 [22]
		Maint.					
		Approp.	552,000	1,334,346	201,000	188,000	26,615,364 [23]
		Cost	553,632	1,336,313	175,897	208,029	26,609,133 [23]
		Minor Rehab					
		Approp	---	---	---	---	234,794
		Cost	---	---	---	---	234,794
18.	Yaquina Bay and Harbor, OR	**New Work**					
		Approp.	---	---	---	---	19,242,046 [24]
		Cost	---	---	---	---	19,242,046 [24]
		Maint					
		Approp.	644,650	8,681,023	1,307,000	1,159,900	62,374,331 [25]
		Cost1	639,447	8,685,547	1,307,962	1,160,484	62,374,111 [25]
		Major Rehab.					
		Approp.	---	---	---	---	12,005
		Cost	---	---	---	---	12,005
19.	Yaquina River, OR	**New Work**					
		Approp.	---	---	---	---	28,800
		Cost	---	---	---	---	28,800
		Maint					
		Approp.	---	---	---	30,000	1,463,694 [51]
		Cost	913	---	---	29,511	1,463,694 [51]
23.	Applegate Lake, Rogue River Basin OR	**New Work**					
		Approp.	---	---	---	---	91,642,489
		Cost	---	---	---	---	91,642,489
		Maint.					
		Approp.	837,800	837,800	907,829	750,000	13,631,136 [48]
		Cost	825,496	825,496	910,720	761,461	13,615,399 [48]
24.	Blue River Lake, OR	**New Work**					
		Approp.	---	---	---	---	32,038,225 [26]
		Cost	---	---	---	---	32,038,225 [26]
		Maint.					
		Approp.	192,000	284,286	244,324	233,000	5,631,909 [53]
		Cost	201,315	282,333	244,588	235,484	5,631,632 [53]

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
25.	Cottage Grove Lake, OR	**New Work**					
		Approp.	---	---	---	---	4,013,123 [27]
		Cost	---	---	---	---	4,013,123 [27]
		Maint.					
		Approp.	941,000	884,024	900,864	934,000	20,839,176 [28]
		Cost	959,180	973,314	889,636	931,128	20,811,131 [28]
26.	Dorena Lake, OR	**New Work**					
		Approp.	---	---	---	---	14,568,262 [29]
		Cost	---	---	---	---	14,568,262 [29]
		Maint.					
		Approp.	562,200	636,753	684,208	551,000	13,893,621 [55]
		Cost	570,537	627,887	668,956	567,601	13,882,643 [55]
27.	Elk Creek Lake, Rogue River Basin, OR	**New Work**					
		Approp.	454,000	486,000	439,200	788,000	111,566,779
		Cost	413,224	632,808	461,922	767,229	111,544,949
28.	Fall Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	22,118,264 [30]
		Cost	---	---	---	---	22,118,264 [30]
		Maint.					
		Approp.	583,200	634,669	485,459	513,000	13,189,999
		Cost	595,746	620,967	470,291	537,442	13,184,557
29.	Fern Ridge Lake, OR (Federal Funds)	**New Work**					
		Approp.	---	---	---	---	8,685,635 [31]
		Cost	---	---	---	---	8,685,635 [31]
		Maint.					
		Approp.	1,054,000	1,248,254	1,040,033	1,832,000	28,666,185 [32]
		Cost	1,060,382	1,238,638	1,029,560	1,815,437	28,625,339 [32]
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	52,666
		Cost	---	---	---	---	52,666
30.	Lower Columbia River Basin Bank Protection, OR & WA (Federal Funds)	**New Work**					
		Approp.	322,000	95,000	-30,000	49,000	21,589,745
		Cost	9,624	348,554	31,749	46,455	21,582,171
	(Contributed Funds)	**New Work**					
		Contrib.	104,250	3,000	---	---	117,450
		Cost	6,635	107,999	---	---	114,634
31.	Mt. St. Helens Sediment Control, WA (Federal Funds)	**New Work**					
		Approp	840,000	619,000	414,000	171,900	114,072,900
		Cost	707,866	787,199	435,739	170,403	114,071,248
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	3,703,112
		Cost	---	---	---	---	3,703,112
		Maint.					
		Approp.	227,000	234,329	245,000	227,000	5,206,429
		Cost	224,989	234,554	245,576	228,304	5,205,995
32.	Willamette River Basin Bank Protection, OR	**New Work**					
		Approp.	---	20,000	-3,000	10,000	24,998,816 [33]
		Cost	---	7,008	9,183	---	24,987,516 [33]
		Maint					
		Approp	209,000	77,387	43,000	56,000	6,084,096
		Cost	120,425	167,451	44,417	55,434	6,083,104

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
33.	Willow Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	37,260,114
		Cost	---	---	---	---	37,260,114
		Maint.					
		Approp.	608,000	617,611	654,000	627,000	9,915,662
		Cost	607,151	557,682	659,285	673,076	9,899,640
37.	Bonneville Lock and Dam - Lake Bonneville OR and WA	**New Work**					
		Approp.	-659	---	---	188	789,836,529 [34]
		Cost	8,972	-188	-188	---	789,836,153 [34]
		Maint.					
		Approp.	17,814,100	19,290,560	21,447,907	27,676,000	402,184,330 [35]
		Cost	17,744,149	18,959,801	21,040,950	21,647,063	395,014,259 [35]
		Major Rehab.					
		Approp.	16,864,731	8,208,000	10,118,000	8,520,102	104,000,437
		Cost	15,281,432	10,193,680	10,221,967	8,534,047	103,990,310
38.	Columbia River Treaty Fishing Access Sites, OR & WA	**New Work**					
		Approp.	6,717,000	7,775,498	2,114,800	5,598,000	45,905,819
		Cost	6,466,146	8,416,757	2,190,119	5,578,458	45,880,507
39.	Cougar Lake, OR	**New Work**					
		Approp.	---	---	---	---	58,636,393 [36]
		Cost	---	---	---	---	58,636,393 [36]
		Maint					
		Approp.	1,027,400	1,614,484	2,200,964	2,288,000	30,704,244 [49]
		Cost	1,055,993	1,605,927	1,951,267	2,288,127	30,643,597 [49]
40.	Detroit Lake - Big Cliff, OR	**New Work**					
		Approp.	---	---	---	---	62,729,698
		Cost	---	---	---	---	62,729,698
		Maint.					
		Approp.	2,600,000	2,819,555	3,113,949	3,492,000	60,374,311
		Cost	2,637,380	2,732,293	3,075,413	3,505,930	60,255,320 [47]
		Minor Rehab					
		Approp	---	---	---	---	363,086
		Cost	---	---	---	---	363,086
41.	Green Peter-Foster Lakes, OR	**New Work**					
		Approp.	---	---	---	---	84,005,788 [37]
		Cost	---	---	---	---	84,005,788 [37]
		Maint.					
		Approp.	3,154,800	3,295,742	4,003,055	3,818,000	64,034,900 [38]
		Cost	3,170,392	3,295,016	3,948,048	3,855,832	63,983,436 [38]
42.	Hills Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	45,700,619
		Cost	---	---	---	---	45,700,619
		Maint.					
		Approp.	808,100	832,123	970,569	1,040,000	19,399,067 [39]
		Cost	811,394	826,210	968,365	1,048,412	19,396,547 [39]
43.	John Day Lock and Dam - Lake Umatilla, OR and WA	**New Work**					
		Approp.	---	---	---	---	512,400,246 [40]
		Cost	---	---	---	---	512,400,246 [40]
		Maint.					
		Approp.	15,485,150	16,979,308	21,070,850	30,303,000	317,122,535 [41]
		Cost	14,710,742	17,186,555	19,113,152	28,475,227	312,595,765 [41]
		Major Rehab.					
		Approp.	---	---	---	---	44,005,128 [54]
		Cost	---	---	---	---	44,005,128 [54]

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
44.	Lookout Point - Dexter Lakes, OR	**New Work**					
		Approp.	---	---	---	---	88,238,395 [42]
		Cost	---	---	---	---	88,238,395 [42]
		Maint.					
		Approp.	4,245,000	4,773,721	8,777,641	5,893,000	111,001,394 [43]
		Cost	4,276,796	4,738,797	5,737,002	5,678,136	107,676,890 [43]
45.	Lost Creek Lake, Rogue River Basin, OR	**New Work**					
		Approp.	---	---	---	---	136,408,150
		Cost	---	---	---	---	136,408,150
		Maint					
		Approp.	4,254,100	4,089,723	4,164,000	4,422,000	77,155,741 [44]
		Cost	4,228,512	4,114,768	4,098,296	4,274,670	76,892,402 [44]
46.	The Dalles Lock and Dam - Lake Celilo, WA and OR	**New Work**					
		Approp.	---	---	---	---	303,260,288 [45]
		Cost	---	---	---	---	303,260,288 [45]
		Maint.					
		Approp.	12,538,500	13,629,620	16,437,131	19,666,000	275,922,921 [46]
		Cost	12,313,384	13,418,117	15,640,043	16,761,971	271,700,695 [46]
		Major Rehab.					
		Approp.	4,272,000	8,806,000	5,933,900	1,344,000	32,445,900
		Cost	4,171,644	9,187,001	5,891,047	1,414,750	32,444,973
47.	Columbia River Fish Mitigation, OR and WA	**New Work**					
		Approp.	31,625,000	39,511,000	41,892,000	60,958,887	398,431,887 [52]
		Cost	39,759,406	39,511,000	41,892,000	60,958,125	398,282,623 [52]
49.	Willamette River Temperature Control, OR	**New Work**					
		Approp.	3,181,000	10,396,000	11,392,300	8,361,100	33,330,400
		Cost	2,227,934	10,810,587	11,860,603	8,351,202	33,250,326
50.	Lower Columbia River Ecosystem Restoration	**New Work**					
		Approp.	---	---	---	482,000	482,000
		Cost	---	---	---	476,124	476,124

Footnotes:

1. Excludes $17,742 contributed funds for new work.
2. Includes $1,529,413 for previous project.
3. Includes $150,955 allotted from deferred maintenance funds, Code 700, $62,296 for public works accelerated program repair, and $1,214,865 for previous project. Excludes $24,320 expended from contributed funds prior to 1964.
4. Excludes $31,636 contributed by city of Astoria and Bumble Bee Sea Foods, Astoria, OR (not part of regular project). Includes $223,026 expended from contributed funds prior to 1964 and $428,136 contributed by Port of Portland and $14,792 by Port of Vancouver.
5. Includes $84,930 rehabilitation funds.
6. Includes $1,986,253 for previous project and $608,111 allotted and expended under Code 710, recreation facilities at completed project. Excludes $500,000 contributed funds.
7. Includes $2,186,000 for previous project and $1,188,625 under deferred maintenance, Code 700.
8. Includes funds under Code 721 (small authorized projects) $30,393. Entrance to Oregon slough; $161,897, Camas-Washougal Turning Basin; $227,908, Hood River Small Boat Basin; $157,470, Bingen, WA, Barge Channel; and $140,619, The Dalles Small Boat Basin.
9. Includes $2,033,408 under code 700 (Deferred Maintenance).
10. Includes $802,096 for previous project. Excludes contributed funds.
11. Includes $178,801 for previous project and $1,444,640 under Code 700, Deferred Maintenance. Excludes $8,387 contributed funds.
12. Includes $340,726 for previous project. Excludes $72,891 contributed funds. Includes $36,000 under Code 711.
13. Includes $41,467 for previous project and $78,500 under Code 700, Deferred Maintenance.
14. Excludes $9,900 contributed funds.
15. Excludes $13,779 (other funds) contributed for additional landfill and extension of drainage lines.
16. Includes $21,000, Wedderburn Study Funds.
17. Includes $1,159,357 for previous project.
18. Includes $10,611 for previous project and $188,000 under code 700, Deferred Maintenance.
19. Includes $77,209 for previous project and $57,767 under Code 720 (Small Authorized Projects) Garibaldi Boat Basin. Excludes $592,622 contributed funds and $300,000 channel dredging by local interest.
20. Includes $71,498 for previous project. Excludes $6,450 expended from contributed funds.

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep.30, 2003

Footnotes (Cont'd)

21. Includes $39,242 for previous project. Excludes $6,450 expended from contributed funds.
22. Excludes $300,000 contributed funds.
23. Includes $452,110 on operation and care from permanent indefinite appropriation and $150,000 under maintenance and operation of dams and other improvements of navigable waters.
24. Includes $707,313 for previous project and $170,000 appropriated from public works acceleration program for north jetty rehabilitation.
25. Includes $6,026 for previous project.
26. Includes $96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
27. Includes $1,639,828 allotted and expended under Code 710, recreation facilities at completed project.
28. Includes $167,878 special recreation use fees. Includes $201,262 under maint. and operation of dams and other improvements to navigable waters.
29. Includes $1,038,790 allotted and expended under Code 710, recreation facilities at completed project.
30. Includes $1,026,264 allotted and expended under Code 710, recreation facilities at completed project.
31. Includes $3,894,673 allotted and expended under Code 710, recreation facilities at completed project and $136,482 allotted under 721 (small authorized project) reservoir modification. Excludes $2,100 (other funds contributed).
32. Includes $9,750 allotted under Code 700, deferred maintenance. Includes $241,678 under maintenance and operation of dams and other improvements to navigable waters.
33. Excludes $93,733 contributed funds.
34. Includes $12,200,000 Public Works Administration funds, $20,240,700 National Recover Act Funds, $27,195,400 modification for peaking funds, $136,457 Code 710, recreation facilities at completed project funds and $6,000 power units funds.
35. Includes $540,000 deferred maintenance funds, Code 700 and $1,692,148 maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
36. Includes $96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake. Includes $1,789,988 allotted and $1,789,954 expended for Strube Lake and Cougar Additional Unit.
37. Includes $113,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
38. Includes $983,934 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds
39. Includes $82,408 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
40. Includes $25,984 allotted and expended under 710, recreation facilities at completed projects.
41. Includes $1,361,900 for O&M and fish evaluation of Spring Creek Hatchery (funds revoked and paid to USFWS at OCE level, but a cost to project); includes $423,800 special recreation use fees. Includes $933,438 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
42. Includes $457,611 allotted and expended under 710, recreation facilities at completed projects.
43. Includes $991,562 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
44. Includes $978,478 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
45. Includes $1,140,747 allotted and expended under 710, recreation facilities at completed projects, and $52,997,220 allotted and expended additional units 15 - 22 funds.
46. Includes $721,490 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
47. Includes $936,376 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
48. Includes $66,678 under maintenance and operation of dams and other improvements of navigable waters.
49. Includes $861,852 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
50. Includes $24,307 under code 422 General Investigation.
51. Excludes $3,000 contributed funds.
52. Excludes 96-89X4045 funds. Contributed by BPA to construct the John Day Smolt Monitoring Facility.
53. Includes $90,694 under maintenance and operation of dams and other improvements of navigable waters.
54. Excludes 96-89X4045 funds.
55. Includes $150,000 under maintenance and operation of dams and other improvements of navigable waters.

TABLE 28-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1		**CHETCO RIVER, OR**	
	Mar 02, 1945	To provide for the stabilization of the channel, by constructing jetties and dredging.	H. Doc. 817,77th Cong., 2d Sess
	Oct 27, 1965	Modification of channel entrance and channel improvements.	S. Doc. 21, 89th Cong., 1st Sess.
	Dec 04, 1981	Deepen channel 2 feet to 16 feet, extend the existing jetty S. system 750 feet for the North, and 1,250 feet for the South jetty.	Doc. 10, 96th Cong., 1st Sess.
	Oct 31, 1992	Assume responsibility for O&M of the approximately 200-foot-long access channel to the south commercial boat basin consistent with authorized project depths.	P.L. 102-580, 102nd Cong.
2.		**COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA AND PORTLAND, OR**	
	Feb 27, 1911	2 pipeline dredges and accessories.	H. Doc. 1278, 61st Cong., 3d Sess.[1]
	Jul 25, 1912	Increasing main channel to 30 feet.	H. Doc. 1278, 61st Cong., 3d Sess.[1]
	Jul 27, 1916	Consolidating improvement below Portland, OR and between Vancouver, WA and mouth of Willamette.	No Prior Report
	Aug 08, 1917	For the Cathlamet channel.	H. Doc. 120, 63d Cong., 1st Sess.[1]
	Sep 22, 1922	Construct an additional dredge (dredge was not built) and accessories for better maintenance, and construct contraction works.	H. Doc. 1009, 66th Cong., 3d Sess.
	Mar 04, 1923[2]	Channel from deep water in Willamette Slough to deep water in Columbia River.	H. Doc. 156, 67th Cong., 2d Sess.
	Mar 03, 1925	Depth of 25 feet and width of 300 feet from mouth of Willamette River to Vancouver, WA.	H. Doc 126, 68th Cong., 1st Sess.
	Mar 03, 1927	Closing east channel at Swan Island in Willamette River on condition that main channel to be opened to project dimensions on west side of island by Port of Portland.	Rivers and Harbors Committee Doc. 10 69th Cong., 2d Sess.
	Jul 03, 1930	For a 35-foot channel 500 feet wide from Portland to the sea.	H. Doc. 195, 70th Cong., 1st Sess. and Rivers and Harbors Committee Doc. 8, 71st Cong., 1st Sess.[1]
	Sep 06, 1933[3]	A channel 28 feet deep and 300 feet wide from mouth of Willamette River to Vancouver, with 2 turning basins, each generally 28 feet deep by 800 feet wide by 2,000 feet long.	H. Doc. 249, 72d Cong., 2d Sess.[1]
	Aug 30, 1935	A channel in Columbia River from mouth of Willamette to interstate highway bridge at Vancouver, WA, 30 feet deep and 300 feet wide, with 2 turning basins at Vancouver.	Rivers and Harbors Committee Doc. 1, 74th Cong., 1st Sess.
	Aug 30, 1935	Maintenance of not to exceed 35 foot depth at low water in Portland Harbor and Willamette River between its mouth and Broadway Bridge at Portland.	Rivers and Harbors Committee Doc. 6, 73d Cong., 1st Sess.[1]

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Aug 30, 1935	Auxiliary channels, 30 feet deep, 300 feet and 500 feet at St. Helens.	H. Doc. 235, 72d Cong., 1st Sess.[1]
	Aug 26, 1937	Extension of lower turning basin at Vancouver, WA, 1,000 feet downstream.	Rivers and Harbors Committee, Doc. 81, 74th Cong., 2d Sess.
	Aug 26, 1937	An auxiliary channel 24 feet deep and 200 feet wide along waterfront at Rainier, OR.	H. Doc. 203, 75th Cong., 1st Sess.[1]
	Mar 02, 1945	Improvement of old mouth of Cowlitz River.	H. Doc. 341, 77th Cong., 1st. Sess.[1]
	Mar 02, 1945	An auxiliary channel in vicinity of Longview, WA.	H. Doc. 630. 77th Cong., 2d Sess.[1]
	Jul 24, 1946	A small-boat mooring basin at Astoria, OR.	H. Doc. 692, 79th Cong.,2d Sess.[1]
	Oct 23, 1962	A channel 35 feet deep and 500 feet wide from mouth of Willamette River to interstate highway bridge at Vancouver, WA, with 2turning basins of same depth.	H. Doc. 203, 87th Cong., 1st Sess.
	Oct 23, 1962	A channel 40 feet deep and 600 feet wide from at Vancouver, WA, to mouth of Columbia River; a turning basin Vancouver, WA, a turning basin at Longview, WA, and a channel 40 feet deep in Willamette River from mouth to Broadway Bridge which encompasses Portland Harbor area.	H. Doc. 452, 87th Cong., 2d Sess.[1]
3.		**COLUMBIA RIVER AT BAKER BAY, WA**	
	Dec 11, 1933	East Channel	Public Works Administration
	Aug 30, 1935	Main channel	H. Doc. 44, 73d Cong., 1st Sess.
	Mar 02, 1945	West channel 8 feet deep.	H. Doc. 443, 76th Cong., 1st Sess.
	May 17, 1950	West channel 10 feet deep and mooring basin with protecting breakwaters.	S. Doc. 95, 81st Cong., 1st Sess.
4.		**COLUMBIA RIVER BETWEEN CHINOOK, WA AND HEAD OF SAND ISLAND**	
	Jun 20, 1938	Channel 8 feet deep. Doc. 50,75th Cong., 2d Sess.	Rivers and Harbors Committee
	Sep 03, 1954	Channel 10 feet deep and mooring basin.	S. Doc. 8, 83d Cong., 1st Sess.[1]
5.		**COLUMBIA RIVER AT THE MOUTH, OR AND WA**	
	Mar 03, 1905	Extend South Jetty and construct North Jetty and dredging.	H. Doc. 94, 56th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944 as amended
	Sep 03, 1954	Bar channel of 48-foot depth and spur jetty on north shore.[9]	H. Doc. 249, 83d Cong., 2d Sess.[1]
	Jul 30, 1983	Deepening the northernmost 2,000 feet of the channel Cross-section to 55 feet.	P.L. 98-63
	May 24, 1995	Lower a 500' section of south jetty at river mile 7.	Sec. 1135, P.L. 99-662, As amended

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
6.		**COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR**	
	Aug 26, 1937	Construct a channel 27 feet deep by 300 feet from Vancouver, WA, to Bonneville, OR.	H. Committee Doc. 94, 74th Cong., 2d Sess.[1]
	Mar 02, 1945	Construct Camas-Washougal turning basin.	H. Doc. 218, 76th Cong., 1st Sess.
	Jul 24, 1946	Construct a channel 27 feet deep by 300 feet wide from Bonneville, OR, to The Dalles, OR.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a boat basin at Hood River, OR, 10 feet deep, 500 feet wide, by 1,300 feet long.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a barge channel at Bingen, WA, 10 feet deep, 200 feet wide, by 1 mile long, and an access channel 7 feet deep, 100 feet wide, by 1,000 feet long to natural Mooring basin.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct The Dalles Harbor 8 feet deep, 400 feet wide by 800 feet long.	S. Doc. 89, 79th Cong., 1st Sess.[1]
7.		**COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR**	
	Aug 17, 1999	Deepen the existing navigation channel by three feet.	P.L. 106-53
8.		**COOS BAY, OR**	
	Jun 25, 1910	Dredging the Ocean Bar Channel.	H. Doc. 958, 60th Cong.,1st Sess.
	Mar 02, 1919	A channel 22 feet deep to Smith's Mill.	H. Doc. 325, 65th Cong., 1st Sess.
	Sep 22, 1922	Restore North Jetty 9,600 feet long, constructs a South Jetty about 3,900 feet long, extend 22-foot bay channel from Smith's Mill to Millington.	H. Doc. 150, 67th Cong., 2d Sess.
	Jan 21, 1927	Extend jetties to such lengths as may be practicable within estimate of total cost of jetties, $3,250,000 given in H. Doc. 150, 67th Cong.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A channel 24 feet deep and 300 feet wide, through Pigeon Point Reef, following a location along westerly side of bay.	H. Doc. 110, 70th Cong., 1st Sess.[1]
	Aug 30, 1935	For 24-foot channel from Pigeon Point Reef to Smith's Mill and a turning basin above Marshfield.	S. Committee Print, 73d Cong., 2d Sess.[1]
	Jul 24, 1946	Increased dimensions of channel across bar and to Isthmus Slough and turning basin opposite Coalbank Slough and at city of North Bend; anchorage basins at mile 3.5 and near mile 7.	S. Doc. 253, 79th Cong., 2d Sess.
	Jun 30, 1948	A mooring basin and connecting channel at Charleston.	H. Doc 646, 80th Cong., 2nd Sess.
	Dec 31, 1970	Increase dimensions to provide for bar channel 45 feet deep, inner channel 35 feet deep to mile 15, and deepening and widening existing turning basins and anchorage area.	H. Doc. 151, 91st Cong., 2d Sess.
	Nov 13, 1995	Deepening the authorized channel by 2 feet and expanding one turning basin. The entrance would be 47 feet deep to River Mile (RM) 1 and the inner channel 37 feet between RM 1 and 15.	P.L. 104-46

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
9.		**COQUILLE RIVER, OR**	
	Jun 25, 1910	Dredging shoals between mouth and Riverton, and removing obstruction between mouth of North Fork and Bandon.	H. Doc. 673, 61st Cong., 2d Sess.
	Mar 02, 1919	For a 13-foot channel from ocean to Bandon.	H. Doc. 207, 65th Cong., 1st Sess.[1]
	Jul 03, 1930	Deepen channel to 16 feet between sea and eastern end of North Jetty.	H. Doc. 186, 70th Cong., 1st Sess.
	Aug 30, 1935	Present project depth between sea and eastern end of North Jetty.	S. Committee Print, 74th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Food Control Act of 1944 as amended
	Mar 02, 1945	For 13-foot depth from sea to a point 1 mile above Coquille River Lighthouse and snagging to State Highway Bridge.	H. Doc. 672, 76th Cong., 2d Sess.[1]
10.		**DEPOE BAY, OR**	
	Aug 26, 1937	Construction of an inner basin 375 feet long, 125 feet wide and 5 feet deep, with an entrance channel of same depth and 30 feet wide.	H. Doc. 202, 75th Cong. 1st Sess.
	Mar 2, 1945	Construction of an inner basin 750 feet long, 390 feet wide and 8 feet deep, with entrance channel at same depth and 30 feet wide.	H. Doc. 350, 77th Cong. 1st Sess.
	July 14, 1960	Construction of entrance channel 8 feet deep and approved 50 feet wide, concrete breakwater and. stone spending beach	Sec. 107 of R&H Act 1960, Feb. 1965.
11.		**PORT ORFORD, OR**	
	Oct 27, 1965	Extension of existing breakwater by 550 feet.	S. Doc. 62, 88th Cong.,2d Sess
	Dec 31, 1970	Dredging of turning basin 340 feet long, 100 feet wide, 16 feet deep.	H. Doc 151, 91st Cong.,2d Sess.
	Oct 31, 1992	Maintain the authorized navigation channel including those portions of the channel within 50 feet of the port facility.	P.L. 102-580, 102nd Cong.
12.		**ROGUE RIVER HARBOR AT GOLD BEACH, OR**	
	Sep 03, 1954	Two jetties at entrance and improvement of channel.	S. Doc. 83, 83d Cong. 2d Sess.
13.		**SIUSLAW RIVER, OR**	
	Sep 19, 1890	Build two high-tide stone jetties.	H. Doc. 71, 51st Cong., 1st Sess.
	Jun 25, 1910	Extends North Jetty 3,700 feet from old work constructed under previous project and provides for 4,200 foot south jetty.	H. Doc. 648, 61st Cong., 2d Sess.
	Mar 03, 1925	12-foot deep channel.	S. Committee Print, Serial, 68th Cong., 1st Sess.
	Jul 03, 1958	18-foot bar channel and 16-foot river channel and a 600-foot extension of north Jetty. (600-foot extension classified deferred.)	H. Doc. 204, 85th Cong., 1st Sess.[1]
	Oct 22, 1976	Phase I advance engineering and design for north and south jetty extensions.	Final Report of Chief of Engineers
	Oct 01, 1980	Extending north and south jetties about 2,000 and 2,500 feet, respectively.	P.L. 96-367

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
14.		**SKIPANON CHANNEL, OR**	
	Jul 03, 1930	Channel from deep water in Columbia River to railroad bridge, 30 feet deep.	H. Doc. 278, 70th Cong., 1st Sess. [1]
	Aug 26, 1937	Channel extending upstream from railroad bridge a distance of 4,500 feet.	H. Doc. 201, 75th Cong., 1st Sess.
	Jun 30, 1948	Mooring basin 12 feet deep at Warrenton.	S. Doc. 93, 80th Cong., 1st Sess. [1]
15.		**TILLAMOOK BAY AND BAR, OR**	
	Jul 26, 1912	Construct North Jetty 5,700 feet long and dredging	H. Doc. 349, 62d Cong., 2d Sess.
	Mar 04, 1913	channel 16 feet deep, 200 feet wide, to Bay City.	
	Mar 02, 1919	Abandon that portion of project above Bay City.	H. Doc. 760, 65th Cong., 2d Sess
	Mar 03, 1925	Abandon Bay City Channel and present project x (600-foot extension classified of channels and turning basins with regulating works as needed.	H. Doc. 562, 68th Cong., 2d Sess.
	Mar 02, 1945	Repair damage and check erosion on Bayocean Peninsula caused by storm Jan. 1939.	S. Doc. 35, 79th Cong., 1st Sess.[4]
	Jun 30, 1948	Dredging small-boat basin and approach at Garibaldi, OR , to depth of 12 feet.	H. Doc. 650, 80th Cong., 1st Sess.
	Sep 03, 1954	Closure of breach in Bayocean Peninsula.	S. Doc. 128, 83d Cong., 2d Sess.[1]
	Oct 27, 1965	Construct South Jetty, 8,000 feet long.	S. Doc. 43, 89th Cong., 1st Sess.[1]
16.		**UMPQUA RIVER, OR**	
	Sep 22, 1922	North Jetty, 7,500 feet long	H. Doc. 913, 65th Cong., 2d Sess.
	Jan 21, 1927	Present project dimensions of North Jetty and dredging ocean bar.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A short south jetty	H. Doc. 317, 70th Cong., 1st Sess[1]
	Aug 30, 1935	A full length south jetty and maintenance dredging to a 26-foot depth.	Rivers and Harbors Committee Doc. 9,72d Cong., 1st Sess.
	Jun 20, 1938	Channel 22 feet deep and 200 feet wide from mouth to Reedsport.	S. Doc. 158, 75th Cong., 3d Sess.[1]
	Mar 02, 1945	Channel 22 feet deep and 200 feet wide from river channel to Gardiner, and turning basin 22 feet deep, 500 feet wide and 800 feet long.	S. Doc. 86,76th Cong., 1st Sess.[1]
	Mar 02, 1945	Channel 10 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 10 feet deep, 175 feet wide, and 300 feet long at inner end.	S. Doc. 191, 77th Cong., 2d Sess.[1]
	Jun 30, 1948	Channel 12 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 12 feet deep, 175 feet wide, and 300 feet long at inner end.	S. Doc. 154, 80th Cong., 2d Sess.[1]
	Sep 03, 1954	Channel 12 feet deep, Scholfield River.[5]	S. Doc. 133, 81st Cong., 2d Sess.[1]
17.		**WILLAMETTE RIVER AT WILLAMETTE FALLS, OR**	
	Jun 25, 1910	For purchase and rehabilitation of system and construction of concrete division wall.	H. Doc. 202, 56th Cong., 1st Sess. and Annual Report, 1900, P. 4374
	Aug 08, 1917	Deepening of locks.	H. Doc. 1060, 62d Cong., 3d Sess.[1]
	Jun 26, 1934[6]	Operation and care of canal and locks provided for with funds from War Department appropriations for Rivers and Harbors.	
	Mar 02, 1945[8]	Construction of New Willamette Falls Locks.	H. Doc. 544, 75th Cong.,3d Sess.

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
18.		**YAQUINA BAY AND HARBOR, OR**	
	Mar 02, 1919	Restoration and extension of jetties constructed under previous projects, rock removal at entrance, and dredging in bay up to railroad terminus at Yaquina.	H. Doc. 109, 65th Cong., 1st Sess.
	Aug 26, 1937	Extension of north jetty seaward 1,000 feet.	S. Committee Print, 75th Cong., 1st Sess.
	Mar 02, 1945	26-foot channel of suitable width across entrance bar, as far as rock bottom will allow, a 20-foot channel 300 feet wide along south side of bay to and including a turning basin 22 feet deep, 1,000 feet wide and 1,200 feet long.	S. Doc. 119, 77th Cong., 1st Sess.[1]
	Jul 24, 1946	Construct a small-boat mooring basin at Newport, OR.	S. Doc. 246, 79th Cong., 2d Sess.
	Jul 03, 1958	40-foot bar channel and 30-foot river channel extension of jetties at entrance.	S. Doc. 8, 85th Cong., 1st Sess.[1]
	Jul 14, 1960	A small boat basin, south shore.	Section 107, P.L. 86-645 Authorized by Chief of Engineers, Mar. 4, 1977
19.		**YAQUINA RIVER, OR**	
	Mar 4, 1913	Construction of channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Creek.	Doc. 579, 62d Cong., 2d Sess.
23.		**APPLEGATE LAKE, ROGUE RIVER BASIN, OR**	
	Oct 23, 1962	Authorizes a rockfill embankment dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Mar 07, 1974	Authorizes construction of project but no operation for irrigation until local interests agree to repay cost allocated.	P.L. 93-251
24.		**BLUE RIVER LAKE, OR**	
	May 17, 1950	Authorizes gravel-filled embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov 17, 1986	Authorizes Construction of hydroelectric power facilities	P.L. 99-662
25.		**COTTAGE GROVE LAKE, OR**	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended 25.
26.		**DORENA LAKE, OR**	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
27.		**ELK CREEK LAKE, ROGUE RIVER BASIN, OR**	
	Oct 23, 1962	Roller compacted concrete dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 07, 1970	Authorized construction but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 91-439

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
28.		**FALL CREEK LAKE, OR**	
	May 17, 1950	Earth and gravel fill embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, As amended
29.		**FERN RIDGE LAKE, OR**	
	Jun 28, 1938	Earthfill embankment dam	H. Doc. 544, 75th Cong. 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, As amended
	Oct 23, 1962	Raise height of dam to obtain additional storage.	H. Doc 403, 87th Cong. 2d Sess.
	Jun 4, 1993	Construction of waterfowl impoundments.	Sec 1135, P.L.99-662 as amended
30.		**LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA**	
	May 17, 1950	Provides bank protection on Columbia River below river mile 125 and along principal tributaries.	H. Doc. 531, 81st Cong., 2d Sess.
31.		**MT. ST. HELENS SEDIMENT CONTROL, WA**	
	Aug 15, 1985	Authorized construction of sediment and retention structures.	P.L. 99-88
32.		**WILLAMETTE RIVER BASIN BANK PROTECTION, OR**	
	Jun 22, 1936	Bank protection works, with channel clearing.	F.C. Act 1936
	Jun 28, 1938	Provide additional protection against flooding.	H. Doc. 544, 75th Cong., 3d Sess.
	May 17, 1950	Addition of 77 locations to scope of projects.	H. Doc. 531, 81st Cong., 2d Sess.
33.		**WILLOW CREEK LAKE, HEPPNER, OR**	
	Oct 27, 1965	Storage project for flood control, recreation, and fish and wildlife.	H. Doc. 233, 89th Cong., 1st Sess.
34.		**BONNEVILLE LOCK AND DAM -- LAKE BONNEVILLE, OR AND WA**	
		Existing project was originally authorized Sep. 30, 1933, by Federal Emergency Administration of Public Works.	
	Aug 30, 1935	Existing project authorized by Congress.	S. Committee Print, 73d Cong., 2d Sess., (Report of Chief of Engineers dated Aug 21, 1933)
	Aug 20, 1937	Completion, maintenance, and operation of Bonneville project under direction of Secretary of War and supervision of Chief of Engineers, subject to certain provisions herein relating to powers and duties of Bonneville Power Administrator.	

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 07, 1974	Authorizes relocation of town of North Bonneville to new town site.	P.L. 93-251
	Aug 22, 1984	Acquisition of Steigerwald Lake wetland area.	P.L. 98-396
	Oct 1992	Authorizes transfer of lands to town of North Bonneville.	P.L. 102-396, Sec. 9147
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
38.		**COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA**	
	Nov 1, 1988	Authorizes project for mitigation of lost treaty fishing access resulting from construction of Bonneville Dam.	Title IV of P.L. 100-581
	Oct 12, 1996	Boundary adjustments.	P.L. 104-303, Sec. 512
39.		**COUGAR LAKE, OR**	
	May 17, 1950	Rockfill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power	P.L. 83-780.
	Oct 23, 1962	Strube Lake re-regulating dam.	P.L. 87-874
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
40.		**DETROIT LAKE - BIG CLIFF, OR**	
	June 28, 1938	Authorizes concrete gravity structure.	H. Doc. 544, 75th Cong., 3d Sess.
	Jun 30, 1948	Addition of power and regulating Big Cliff Dam. with power	P.L. 858, 80th Cong.2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
41.		**GREEN PETER-FOSTER LAKES, OR**	
	May 17, 1950	Authorized Green Peter Dam in lieu of originally authorized Sweet Home Lake (1938).	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power at Green Peter and White Bridge re-regulating Dam.	P.L. 83-780, F. C. Act 1954
	Jul 14, 1960	Changes location of re-regulating dam from White Bridge location to Foster.	S. Doc. 104, 86th Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
42.		**HILLS CREEK LAKE, OR**	
	May 17, 1950	Earth and gravel fill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
43.		**JOHN DAY LOCK AND DAM - LAKE UMATILLA, OR AND WA**	
	May 17, 1950	Multiple-purpose dam, flood control, navigation. and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 24, 1965	John Day waterfowl management area.	S. Doc. 28, 89th Cong., 1st Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
44.		**LOOKOUT POINT - DEXTER LAKES, OR**	
	Jun 28, 1938	Earth-and-gravel filled dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	May 17, 1950	Addition of power and authorization of Dexter Lake as re-regulating dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
45.		**LOST CREEK LAKE, ROGUE RIVER BASIN, OR**	
	Sep 21, 1962	Rock and gravel fill embankment dam, including power.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 15, 1966	Authorizes construction of project but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 89-689, Public Works Approp. Act, 1967
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
46.		**THE DALLES LOCK AND DAM -- LAKE CELILO, WA AND OR**	
	May 17, 1950	Multiple-purpose dam, flood control, navigation. and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
47.		**COLUMBIA RIVER FISH MITIGATION, OR and WA**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities.	P. L. 100-371
48.		**WILLAMETE RIVER TEMPERATURE CONTROL, OR**	
	Oct 12, 1996	Authorized modifications to intake towers to benefit fish habitat.	P.L. 104-303
	Aug 17, 1999	Increased authorized cost.	P.L. 106-53
49.		**LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION**	
	Dec 11, 2000	Environmental Restoration of fish and wildlife habitat Sec 536 of Water Resource Development Act of 2000	P.L. 106-541

Footnotes:

1. Contains latest published maps.
2. Public Resolution 105, 67th Cong.
3. Public Works Administration.
4. Includes following work, classified inactive. A channel to Hobsonville 200 feet wide and 16 feet deep, with a turning basin 500 feet wide at Hobsonville, and regulating works as needed.
5. Inactive.
6. Permanent appropriations Repeal Act.
7. Flood Control Act
8. Classified Deferred.
9. Spur Jetty "B" classified inactive

TABLE 28-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Alsea River, OR	Completed		2,000	26,237
Astoria Turning Basin, OR[1]	Completed	1977	870,139	
Bandon Small Boat Basin, Coquille, OR[1]	Completed	1985	1,173,524	
Bonneville Navigation Lock OR & WA[20]	Completed	2002	175,442,306	
Bridges, Columbia River, Cascade Locks and Hood River, OR (Alteration)	Completed	1944	1,081,806	16,648
Cathlamet, WA[1]	Completed	1971	171,467	
Charleston Channel, Coos Bay, OR[1]	Completed	1985	1,197,300	
Clatskanie River, OR[2]	Completed	1969	19,2400[3]	194,896[4]
Columbia River, Illwaco, WA[1]		1986	1,589,231	
Coos & Millicoma Rivers, OR	Completed	1991	350,238[18]	2,152,914
Cowlitz River, WA	Completed	1985	277,436[6]	1,474,036
Cushman-Mapleton Channels (Siuslaw River), OR[1]	Completed	1975	329,423	
Deep River, WA[2]	Completed	1963	15,384	32,768
Depoe Bay, OR[1]	Completed	1971	145,588[5]	
Elochoman Slough, WA[2]	Completed	1990	18,641[17]	196,864
Grays River, WA[2]	Completed	1941	2,500	35,670
Hammond Small Boat Basin, OR[1]	Completed	1977	519,090[7]	
Interstate Bridge, Columbia River, Portland, OR to Vancouver WA (Alteration)	Completed	1961	1,154,162[8]	
Interstate Highway Bridge (Barge Channel), OR[1]	Completed	1963	15,281	
Kalama Turning Basin, Kalama, WA[1]	Completed	1986	302,000	
Lake River, WA	Completed	1983	2,700	58,127
Lewis River, WA	Completed	1985	58,132	685,677
Long Tom River, OR	Completed			4,000
Mooring for Battleship Oregon, OR	Completed			25,000
Multnomah Channel, OR[2]	Completed	1982	437,669[9]	
Nehalem Bay, OR	Completed	1987	302,006[10]	55,195
Nestucca River, OR	Completed			6,000
Oregon Slough, (North Portland Harbor), OR[2]	Completed	1963	16,881	90,514
Salmon River, OR[2]	Completed	1949	2,145	
Smith River, OR[2]	Completed	1974	143,120	205,130
Skamokawa Creek, WA	Completed	1991	2,400	436,185
South Channel, Government Island, OR[1]	Completed	1985	119,800[11]	
South Slough (Charleston), OR[1]	Completed	1970	26,821	
The Cascades Canal, Columbia River, OR[12]	Abandoned	1939	3,903,780	559,858
The Dalles-Celilo Canal, OR and WA[13]	Abandoned	1957	4,716,205	2,833,888
Tongue Point, OR[1]	Completed	1992	2,807,876[19]	
Umatilla Harbor, OR[14]	Abandoned	1952		
Westport Slough, OR[2]	Completed	1966	16,276	171,909
Willamette River above Portland and Yamhill River, OR	Completed	1985	862,918	17,900,293
Winchester Bay, Umpqua River, OR	Completed	1985	1,616,369	
Yaquina Bay and Harbor Small Boat Basin, OR[1]	Completed	1979	891,695[15]	
Yaquina River, OR[1]	Completed	1971	195,313[16]	
Youngs and Clatskanie River, OR	Completed		2,000	
Youngs Bay and Youngs River, OR[2]	Completed	1979	9,348	34,449
7.5 MCY Standby Time	Completed	1996		4,314,000

TABLE 28-C (Cont'd) OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance

Footnotes:

1. Authorized by Chief of Engineers (sec. 107).
2. Channel adequate for present commerce.
3. Includes $15,537 for previous project
4. Includes $23,489 for previous project.
5. Excludes $42,000 contributed funds.
6. Includes $239,529 for Sec. 107 project.
7. Excludes $75,000 contributed funds.
8. Non-Federal funds, $1,204,100.
9. Includes $419,557 for Sec. 107 project.
10. Excludes $304,826 contributed funds.
11. Excludes $102,000 contributed funds.
12. Project abandoned due to flooding by Bonneville Dam pool.
13. Project abandoned due to flooding by The Dalles Dam pool.
14. Project transferred to Portland District from Walla Walla District FY 1974 and abandoned due to flooding by the John Day Dam pool.
15. Excludes $969,342 contributed funds.
16. Excludes $50,565 contributed funds
17. Excludes $86,586 contributed funds.
18. Excludes $80,000 contributed funds; includes $8,000 for previous project.
19. Excludes $1,776,008 contributed funds.
20. Excludes $180,132,885 contributed funds.

TABLE 28-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
COLUMBIA RIVER BASIN				
Blind Slough Diking District, Clatsop County, OR	Completed	1939	163,397	
Consolidated Diking and Improvement District 1,Cowlitz County, WA	Completed	1941	163,291	
Deep River Area, Wahkiakum County, WA	Completed	1942	69,724	
Deer Island Area, Columbia County, OR	Completed	1943	574,123	
Diking District 2, Clatsop County, OR	Completed	1940	25,609	
Diking District 5, Clatsop County, OR	Completed	1940	25,609	
Diking and Improvement District 5, Cowlitz County, WA	Completed	1940	161,381	
Diking District 1 and 3 (Puget Island) and Little Island, Wahkiakum County, WA	Completed	1941	258,795	
Diking Improvement District 1, Pacific County WA	Completed	1941	26,810	
Diking and Improvement District 4, Wahkiakum County, OR	Completed	1951	169,542	
Drainage District 1, Clatsop County, OR	Completed	1939	240,939	
John Day River Area, Clatsop County, OR	Completed	1942	33,080	
Karlson Island, Clatsop County, OR	Completed	1941	25,773	
Knappa Area, Clatsop County, OR	Completed	1942	18,789	
Lewis and Clark River Area, Clatsop County, OR	Completed	1942	158,419	
Lower Cowlitz River Area, Clatsop County, OR	Completed	1961	91,652	
Magruder Drainage District, Columbia County, OR	Completed	1940	61,186	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
COLUMBIA RIVER BASIN (Cont'd)				
Marshland Drainage District, Columbia County, OR	Completed	1940	39,475	
Midland Drainage District, Columbia County, OR	Completed	1939	77,774 [3]	
Multnomah Drainage District 1, OR	Completed	1951	593,034 [4]	
Peninsula Drainage District 1, Multnomah County, OR	Completed	1942	241,148	
Port of Kalama, WA[1]	Completed		99,844	
Rainier Drainage District, Columbia County, OR	Completed	1942	47,662	
Sauvie Island Areas A and B, Multnomah County, OR	Completed	1951	1,623,505	
Scappoose Drainage District, OR	Completed	2000	4,121,487	
Skamokawa Creek Area, Wahkiakum County, WA	Completed	1946	178,885	
Wahkiakum County Consolidated Diking District No. 1, WA	Completed	1985	5,289,833	
Tenasillahe Island, Clatsop County, OR	Completed	1939	133,778	
Upper Grays River Area, WA	Completed	1947	61,263	
State Hwy 101 & 401, Columbia River, WA[1]	Completed	1985	504,642[11]	
Walluski River, Clatsop County, OR	Completed	1942	66,932	
Warrenton Diking District, 1, Clatsop County, OR	Completed	1940	69,503	
Warrenton Diking District 2, Clatsop County, OR	Completed	1940	74,596	
Webb District Improvement Co., Columbia County, OR	Completed	1940	84,592	
Westland District Improvement Co., Columbia County, OR	Completed	1940	205,531	
Westport District Columbia and Clatsop Counties, OR	Completed	1943	40,658	
Woodson Drainage District, Columbia County, OR	Completed	1940	22,797	
Youngs River Dikes, Clatsop County, OR	Completed	1942	248,802	
LEWIS RIVER BASIN				
Diking and Improvement District 11, Cowlitz County, WA	Completed	1943	172,521	
COWLITZ RIVER BASIN				
Cowlitz County Drainage Improvement District 1, WA	Completed	1939	42,978	
Diking Improvement District 13, Cowlitz County, WA	Completed	1939	28,592	
Huntington Avenue, Castle Rock, WA[1]	Completed	1985	250,000	
Mt. St. Helens and Vicinity, WA	Completed	1995	42,036,000	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
LOWER COLUMBIA RIVER BASIN				
Beaver Drainage District, OR	Completed	1984	3,131,944	
Cowlitz County Consolidated Diking Improvement District No. 2, WA	Completed	1977	1,661,367	
Cowlitz County Diking Improvement District 2, WA	Completed	1967	363,000	
Cowlitz County Diking Improvement District 13, WA	Completed	1967	65,345	
Cowlitz County Diking Improvement District 15, WA	Completed	1967	304,794	
Cowlitz River, Hopkins Creek, WA[1]	Completed		236,860	
Hayden Island, OR	Inactive			
Midland Drainage District, OR	Completed	1971	304,511	
Multnomah County Drainage District 1, OR	Completed	1964	1,499,186	
Peninsula Drainage District 2, OR	Inactive	1961	35,265	
Rainier Drainage District, OR	Completed	1967	593,945	
Sandy Drainage District, OR	Completed	1954	154,012 [5]	
Sauvie Island Drainage District, OR	Completed	1966	674,137	
Vancouver Lake Area, WA	Deferred	1981	889,391	
Wahkiakum Co. Diking District 4, WA	Inactive	1971	48,619	
Washougal Area Levees, Clark County, OR	Completed	1973	1,803,488	
Woodson Drainage District, OR	Completed	1964	162,500	
WILLAMETTE RIVER BASIN				
Amazon Creek, OR	Completed	1960	1,214,300 [6]	
Mill Creek, Salem, OR	Completed	1993	175,800[14]	
Sandy River and Sleepy Hollow, OR[1]	Completed		276,700	
Whelton Ditch, OR	Inactive	1967	39,624	
ALL OTHER FLOOD CONTROL				
Arlington, Alkali Canyon, OR[7]	Abandoned	1950	23,439	
Bear Creek, Medford, OR[1]	Completed		23,050	
Beaver Creek Near Tillamook, OR[2]	Completed	1967	106,198	
Castle Rock, Cowlitz River, WA	Completed	1957	104,921	
Catching Inlet Drainage District Coos River, OR[2]	Completed	1959	182,655	
Chewaucan River, Paisley, OR[1]	Completed		42,761	
Clackamas River at Dixon Farm Location, OR	Completed	1952	70,845 [8]	
Days Creek Lake, OR (Phase I)	Deferred	1982	1,307,216	
Depoe Bay, Lincoln County, OR[1]	Completed		22,963	
Deschutes River, Bend, OR[2]	Completed	1988	106,250[13]	
John Day River (West), OR[1]	Completed	1986	127,800	
Johnson Creek, OR	Inactive	1981	170,245	
McDonald Dike Road, Nehalem River, OR[1]	Completed	1985	29,500	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
ALL OTHER FLOOD CONTROL (Cont'd)				
McKenzie River Near Waterville, OR[2]	Completed	1966	148,358	
Miami River, OR[1]	Completed		15,321	
Yaquina River, OR	Completed	1948	118,433	
Molalla River at Milk Creek Location, OR[2]	Completed	1955	55,007	
Molalla River at Ressel Location, OR[2]	Completed	1952	55,189	
Nestucca River, Condor Road, OR[1]	Completed		11,690	
Nestucca River, Vicinity Pacific City, OR[1]	Completed		16,000	
Pendleton Levees, Umatilla River, OR[9]				
(a) Riverside Area Units	Deferred	1960	9,100	
(b) State Hospital and City Areas (Zone 1)	Completed	1959	267,748	
(c) State Hospital and City Areas (Zone 2)[2]	Completed	1960	161,540	
Pendleton, Umatilla River, OR[9]	Completed	1939	143,263	
Reedsport Levees, Umpqua River, OR[2]	Completed	1971	968,716[10]	
Rogue River, OR[1]	Completed		86,230	
Salmon Creek at Oakridge, OR[2]	Completed	1960	288,447	
Salmon Creek Near Vancouver, WA[1]	Completed	1985	435,000[12]	
Sandy River, City of Troutdale, OR[1]	Completed	1994	365,000[15]	
Siuslaw River, Lane County, OR[1]	Completed		215,939	
Stillwell Drainage District, Tillamook Bay, OR[2]	Completed	1961	176,351	
Sumner Parker Airport, OR[1]	Completed		92,500	
Trask River, Tillamook County, OR[1]	Completed	1984	121,273	
Tualatin, OR	Completed	1985	1,803,094	
Umatilla River, Stanfield, OR[1]	Completed		33,835	
Umatilla River, Thorn Hollow, OR[1]	Completed	1985	154,600	
Umpqua River and Tributaries, OR	Completed	1952	428,881	
Vicinity of Nehalem, Nehalem River, OR	Completed	1952	45,677	
West Makinster Rd., Wilson River, OR[1]	Completed	1986	176,000	
Wilson River, Vicinity Highway 101, OR[1]	Completed		30,000	

Footnotes:

1. Authorized by Chief of Engineers (Sec. 14).
2. Authorized by Chief of Engineers (Sec. 205).
3. Includes $26,241, Emergency Relief Act Funds.
4. Excludes $25,000 contributed funds.
5. Previous completed project, $138,956; $15,056 engineering costs project constructed by local interests.
6. Excludes $154,751 contributed funds.
7. Project transferred from Walla Walla District FY 1974 and abandoned due to flooding by the John Day Dam pool. Includes $3,328 FY 1960 preauthorization costs, Sec. 205, P.L. 80-85. See FY 1960 Annual Report, page 1887.
8. Excludes $2,520 contributed funds.
9. Reported by Walla Walla District prior to 1974.
10. Excludes $230,070 contributed funds for new work and $31,284 Government furnished sheet steel pile.
11. Includes $254,642 contributed funds.
12. Includes $185,000 contributed funds.
13. Excludes $5,822 contributed funds.
14. Excludes $31,031 contributed funds.
15. Excludes $98,313 contributed funds.

TABLE 28-F OTHER AUTHORIZED MULTIPLE PURPOSE PROJECTS, INCLUDING POWER

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Restoration of Indian Fishing Grounds Bonneville, OR	Completed	1969	185,000	
Columbia and Snake Rivers Ports Dredging, OR & WA	Inactive	1994		5,799,926

TABLE 28-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Area East of Albany, OR		1977		
Bachelor Island, WA		1977		
Bear Creek, Long Tom River, OR	1966	1971	4,559	
Calapooya River, OR	1959	1965	11,595	
Cascadia Lake, OR		1987	954,114 [1]	
Chetco River, OR		1997	235,353	
Clatskanie River Area, Columbia County, OR	1960	1965	268	
Clatskanie Drainage Dist. 1, OR	1964	1978	18,543	
Clatsop County Drainage District 1, OR	1960	1974	4,472	
Clatsop County Diking District 3, OR	1938	1961	258	
Clatsop County Diking District 4, OR		1978		
Clatsop County Diking District 6, OR	1961	1978	8,824	
Columbia Drainage District No. 1, OR		1987		
Columbia River, Seafarers Memorial	2000	2000	52,024	
Columbia Slough, OR	1953	1978	21,352	
Coquille River, OR	1948	1953	908	
Cowlitz County Consolidate Diking Improvement District 1, OR		1977		
Cowlitz River at Randle, WA	1962	1977	11,095	
Coyote and Spencer Creek, Long Tom River, OR	1960	1970	6,819	
Deer Island Drainage District, OR		1987		
East Muddy and Lake Creek, OR	1959	1970	6,465	
Ferguson Creek Long Tom River, Or		1978		
Flat Creek, Long Tom River, OR		1977		
Floodwall and Levees at Portland, OR		1977		
Gate Creek Lake, OR		1987	745,001 [2]	
Holley Lake, OR	1963	1987	241,992 [3]	

TABLE 28-G (Cont'd) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
John Drainage District, OR	1961	1979	23,754	
John Day River, OR	1974	1974	210,220	
Kalama River (South Area) Levee, Cowlitz County, WA	1969	1978	55,594	
Lake River Delta Area, WA		1977		
Lewis River Area, WA		1978		
Magruder Drainage District, OR	1940	1974	774	
Mud and Basket Slough Rickreall Creek, OR		1977		
Pendleton Levees, Riverside Area, OR		1987	9,000	
Peninsula Drainage District 1, OR	1942	1977	43,292	
Pilot Rock, Birch Creek, OR	1963	1968	4,558	
Prescott Area, Columbia County, OR	1941	1978	125	
Prineville Area, Crooked River and Ochoco Creek, OR	1962	1977	11,318	
Pudding River, OR	1950	1979	5,000	
Shelton Ditch, Marion County, OR	1967	1987	39,624	
Skamokawa (Steamboat Slough), WA	1939	1979		
Soap Creek, WA		1977		
Turner Prairie, Mill Creek, OR		1978		
Umatilla River (Echo), OR	1960	1964	24,145	
Umpqua River-Scholfield River, OR		1987	4,000	
Waldo Lake Tunnel, OR		1958		
West Muddy Creek and Mary's River, OR	1962	1970	4,056	
Westport Slough, OR (Modification for 32-foot channel)	1966	1977		
Wiley Creek Lake, OR	1960		112,000	
Willamette River above Portland and Yamhill River, OR (uncompleted portions)		1987		
Willamette Falls Fish ladder, OR	1961			
Willamette River at Willamette Falls, OR	1948	1987	142,883	

Footnotes:

1. Excludes Pro-rata share of $112,000 for Sweet Home Reservoir.
2. Excludes Pro-rata share of $95,000 for Quartz Creek Reservoir.
3. Excludes $100,000 preauthorization study costs.

TABLE 28-H COLUMBIA AND LOWER WILLAMETTE RIVER BELOW VANCOUVER, WA, AND PORTLAND, OR TOTAL COST OF EXISTING PROJECT TO SEP. 30, 2003

(SEE SECTION 2 OF TEXT)

Funds	New Work	Maintenance	Total
Regular	28,349,304	477,271,411	505,620,715
Public Works	446,296	14,414	460,710
Emergency Relief Administration	138,449	98,668	237,117
Total U.S.	28,934,049	477,384,493	506,318,542
Contributed Prior to 1964	223,026	24,320	247,346
Contributed (1975) 35 to 40-foot Channel	442,928		442,928
Total Contributed	665,954	24,320	690,274
Total All Funds	29,600,003	477,408,813	507,008,816

TABLE 28-I PROJECT CONDITION SURVEYS

(SEE SECTION 20 OF TEXT)

Project	Date Survey Conducted
Tillamook, OR	Jun 2003
Hood River Boat Basin, OR	Dec 2001
Siuslaw River - Florence to Mapleton, OR	Sep 2001
Hammond Boat Basin, OR	July 2002
Cathlamet Bay, WA	Aug 2003
Cathlamet Channel, WA	Aug 2003
Chinook Channel, WA	Oct 2003

TABLE 28-J WILLAMETTE RIVER AT WILLAMETTE FALLS, OR PRINCIPAL FEATURES OF EXISTING CANAL AND LOCKS

(SEE SECTION 17 OF TEXT)

Usable Lock Dimensions	Series of 4 locks, each 175 feet by 37 feet[1]
Lift of each lock	Lock 1 (Lower), 22,5 feet; Lock 2, 8.7 feet; Lock 3, 10.9 feet and Lock 4 (Upper), 8.1 feet[2]
Depth of Miter Sills at Lower Water	Lower Lock, 8.4 feet; Upper Lock, 6 feet
Character of foundation	Rock
Kind of Dam	Fixed[3]
Type of Construction	Concrete
Year of Completion	1873; Purchased by United States Apr. 26, 1915
Cost	Unknown; purchase price $375,000

Footnotes:

1. A guard lock 210 by 40 feet, which is used only at higher states of water, is at upper end of canal basin.
2. A concrete division wall, 1,227 feet long, extending from Lock 4 to Guard Lock, separates upper basin of canal from head race, which formerly led directly from basin and supplied water for power plants operated by Crown Zellerbach Corp., and Portland Ry., Light & Power Co., which is now being operated by Portland General Electric Co.
3. The dam is owned by private parties.

TABLE 28-K FLOOD CONTROL RESERVOIR OPERATIONS

See Section in Text	Project	Date of Peak Inflow	Peak Inflow Cu. Ft./Sec.	Storage Used Acre/feet
23.	Applegate Lake, OR	December 27, 2002	8,880	6,670
24.	Blue River Lake, OR	January 30, 2003	8,390	20,670
25.	Cottage Grove Lake, OR	February 1, 2003	2,960	7,630
39.	Cougar Lake, OR	January 30, 2003	7,750	15,650
40.	Detroit Lake, OR	January 30, 2003	18,600	84,950
26.	Dorena Lake, OR	January 30, 2003	6,360	22,490
28.	Fall Creek Lake, OR	January 30, 2003	8,320	27,470
29.	Fern Ridge Lake, OR	December 30, 2002	8,600	25,880
41.	Foster Lake, OR	January 30, 2003	13,340	6,070
41.	Green Peter Lake, OR	January 30, 2003	18,980	74,500
42.	Hills Creek Lake, OR	January 30, 2003	7,520	29,930
44.	Lookout Point Lake, OR	January 30, 2003	18,100	69,100
45.	Lost Creek Lake, OR	December 27, 2002	4,950	3,520

TABLE 28-L WORK UNDER SPECIAL AUTHORITIES PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Fiscal Year Costs Non-Federal	Total
Beach Erosion Control Projects Pursuant to Section 103 of the 1962 Rivers and Harbors Act, Public Law 874, 87th Congress, As Amended (See Section 22 of text)				
Rock Creek, Highway 101, OR	F	14,082	14,087	28,169
US 101, Beverly Beach, OR	F	58,195	55,255	113,450
Coordination		4,953	---	4,953
Total Section 103		77,230	69,342	146,572
Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended (See Section 21 of text)				
Port of Brookings (Chetco), OR	F	48,697	36,849	85,546
Coordination		9,971	---	9,971
Skamokawa Creek	F	13,678		13,678
Total Section 107		72,345	36,849	109,195
Shore Damage Attributable to Navigation Works, Pursuant to Section 111 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended (See Section 21 of text)				
Puget Island Shoreline, WA and OR	F	23,847	---	23,847
Total Section 111		23,847	---	23,847

TABLE 28-L (Cont'd) WORK UNDER SPECIAL AUTHORITIES PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Non-Federal	Total
Flood Control Activities Pursuant to Section 205 of the Flood Control Act of 1948, Public Law 858, 80th Congress, as Amended (See Section 36 of text)				
Hamilton Creek	F	807	---	807
Bend, Deschutes	F	55,964	---	55,964
Multnomah Diking District #1	F	28,877	---	28,877
Dam Break Early Warning System	F	28,808	---	28,808
Coordination		10,827	---	10,827
Total Section 205		119,283	---	119,283
Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress as amended (See Section 36 of text)				
City of Harrisburg	D	8,896	---	8,896
Grant Pass, OR	C	-37,956	37,956	---
St Johns Landfill	D	8,327	---	8,327
Coordination		7,981	---	7,981
Total Section 14		12,752	37,956	25,204
Project Modifications for Improvement of the Environment Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended (See Section 50 of text)				
Amazon Creek Wetlands, OR	C	237,190	---	237,190
Brownsmead, OR	D	134,868	---	134,868
Steigerwald Lake	F	49,684	---	49,684
Fern Ridge Lake Marsh Restoration, OR	C	15,460	34,379	49,839
Fox Creek, OR	C	---	63	63
Lower Columbia Slough	C	483,096	---	483,096
SW Washington Streams	F	56,527	---	56,527
Willamette Mission State Park, OR	D	10,449	---	10,449
Crimms Island	R	28,123	---	28,123
Willow Creek, OR	R	5,962	---	5,962
Dairy Creek, OR	R	3,501	---	3,501
Lost Creek @ Central Point, OR	R	5,001	---	5,001
Grays River At Cathlamet	R	9,019	---	9,019
Coordination		19,125	---	19,125
Total Section 1135		1,058,005	34,442	1,092,447
Aquatic Ecosystem Restoration Pursuant to Section 206 of the 1996 Water Resources Development Act, Public Law 303, 104th Congress, as Amended (See Section 50 of text)				
Westland Dam, OR	F	6,920	---	6,920
Camp Polk Meadow, OR	D	41,777	---	41,777
East Birch Creek Restoration, OR	C	884	47,881	48,765
Eugene Delta Ponds, OR	P	313,415	---	313,415
Gold Hill Dam, OR	D	38,521	---	38,521
Gross Creek, Bandon, OR	D	1,787	---	1,787
Salmon Creek, WA	F	11,067	---	11,067

TABLE 28-L (Cont'd) WORK UNDER SPECIAL AUTHORITIES PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Non-Federal	Total
Aquatic Ecosystem Restoration Pursuant to Section 206 (Cont'd)				
Springfield Millrace, OR	F	215,054	---	215,054
City of Keizer, Labish Ditch, OR	D	1,311	---	1,311
Westmoreland Park, OR	F	86,030	---	86,030
Kellogg Creek, OR	F	236,924	---	236,924
Alsop Brownwood, OR	F	122,524	---	122,524
Highway 47, Vernonia, OR	D	188,339	---	188,339
Coordination		17,749	---	17,749
Bad Bank Creek, OR	R	3,885	---	3,885
McKenzie River, OR	R	5,916	---	5,916
Beaver Creek, OR	R	5,888	---	5,888
Beaver Creek, OR	F	8,830	---	8,830
Oaks Bottom, OR	R	5,800	---	5,800
Oaks Bottom, OR	F	71,428	---	71,428
Johnson Creek/Springwater, OR	R	5,954	---	5,954
Johnson Creek/Springwater, OR	F	9,375	---	9,375
Savage Rapids Dam, OR	R	9,962	---	9,962
Coos Bay, Hwy 101, OR	R	9,817	---	9,817
Sutherlin Creek, OR	R	7,667	---	7,667
Chinook River Estuary, WA	R	9,893	---	9,893
Coffee Lake, Wilsonville, OR	R	5,904	---	5,904
Bateman Creek, OR	R	7,428	---	7,428
Arrowhead Creek	R	7,867	---	7,867
Reed's Canyon	R	6,000	---	6,000
Calapooia River	R	6,000	---	6,000
D E. Fork Lewis River	R	822	---	822
Total Section 206		1,470,740	47,881	1,518,621

1/ Status: C = Construction; D = Planning and Design Analysis; F = Feasibility; P = Plans and Specifications; R = Preliminary Restoration Plan; X=Fiscal Close Out

TABLE 28-M

FLOOD CONTROL ACTIVITIES
WORK UNDER SPECIAL AUTHORITIES
DISASTER PREPAREDNESS PROGRAM
(SEE SECTION 53 OF TEXT)

	Federal Funds Expended	Contributed Funds Expended
Disaster Preparedness Program (Category 100)		
Planning	408,476	0
Training and Exercise	0	0
Equipment, Facilities and Supplies	4,656	0
National Center for Expertise	0	0
Total Disaster Preparedness Program	413,132	0
Emergency Operations (Category 200)		
Response Operations	9,386	0
Post Flood Response	0	0
Acquisition of Supplies/Equip	0	0
Operational Deployment	0	0
Total Emergency Operations	9,386	0
Rehabilitation (Category 300)		
Federal Flood Control Works	45,611	0
Non-Federal Flood Control Works	0	0
Field Investigations	6,545	0
Initial Eligibility Inspections	0	0
Continuing Eligibility Inspections	0	0
Total Rehabilitation	52,156	0
Advance Measures		
Advance Measure Assistance	0	0
Field Investigations	2,112	0
Total Advance Measures	2,112	0
Reimbursement Activity		
Other Agencies	0	0
Other Corps Offices	310,509	0
Total Reimbursement Activity	310,509	0

TABLE 28-N PRINCIPAL DATA CONCERNING COLUMBIA RIVER NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT

Project		
Bonneville Lock and Dam OR and WA - Lake Bonneville (See Section 37 of Text)	**NAVIGATION LOCK (NEW)**	
	Dimensions:	
	Clear Width of Chamber	86 Feet
	Greatest Length Available for Full Width	675 Feet
	Lift (Vertical):	
	At Extreme Low Water and Normal Pool Level	66 Feet
	At Normal River Stage	59 Feet
	At Extreme High Water	About 30 Feet
	Depth Over Miter Sills at Adopted Low Water	19 Feet
	Character of Foundation	Andesite
	Open to Navigation	March 1993
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	1938
	Capacity	1,600,000 CFS
	Elevation of Gate Sills on Crest of Spillway	23.3 Feet
	Height above Lowest Foundation	About 170 Feet
	Length of Dam Proper	1,090 Feet
	Length of Dam Overall	1,230 Feet
	Width at Base	200 Feet
	Gate Openings	18
	Crest Overflow (Above Mean Sea Level)	24 Feet Pool
	Elevation (Normal)(Above Mean Sea Level)	72 Feet
	POWERPLANT	
	Length (First Powerhouse)	1,027 Feet
	Length (Second Powerhouse)	953 Feet
	Width (First Powerhouse)	190 Feet
	Width (Second Powerhouse)	235 Feet
	Height (Roof to Bedrock) (First Powerhouse)	190 Feet
	Height (Roof to Bedrock)(Second Powerhouse)	200 Feet
	Generator (Station Unit)	1 @ 5,000 kW
	Generators (First Powerhouse)	1 @ 48,000 kW
		1 @ 59,500 kW
		8 @ 60,000 kW each
	Generators (Second Powerhouse)	8 @ 66,500 kW each
	Fishwater Supply Units (Second Powerhouse)	2 @ 13,100 kW each
	Total Rated Capacity	1,145,700 kW
	Speed	75 Revolutions per Minute
John Day Lock and Dam, OR and WA - Lake Umatilla (See Section 43 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 Feet
	Clear Length	669 feet
	Lift:	
	Minimum	97 Feet
	Average	105 Feet
	Maximum	113 Feet
	Minimum Water Depth Over Sills	15 Feet
	Opened to Navigation	April 1968
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1968
	Maximum Capacity	2,250,000 cfs
	Crest Elevation	210 Feet
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 ft. by 58.5 Ft.
	Number	20

TABLE 28-N (Cont'd) PRINCIPAL DATA CONCERNING COLUMBIA RIVER NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT

Project		
	POWERPLANT	
	Length	1,975 Feet
	Width	243 Feet
	Generating Units:	
	Number Installed	16
	Space for Additional	4
	Rating, Each	135,000 kW
	Total Installed Capacity	2,160,000 kW
	Total Potential Capacity	2,700,000 kW
	Maximum Structural Height	235 Feet
	First Power-On-Line	July 1968
	IMPOUNDMENT	
	Elevations: Normal Operating Range	268-257 Feet
	Maximum	276 Feet
	Flood Control Storage	500,000 Ac.-ft.
	Lake Length	76.4 Miles
	Lake Water Surface Area At Elevation 268	55,000 Acres
	Navigation Channel, Depth by Width	15 Ft. by 250 Ft.
	Length of Shoreline	200 miles
	NAVIGATION LOCK	
The Dalles Lock and Dam, OR and WA - Lake Celilo (See Section 46 of Text)	Type	Single Lift
	Lift Normal	87.5 Feet
	Net Clear Length	675 Feet
	Net clear Width	86 Feet
	Normal Depth Over Upper Sill	20 Feet
	Minimum Depth Over Lower Sill	15 Feet
	Opened To Navigation	March 17, 1957
	SPILLWAY DAM	
	Type	Controlled
	Elevation of Crest	121 Ft. msl
	Top of Crest Gates	162 Ft. msl
	Number of Gates	23
	Size of Gates	50 by 43 Feet
	Height (Foundation to Crest)	120 Feet
	Design Flood	2,290,000 cfs
	POWERPLANT	
	Powerhouse Dimensions	240 by 2,150 feet
	Generators Main Units	14 @ 78,000 kW each
		8 @ 86,000 kW each
	Fishwater Supply Units	2 @ 13,500 kW each
	Total Rated Capacity	1,807,000 kW
	Station Service Units	2 @ 3,000 kW each

TABLE 28-O 96-89X4045 APPROPRIATION BONNEVILLE POWER ADMINISTRATION

Project	Expenditures FY99	FY00	FY01	FY02	FY03	Total Cost To Sep 30, 2003
Bonneville	1,668,674	3,082,172	7,005,150	8,356,484	10,350,276	22,808,606
Columbia River Fish Mitigation	0	0	0	0	0	6,000
Cougar	3,992	2,287	169,559	537,337	1,499,576	2,229,267
Detroit	254,025	336,523	111,084	559,069	612,816	1,470,769
Green Peter	835,485	1,558,120	244,021	643,543	2,014,847	4,749,624
Hills Creek	1,976	28,381	124,865	679,804	722,124	892,353
John Day	1,813,742	1,523,451	2,711,551	4,263,967	3,317,866	10,136,916
John Day Rehab	811,937	2,202,667	685,634	0	0	3,857,532
Lookout	162,810	598,874	10,546	88,434	453,644	1,336,569
Lost Creek	0	0	0	0	0	2,323
The Dalles	2,229,793	2,033,790	3,005,658	2,231,404	4,139,142	18,163,389
Total	7,782,434	11,366,265	14,068,068	17,360,042	23,110,294	71,647,348

TABLE 28-P HYDROPOWER GENERATION

Project	FY03 Generation of Electricity in Megawatt-Hours (MWH)
Bonneville	4,481,173
The Dalles	6,111,187
John Day	8,492,595
Cougar	0
Detroit/Big Cliff	478,979
Green Peter/Foster	298,952
Hills Creek	151,187
Lookout Point/Dexter	340,484
Lost Creek	260,270
Total	20,614,827

TABLE 28-Q INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
State of Oregon				
Clackamas County				
Dixon Farm	Lower Clackamas Water Control District	Clackamas	5/22/03	VG
Sleepy Hollow Location	Clackamas County	Sandy	4/17/03	E
Clatsop County				
Clatsop #15 Dr. Improv. Co.	Clatsop No. 15, Drainage Improvement Co.	Columbia	6/13/03	VG
Clatsop Co. Dr. Imp. Co. #1	Clatsop Co Drainage, Improvement Co No. 1	Columbia	4/15/03	VG
Clatsop Co. Dk. Dist. #5	Clatsop County Diking	Columbia	9/03/03	E
Clatsop Co. Dk. Dist. #7	Clatsop County Diking, District No. 7	Blind Slough	4/15/03	VG
Youngs River	Clatsop Co Diking, Improvement Co No. 9	Youngs	9/02/03	FD
Tucker/Battle Creek	Clatsop Co Diking Improvement Co No. 9	Youngs	9/02/03	P
Grant	Clatsop Co Diking Improvement Co No. 9	Youngs	9/02/03	VG
Tansy Point Location	Port of Astoria	Columbia	8/27/03	E
Warrenton Dr. Dist. #1	City of Warrenton	Columbia	8/27/03	VG
Warrenton Dr. Dist. #2	City of Warrenton	Skipanon	8/27/03	VG
Warrenton Dr. Dist. #3	City of Warrenton	Columbia	8/27/03	VG
Svenson Is Dist. Imprv. Co	Svenson Island District Improvement Company	Columbia	8/26/03	VG
John Day River Road Location	Clatsop County	John Day	5/20/03	E
Tansy R.R. Location	City of Warrenton	Columbia	8/27/03	E
Columbia/Multnomah County				
Sauvie Island	Sauvie Island Drainage Improvement Company	Columbia	6/04/03	E
Columbia County				
Scappoose Dr. Imp. Company	Scappoose Drainage Improvement Company	Columbia	3/18/03	E
Deer Island D. I. Company	Deer Island Drainage District	Columbia	7/22/03	VG
Rainier Water Imp District	Rainier Water Improvement District	Columbia	5/22/03	VG
Beaver Drainage Improv. Co.	Beaver Drainage Improvement Co., Inc.	Columbia	9/26/03	E
Magruder Dr. Improv. Co.	Magruder Drainage Improvement Co., Inc.	Columbia	10/06/02	VG
Midland Dr. Improv. Co.	Midland Drainage Improvement Co., Inc	Columbia	8/04/03	G
Marshland Dr. Improv. Co.	Marshland Drainage Improvement Co., Inc	Columbia	8/04/03	E
Webb District Improv. Co.	Webb District Improvement Company	Columbia	9/23/03	F
Woodson Drainage District	Woodson Drainage District	Columbia	9/23/03	E
Westland Dist. Improv. Co.	Westland District Improvement Company	Columbia	6/13/03	VG
Coos County				
Catching Inlet Dr Dist	Catching Inlet Drainage District	Catching Slough	9/09/03	VG
Deschutes County				
Bend Ice Boom	City of Bend	Deschutes	4/21/03	E
Douglas County				
Reedsport Levee	City of Reedsport	Umpqua	9/09/03	E
Jackson County				
Bear Creek	City of Medford	Bear Cr	8/04/03	E

TABLE 28-Q (Cont'd) **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**
(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
Josephine County				
Pierce Riffle	Grants Pass Irrigation District	Rogue	8/04/03	E
Pierce Riffle U/S Ext.	Grants Pass Irrigation District	Rogue	8/04/03	E
Rogue River at Grants Pass	City of Grants Pass	Rogue	8/04/03	E
Lake County				
Paisley Revetment	City of Paisley	Chewaucan	4/22/03	VG
Lane County				
Rhododendron Drive	Lane County Public Works	Siuslaw	9/09/03	E
Amazon Creek	City of Eugene Public Works Department	Amazon	9/10/03	E
Lincoln County				
Depoe Bay	City of Depoe Bay	S. Depoe Bay Cr	9/08/03	VG
Mill Four	Mill Four Drainage District	Yaquina	9/08/03	E
Depoe Creek	Lincoln County Drainage District No. 1	Depoe Cr	9/08/03	E
Linn County				
Landfill Location	City of Albany	Calapooia	7/24/03	E
Marion County				
Mill Creek (Salem)	City of Salem Public Works Department	Mill Creek	7/24/03	E
Keizer River Wall	City of Keizer	Willamette	9/25/03	E
Multnomah County				
Sandy Dr. Improvement Co	Sandy Drainage Improvement Company	Columbia	9/03/03	E
Multnomah Co. Dr. Dist. #1	Multnomah County Drainage District No. 1	Columbia	9/03/03	E
Peninsula Dr. Dist. No. 2	Peninsula Drainage District No.2	Columbia	9/03/03	E
Peninsula Dr. Dist. No. 1	Peninsula Drainage District No. 1	Columbia	3/21/03	E
Tillamook County				
Sunset Drainage District	Sunset Drainage District	Nehalem	8/14/03	G
McDonald Road Location	Tillamook County Department of Emergency Services	Nehalem	5/20/03	VG
Wilson River (Hwy 101)	Tillamook County Department of Emergency Services	Wilson	5/20/03	E
West Makinster Road Location	Tillamook County Department of Emergency Services	Wilson	7/31/03	E
Stillwell Drainage District	Stillwell Drainage District	Tillamook/Trask	7/29/03	VG
Tone Road	Tillamook County Department of Emergency Services	Trask	7/31/03	VG
Beaver Creek	Tillamook County Department of Emergency Services	Beaver Cr	7/31/03	E
Pacific City	State of Oregon Aeronautics Division	Nestucca	7/30/03	G
Miami River	Tillamook County	Miami R	5/20/03	G
Umatilla County				
Pendleton Zone 2 Levees	Umatilla River Water Control District No	Umatilla	6/16/03	VG
Pendleton Levee Zone 1	City of Pendleton	Umatilla	6/17/03	VG
Simon Springs	City of Pendleton	Umatilla	6/17/03	E
Rattlesnake	City of Pendleton	Umatilla	6/17/03	VG

TABLE 28-Q (Cont'd) **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**
(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
State of Washington				
Clark County				
Salmon Creek Location	Clark County	Salmon Cr	5/08/03	G
Washougal Area Levees	Port of Camas/Washougal	Columbia	9/05/03	E
Cowlitz County				
Port of Kalama	Port of Kalama	Columbia	9/19/03	E
Cowlitz Co Cons Dk Imp # 1	Cowlitz County Consolidated Diking Improv District No. 1	Cowlitz	5/29/03	E
Cowlitz Co Dr Imp # 1	Cowlitz County Drainage Improvement District No. 1	Columbia	5/29/03	E
Cowlitz Co Cons Dk Imp # 2	Cowlitz County Consolidated Diking Improv District No. 2	Lewis	5/21/03	E
Cowlitz Co Cons Dk Imp # 3	Cowlitz County Consolidated Diking Improv District No. 3	Cowlitz	5/29/03	E
Cowlitz Co Dk Impt # 15	Diking Improvement District No. 15 of Cowlitz County	Columbia	5/21/03	E
Castle Rock	City of Castle Rock	Cowlitz	3/26/03	E
Huntington Avenue Location	City of Castle Rock	Cowlitz	3/26/03	E
Lewis County				
Fulton Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Holder Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Kirkendoll Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Hopkins Creek Location	Lewis County Public Works Department	Cowlitz	4/09/03	E
Pacific County				
Megler Location	Washington State Department of Transportation	Columbia	8/28/03	E
Wahkiakum County				
Wahkiakum Co Cons Dk # 1	Consolidated Diking District No. 1 of Wahkiakum County	Columbia	3/25/03	E

Rating:
(1) E = Excellent VG = Very Good G = Good F = Fair P = Poor FD = Flood Damage

SEATTLE, WA DISTRICT

This District comprises Washington State except southern and southeastern portions, northern Idaho, and northwestern Montana, embraced in drainage basins tributary to Pacific Ocean south of international boundary to Cape Disappointment, and to the Columbia River above Yakima River, inclusively.

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5. Friday Harbor, WA 29-3
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Multiple-Purpose Power

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Navigation

1. ANACORTES HARBOR, WA

Location. On northern point of Fidalgo Island in Puget Sound, 17 miles south of Bellingham, WA, and 64 miles north of Seattle. The main harbor is on Guemes Channel. (See NOAA Survey Chart 18427.)

Existing project. Channel in Capsante Waterway, 12 feet deep and 150 to 250 feet wide, between east side of Q avenue and deep water in Fidalgo Bay, a distance of 2,850 feet; a mooring basin 12 feet deep, 570 feet wide, and 960 feet long adjacent to north side of Capsante Waterway, protected by two pile breakwaters, each 470 feet long, east and southeast of basin; and a navigation channel 18 feet deep, 150 feet wide, extending 5,180 feet from deep water in Guemes Channel to the west shore of Fidalgo Bay (construction under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C). Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 8.2 feet. Extreme range is about 15.5 feet. Project was completed in January 1977. (For further details, see Annual Report for 1977).

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Routine coordination with Port of Anacortes, city of Anacortes, and navigation users.

Maintenance, contract: A small contract for repairs to the north and south timber pile breakwaters was completed in August at a cost of $22,000. New timber wales were installed, pile heads sealed, and new wire rope secured to ten batter-pile dolphins.

2. BELLINGHAM HARBOR, WA

Location. Part of Bellingham Bay, an arm of Puget Sound, at Bellingham, in northwestern Washington. (See NOAA Survey Chart 18424.)

Existing project. Channel 30 feet deep in Whatcom Creek Waterway from deep water to head of harbor, 363.2 feet wide to 750 feet from inner end, thence 18 feet deep for inner 750 feet; I&J Street Waterway, a channel 100 feet wide and 18 feet deep at mean lower low water for a distance of 3,200 feet; Squalicum Creek Waterway, including dredging an entrance channel 200 feet wide and 26 feet deep from deep water in the bay to main pier-head line, and maintenance of southerly half and westerly end of Squalicum Creek basin to 26 feet deep, provided that no dredging can be done within 75 feet of wharves, piers, or similar structures; and small-boat basin adjacent to Squalicum Creek Waterway by construction and maintenance of two sections of rubble-mound breakwater with combined length of 5,400 feet, including maintenance of minimum depths of 12 feet in entrance to basin. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 8.6 feet. Extreme range is about 16 feet. The small-boat basin expansion from 3,900 feet to 5,400 feet at Squalicum Creek Waterway and channel at I&J Street Waterway were constructed under authority of Section 107, P.L. 86-645. Construction costs for these features are recorded in Table 29-C. Project was completed in October 1980. (For further details see Annual Report for 1981. For details relating to previous project see page 797 of Annual Report for 1907.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-2 of Annual Report for 1980.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted. Prepared plans and specifications for a maintenance dredging contract in Squalicum Waterway.

Maintenance, contract: A contract was awarded in September for clamshell dredging in Squalicum Waterway. Work will be under way.in FY 2004.

3. EDIZ HOOK, WA

Location. Ediz Hook and city of Port Angeles are on the Strait of Juan de Fuca in Clallam County, WA, about 100 miles northwest of Seattle. (See NOAA Survey Chart 18468.)

Existing project. Provides for about 16,400 linear feet of rock revetment, together with initial beach replenishment and periodic nourishment. Project was completed in October 1978. (For further details, see Annual Report for 1979.)

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Inspection, nearshore hydrographic survey and coordination with local sponsor, city of Port Angeles.

Maintenance, contract: A continuing contract was completed in October 2002 for beach nourishment and repairs to the revetment on Ediz Hook at a cost of $549,000. The next scheduled maintenance will be in September 2007.

4. EVERETT HARBOR AND SNOHOMISH RIVER, WA

Location. On Port Gardner Bay, at northern end of Possession Sound, an arm of Puget Sound at Everett, in northwestern Washington; and Snohomish River for 6.3 miles above mouth. (See NOAA Survey Chart 18444.)

Existing project. Training dike extending from a point opposite 23rd Street northward 12,550 feet to outlet of Snohomish River, with spur dike extending 400 feet to pier-head line from north end of main dike; spur dike extending 1,410 feet westward from Preston Point; removal of a section of training dike north of Snohomish River outlet; channel 150 to 425 feet wide and 15 feet deep from deep water in Port Gardner Bay to 14th Street dock; thence a settling basin 700 feet wide, 1,200 feet long, and 20 feet deep, thence a channel 150 feet wide and 8 feet deep upriver to head of Steamboat Slough, a total distance of about 6.3 miles; settling basin within upper channel reach about 1 mile long with a capacity of 1 million cubic yards and maintaining East Waterway to 30 feet deep. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.1 feet. Extreme tidal range is an estimated 19 feet. Project was completed in April 1963. (For further details, see page 1683 of Annual Report for 1963. For details relating to previous projects, see page 704 of Annual Report for 1905, page 2005 of Annual Report for 1915, and page 1883 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-3 of Annual Report for FY 1981.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Conducted pre- and post-dredge hydrographic surveys including the Naval Station, Everett berthing areas. Completed environmental studies to establish the presence or absence of bull trout in the navigation channel. Collected samples for the characterization of the downstream settling basin for open water disposal and possible re-use of sediment as cap at superfund site.

Maintenance, contract: None.

5. FRIDAY HARBOR, WA

Location. Friday Harbor is located on the eastern shore of San Juan Island on the inland waters of northwestern Washington, about 28 nautical miles east of Victoria, British Columbia, and 60 nautical miles north of Seattle, WA. San Juan Island is one of over 170 islands in the San Juan Archipelago. Friday Harbor is the San Juan Island county seat and a United States Customs Port of Entry. (See NOAA Survey Chart 18425.)

Existing project. Concrete floating breakwater (1,600 feet) to protect the existing port facilities and to allow the Port of Friday Harbor to provide 294 additional permanent moorage spaces and 44 additional transient spaces. Construction was completed in March 1984.

Local cooperation. Fully complied with. Requirements are described in full on page 38-4 of Annual Report for 1981.

Operations during fiscal year. Maintenance, hired labor: Routine coordination with the Port of Friday Harbor, U.S. Coast Guard, and navigation users. New caution signs were posted on the breakwater to prevent boats from anchorage within 300 feet of the floating breakwater structure.

Maintenance, contract: None.

6. GRAYS HARBOR AND CHEHALIS RIVER, WA

Location. Harbor lies at mouth of Chehalis River, in southwestern part of Washington, 45 miles north of entrance to Columbia River. Chehalis River rises in southwestern part of Washington about 40 miles east of Pacific Ocean, flows generally northwesterly and empties into eastern part of Grays Harbor. (See NOAA Survey Chart 18502.)

Existing project (including navigation improvements to date). Provides an entrance channel across the bar and through the entrance 600 to 1,000 feet wide and 38 to 46 feet deep, secured by a south jetty 13,734 feet long and a north jetty 17,200 feet long, and by annual maintenance dredging; maintenance of channel 36 feet deep and 350 feet wide from deep water in Grays Harbor 14 miles upstream to Port of Grays Harbor terminals at Cow Point; thence 32 feet deep and 200 feet wide, suitably widened at bends, to the head of deep draft navigation at Cosmopolis, a distance of 4.1 miles; a turning basin 36 feet deep, 900 feet wide, and 1,000 feet long opposite the Port of Grays Harbor terminals at Cow Point; a turning basin 30 feet deep, 550 feet wide, and 1,000 feet long near upstream end of 32-foot channel at Junction City; three breakwaters at, and maintenance of entrance channel to Westhaven Cove; protection of Point Chehalis for an exposed length of about 7,500 feet; and removal of 350-foot southwestern extension of the breakwater, replacing it with an 865-foot northeastern extension, and adding a 200-foot spur breakwater along the southerly entrance, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Point Chehalis, 10.1 feet at Aberdeen, and 8.1 feet at Montesano. Extreme range is 17.5 feet at Point Chehalis, 17.8 feet at Aberdeen, and 23.8 feet at Montesano (river flood of 1935). (For details

relating to previous projects, see pages 2002-03 of Annual Report for 1915 and page 1863 of Annual Report for 1938.)

Improved project. Authorized by Section 202 of the Water Resources Development Act of 1986. Phase I of project construction was started in 1990 and completed in 2000. Final fiscal requirements remain for Phase I, and coordination with Port of Grays Harbor continues. A second project phase to deepen the improved downstream channel to the 38-foot fully authorized depth is possible in the future if project economics and environmental considerations warrant and funding is available.

Local cooperation. Fully complied with. Requirements for improved project are described in full on page 29-4 of Annual Report for 2001.

Terminal facilities. See Port Series No. 35. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center. In addition, the Port of Grays Harbor has completed construction contracts to redevelop its T-2 terminal into a bulk agricultural commodity loading facility.

Operations during fiscal year. New work, hired labor: Coordinated with Port of Grays Harbor (local sponsor), resource agencies, and Grays Harbor pilots.

Maintenance, hired labor: Channel condition surveys were conducted throughout the year. The Corps hopper dredge Essayons dredged in the entrance channel, removing 137,689 cy at a cost of $609,000. Dredged material was placed beneficially at the South Beach disposal site except for 12,300 cy placed at the 3.9 mile, southwest site. A North Jetty Performance and Entrance Navigation Channel Maintenance, Grays Harbor, WA, report was published, dated September 2003. Prepared plans and specifications for inner harbor maintenance dredging. Crab mitigation sites were surveyed for juvenile crab to determine mitigation credit. Supervised contract work.

Maintenance, contract: Maintenance dredging of the outer harbor by hopper dredge was completed at a cost of $1,073,273 with 329,106 cy of material being placed at the Half Moon Bay disposal sites and 53,310 cy placed at the Pt. Chehalis disposal site. The FY 2002/03 clamshell dredging contract for the maintenance of the Inner Harbor was completed at a cost of $3,294,627. Crab mitigation was performed with 12,000 cy of oyster shell being placed into the crab habitat mitigation sites at a cost of $464,000. A total of 1,126,513 cy were disposed into the South Jetty and Pt. Chehalis disposal sites.

7. LAKE CROCKETT, WA

Location. The harbor is on the west side of Whidbey Island, about 35 nautical miles north of Seattle, WA. The lake lies parallel to Admiralty Bay and is separated from it by a narrow strip of gravel beach. (See NOAA Survey chart 18441.)

Existing project. Provides for a basin in Lake Crockett with an area of about 6 acres and 25 feet deep at mean lower low water, connected with Admiralty Bay by a channel of the same depth and 200 feet wide, protected by a breakwater; and navigation improvement by dredging, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C (Keystone Harbor, Admiralty Inlet). The diurnal tidal range in Admiralty Bay is 8.4 feet, and the extreme range is about 16.5 feet. Project was completed in March 1993. (For further details, see Annual Report for 1993.) Recreational facilities at project under cost sharing agreement with Washington State Parks and Recreation Commission include the following construction and improvements: construct a 35-unit camping loop and restroom, new boat ramp handling facility, breakwater, a restroom in the day-use area and porta-potty dumps for boats; and expand day-use facility and add rip-rap at the construction site.

Local cooperation. None required.

Terminal facilities. One publicly owned passenger and automobile ferry landing within the dredged basin is open for public use, and is adequate for existing commercial traffic. The basin contains two publicly owned boat ramps open for public use. The ramps are adequate for recreational craft.

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted during the year. Real Estate Division conducted an assessment of lease agreements with Fort Casey State Park authorities.

Maintenance, contract: None.

8. LAKE WASHINGTON SHIP CANAL, WA

Location. Entirely within city of Seattle and extends from Puget Sound through Shilshole Bay, Salmon Bay, Lake Union, Portage Bay, and Union Bay to deep water in Lake Washington. (See NOAA Survey Chart 18447.)

Existing project. Provides for a double lock and fixed dam from gated spillway and necessary accessory works, including fish ladder, at the Narrows at entrance to Salmon Bay, about 1.25 miles from deep water in Puget Sound; for a channel 34 feet deep and 300 feet wide from Puget Sound to Burlington Northern Railway bridge, about 5,500 feet, with a passing basin 34 feet deep and log basin 8 feet deep at turn below railway bridge; then 34 feet deep and 150 feet to 200 feet wide to locks, about 900 feet; and a guide pier 600 feet long; for revetment of canal banks between locks and Lake Union and between Lakes Union and Washington; and for a channel 30 feet deep with a width of 100 feet from locks to Lake Union, 200 feet thence to Portage Cut, 100 feet

through Portage Cut, and thence 200 feet wide through Union Bay to Lake Washington. Section included in project is about 10 miles long. Plane of reference is mean lower low water. Extreme tidal range is 19.3 feet. Range between mean lower low water and mean higher high water is 11.3 feet, and between mean lower low water and extreme low water is 4.6 feet. Ordinary fluctuation in upper pool is 24 inches; extreme fluctuation has been 3.6 feet. Principal features of double lock and dam are set forth in Table 29-K. Project was completed in 1934. (For further details, see Annual Report for 1935. For details relating to previous projects, see page 2003 of Annual Report for 1915, and page 1880 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 36. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Locks were operated and maintained all year, conducting 16,322 lockings, passing 10,059 commercial vessels, 46,824 pleasure vessels, and 1,354,200 tons of commerce. The fish ladder passed more than 417,358 fish, and there were 1,353,693 project visitors.

Maintenance, contract: Contracts for upgrade of the large lock gate machinery, the small lock guard gate replacement, repaving of project roads, repair of failing bank along Montlake Cut, and replacement of the center gate pintle bearings on the large lock were completed.

9. NEAH BAY, WA

Location. On south side of the Strait of Juan de Fuca, about 6 miles east of Cape Flattery, at the entrance to the Strait from the Pacific Ocean, and about 80 miles west of Port Angeles, WA. (See NOAA Survey Charts 18480, 18484 and 18485.)

Existing project. Provides for a rubble-mound stone breakwater about 8,000 feet long between Waadah Island and the westerly shore of the bay, reinforcement of existing rock revetment extending approximately 2,200 feet west from Baada Point, and about an 800-foot extension of the revetment westward. Tidal range between mean lower low water and mean higher high water is 8.2 feet. Project was completed in July 1956. (For further details, see Annual Report for 1957.)

Local cooperation. Fully complied with.

Terminal facilities. There are six wharves at Neah Bay, including two owned by the United States which are used by the Coast Guard, and four privately owned wharves, three of which are open to general public use to accommodate small commercial fishing vessels. In addition to the wharves, there is a facility for dumping and rafting logs. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Hydrographic surveys were conducted in the vicinity of the breakwater. Conducted aerial survey to collect topographic information. A hired labor contract was used for excavation of the fish gap at the Neah Bay Marina in February. Work consisted of excavating approximately 2,500 cy to return the fish gap to approximately -2 feet mean lower low water elevation. Cost of contract work was $32,000.

Maintenance, contract: None.

10. PROJECT CONDITION SURVEYS

Hydrographic surveys and inspections to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis for the current fiscal year. Soundings and visual inspections in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Other work performed includes preparation and updating of base maps, channel alignments, and other computations needed to accommodate changes in vertical or horizontal datums. Fiscal year costs were $242,010. Total costs to date are $5,192,166.

SURVEYS CONDUCTED

Bellingham Harbor	October 2002, March 2003

11. PUGET SOUND AND ITS TRIBUTARY WATERS, WA

Location. Puget Sound is in the western part of Washington. Cities of Seattle, Tacoma, Olympia, Everett, Bellingham, and many small towns are on its bays and inlets. (See NOAA Survey Charts 18440, 18441, and 18448.)

Existing project. Maintenance of Puget Sound and its tributary waters by snagging and dredging; and removal, in cooperation with the U.S. Coast Guard and city of Seattle, of floating debris from the Seattle Harbor area. Work consists of collecting large pieces of drift, waterlogged pilings, logs and other debris considered hazardous to navigation from Puget Sound and Federally authorized channels. (For details relating to previous projects, see page 2003 of Annual Report for 1915 and page 1869 of Annual Report for 1938.)

Local cooperation. None required. Cities of Seattle, Tacoma, Olympia, Everett and Bellingham and the State of Washington are cooperating in a program for control of floating debris in their harbors and setting up collection sites for our debris vessel.

Terminal facilities. Terminal facilities at numerous localities on Puget Sound and its tributary waters are, in general, considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: The debris vessel Puget operated continuously throughout

Puget Sound and its tributary waters and removed approximately 2,381 tons of floating debris and hazards to navigation. Debris was off-loaded aboard barges at Lake Washington Ship Canal and disposed of by contract. Snagging operations were accomplished at Blaine Harbor, Bellingham Harbor, Swinomish Channel, Skagit River, Everett Harbor, Snohomish River (upstream to town of Snohomish), Lake Washington Ship Canal, Lake Washington, Tacoma Harbor, Olympia Harbor, Duwamish River, and Elliott Bay. Puget also conducted vibracore sampling on Duwamish Waterway and Snohomish River and clamshell dredge sampling on Swinomish River for future dredging.

Maintenance, contract: Over 2,000 tons of harbor debris were disposed of at a cost of $181,000. Contractor continues to recycle much of the debris, reducing the cost of disposal by contract. Remainder of debris is placed in a demolition landfill or recycled through other government agencies.

12. QUILLAYUTE RIVER, WA

Location. River is formed by junction of Soleduck and Bogachiel Rivers, in northwestern Washington, and flows westerly 5 miles to Pacific Ocean at La Push, about 30 miles south of Cape Flattery. (See NOAA Survey Chart 18480.)

Existing project. Provides for: jetty 15 feet high on easterly side of river mouth and a dike on westerly side, with a view of stabilizing entrance; channel 10 feet deep and 100 feet wide extending 2,000 feet upstream from deep water; basin 10 feet deep, 300 to 425 feet wide, and 2,400 feet long upstream of channel; and maintenance of an ocean spit. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water at La Push is 8.3 feet. Extreme range is about 15 feet. The spit is nourished with dredged material in conjunction with channel dredging. The spit was rehabilitated with quarry rock in 1974, in 1979-80, and in 1982; in addition, a 500-foot breakwater section paralleling the channel and extending the spit was constructed. In 1995, the revetment on the downstream end of the ocean spit was extended 200 feet. In 1996, after the river breached the natural spit, the revetment on the ocean spit was extended approximately 1,700 feet to the north, and the boat basin training wall was raised from elevation +9.0 to elevation +16.0 - all under O&M authority. Project was completed in February 1997.

Local cooperation. Fully complied with.

Terminal facilities. There is one Quileute Tribe-owned dock at La Push, near the mouth of the Quillayute River. There is also a protected boat basin owned by the Quileute Tribe Port Authority which is used by fishing boats, pleasure craft, and the Coast Guard, which has a separate pier.

Operations during fiscal year. Maintenance, hired labor: Hydrographic condition surveys were conducted.

Maintenance, contract: A contract was awarded and completed for dredging of the navigation channel and boat basin. Approximately 54,000 cy were dredged in February at a cost of $507,000.

13. SEATTLE HARBOR, WA

Location. Harbor at Seattle, WA, includes all waterways within city limits. Chief anchorage basin is Elliott Bay, an arm of Puget Sound. (See NOAA Survey Chart 18450.)

Existing project. Maintenance of East and West Waterways, 34 feet deep and 750 feet wide for 6,500 and 5,200 feet, respectively, from pier-head line in Elliott Bay, the 30-foot by 200-foot-wide channel from West Waterway to 1st Avenue South Bridge, and the 20-foot by 150-foot-wide channel from 1st Avenue South Bridge to 8th Avenue; dredging Duwamish Waterway 150 feet by 15 feet from 8th Avenue to a point about 1.4 miles above 14th Avenue South Bridge, and turning basin 500 by 250 feet and 15 feet deep at the upper end of the waterway; maintenance of East Waterway between upper end of 750-foot section and Spokane Street, 34 feet deep, 700 feet long and 400 feet wide, and a turning basin, including head of East Waterway at junction of waterways south of Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, to 30 feet deep, after these sections of waterway are dredged by local interests to full project dimensions. Total length of all waterways included in project is about 7.5 miles. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.3 feet. Extreme tidal range is 19.3 feet. Project was completed in 1931, excluding maintenance of East Waterway above the 750-foot section. (For further details, see Annual Report for 1932.)

Local cooperation. Fully complied with. Local sponsor has no maintenance responsibility.

Terminal facilities. See Port Series No. 36. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Hydrographic pre- and post-dredge surveys of the turning basin area and condition surveys of the East Waterway were conducted. Turning basin sediment characterized for disposal at an open-water site or for use as cap at a superfund site.

Maintenance, contract: None.

14. SWINOMISH CHANNEL, WA

Location An inland passage, 11 miles long, between Saratoga Passage and Padilla Bay, in northwestern part of Washington, about 60 miles north of Seattle. (See NOAA Survey Charts 18400, 18427 and 18421.)

Existing project. A channel 100 feet wide and 12 feet deep for 11 miles from deep water in Saratoga Passage to deep water in Padilla Bay, by dredging and dike construction where necessary; and removal of projecting rocky points of McGlinn and Fidalgo Islands obstructing navigation at "Hole-in-the-Wall". Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.5 feet at south end of channel, 8.4 feet at north end, and 10 feet at La Conner. Extreme tidal range is about 19.5 feet at south end of channel and about 16 feet at north end. Project was completed in March 1965. (For further details, see Annual Report for 1965.)

Local cooperation. Fully complied with.

Terminal facilities. There are 18 wharves, docks, and piers on Swinomish Channel, all but 3 of which are privately owned. Of these, one is used for handling general cargo; five are used exclusively for moorage, unloading and servicing of fishing vessels; two are used for handling petroleum products; three facilities are used for log dumps; and two for handling non-metallic minerals. Three publicly owned facilities for launching, mooring, and servicing small craft are within the city limits of La Conner.

Operations during fiscal year. Maintenance, hired labor: Maintained project coordination with Swinomish Tribal Community, Port of Skagit County, Port of Anacortes, U.S. Coast Guard, and navigation users. Channel condition surveys were conducted. Also coordinated with the town of LaConner and Washington State Department of Natural Resources on matters of navigation safety related to moorage and development along the Federal channel. Prepared plans and specifications for clamshell maintenance dredging contract.

Maintenance, contract: A contract was awarded in September for clamshell dredging. Work will be under way in FY 2004.

15. WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA

Location. Willapa Harbor consists of lower reaches of Willapa River and Bay, an inlet of Pacific Ocean about 30 miles north of mouth of Columbia River in Washington. Willapa River rises about 30 miles east of harbor, flows generally westerly, and empties into the bay. Naselle River enters the bay near its southerly end. (See NOAA Survey Chart 18504.)

Existing project. Provides for: channel over bar at mouth of Willapa Bay, 26 feet deep and at least 500 feet wide; channel 24 feet deep and 200 feet wide from deep water in Willapa Bay to foot of Ferry Street at South Bend, thence 300 feet wide to westerly end of narrows, thence 250 feet wide to forks of river at Raymond, including a cutoff channel 3,100 feet long at narrows and a closing dike at Mailboat Slough; channel 24 feet deep and 150 feet wide up south fork to deep basin above Cram Lumber Mill, and up north fork to 12th Street, with a turning basin 250 feet wide, 350 feet long, and 24 feet deep at latter point; channel 10 feet deep and 40 feet wide from deep water in Palix River to Bay Center dock, with widening at shoreward end to provide a small mooring basin; mooring basin 15 feet deep, 340 feet wide, and 540 feet long adjacent to port wharf at Tokeland; entrance channel at Nahcotta 10 feet deep and 200 feet wide, and mooring basin 10 feet deep, 500 feet wide, and 1,150 feet long, protected by a rubble-mound breakwater about 1,500 feet long; and removal of snags, piles, and other obstructions in navigable channel of Naselle River between Naselle and mouth. Project includes about 26 miles of channel from entrance through Willapa River forks, 2,800 feet of Palix River-Bay Center channel, and 9 miles of Naselle River upstream of U.S. Highway 101 Bridge. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Toke Point, 9.9 feet at Raymond, 8.9 feet at Bay Center, and 10.8 feet near Naselle. Extreme range is 18 feet at Toke Point, 19.3 feet at Raymond, 16 feet at Bay Center, and 18 feet near Naselle. Project was completed in November 1958. (For further details, see Annual Report for 1959. For details relating to previous projects, see page 968 of Annual Report for 1910, page 2001 of Annual Report for 1915, and page 1861 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. There are 24 wharves on Willapa River and Harbor, including 5 in Willapa Bay, 4 in Bay Center, 12 in Raymond and South Bend, and 1 in Tokeland. Two of the wharves at Raymond and South Bend are suitable for use by ocean-going vessels. One of these is publicly owned and operated as a general cargo terminal, and one is located at a sawmill. The other wharves, including three which are publicly owned and operated, are used by shallow-draft vessels. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Frequent condition surveys on the Willapa bar channel were performed at the request of the U.S. Coast Guard. Continued monitoring of the alignment of the Willapa bar thalweg.

Maintenance, contract: None.

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization).

Fiscal year costs were: Ocean Shores Marina, WA, $-2,279; Section 107 Coordination, $9,778; a total of $7,499. In addition, $34,067 in contributed funds were expended for Ocean Shores Marina, WA.

Navigation activities pursuant to Section 111, Public Law 90-483 (preauthorization).

Fiscal year costs were: Whitcomb Flats, WA, $8,076.

Shore Protection

16. SHOALWATER BAY, TOKELAND, WA

Location. Shoalwater Bay and the Shoalwater Bay Tribe Reservation are located on SR 105 on the north shore of the mouth of Willapa Bay, Pacific County, WA, approximately 104 miles southwest of Seattle, WA.

Existing project. Evaluation of coastal erosion reduction in Willapa Bay from Tokeland to North Cove in general, and at the Shoalwater Bay Tribe Reservation specifically. Storm events have caused the Tribe to lose much of its intertidal shellfish habitat and experience some uplands damage.

Local cooperation. None required.

Operations during fiscal year. New work, hired labor: Completed survey work, finalizing project base map. Completed statements of work for U.S. Geologic Survey (USGS) and Engineering Research and Development Center (ERDC). Continued coordination with Tribe and consultants. USGS continued geologic and hydrodynamic investigations and documenting historic beach and bathymetric conditions/changes. ERDC continued model calibration.

New work, contract: None.

Shore protection activities pursuant to Section 103, Public Law 874, 87th Congress, as amended (preauthorization).

Fiscal year costs were: Vashon Island Seawall, WA, $24,487.

Flood Control

17. COEUR D'ALENE RIVER (SOUTH FORK), WALLACE, ID

Location. Project is located along the left bank of the south fork of the Coeur d'Alene River in Wallace, Idaho.

Existing project. The retaining wall, which lines the riverbank, is collapsing in stages. Approximately 700 feet of wall will be replaced with a mix of concrete and gabion walls. Project is 60 percent complete, with total completion scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Wallace) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on August 02, 2002.

Operations during fiscal year. New work, hired labor: Executed PCA, completed design work, acquired land, advertised and awarded construction contract.

New work, contract: A contract was awarded to construct the new wall.

18. HOWARD A. HANSON DAM, WA

Location. Green River, in northwestern Washington, flows westerly for 40 miles to Auburn, thence northerly 32 miles to its mouth in Elliott Bay at Seattle. Dam is at river mile 64, 6 miles southeast of Kanaskat, and 1 mile downstream from mouth of north fork. (See Geological Survey topographic sheet, "Cedar Lake Quadrangle, WA".)

Existing project. Rock-fill dam about 235 feet high, with gated spillway having a concrete weir at elevation 1,176 feet above mean sea level and top of gates at elevation 1,206, creating a reservoir with capacity of 106,000 acre-feet. Dam along crest is about 675 feet long. Project is designed to control flooding in Green River valley to alleviate agricultural and urban flood damage, and make possible further expansion of Seattle industrial area. It also supplements Tacoma water supply which was included as a betterment. Project was completed in June 1963. (For further details, see Annual Report for 1963.) Under the dam safety assurance program, the reservoir outlet control tower and bridge were strengthened to withstand the maximum, credible earthquake. Work was completed in FY 1998.

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Operation continued all year. Routine maintenance was accomplished on roads, gages, debris booms, ditches, power line, and other project features. Stilling basin inspection was accomplished. Work continued on water quality and sediment surveys. A new work barge used to collect debris throughout the reservoir was purchased and placed in service. Design for a new radial gate-holding device was completed.

Maintenance, contract: Awarded contract for new radial gate-holding device.

19. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspections are made of Federally constructed local flood protection projects, which are maintained by local interests, and agencies responsible for their operation and maintenance are advised of any needed repairs. During the fiscal year, inspections were made on Chehalis River at Aberdeen, Dungeness River at Dungeness, Green River at Tukwila and

Kent, Lummi Shore at Bellingham, Okanogan River at Omak and Oroville, Sammamish River at Redmond, Shelton Creek at Shelton, Skykomish and Wallace Rivers at Startup, Swinomish Channel at LaConner, American Lake, Wynoochee Dam and Yakima River at Yakima in Washington State; Lightning Creek at Clark Fork, Placer Creek at Wallace, Coeur d'Alene River at Coeur d'Alene, and St. Joe River at St. Maries in Idaho; and Clark Fork River at Missoula in Montana. Fiscal year costs were $252,823. Total costs to date have been $2,669,905.

20. MUD MOUNTAIN DAM, WA

Location. On White River, principal tributary of Puyallup River, near Mud Mountain, 28 miles above its confluence with Puyallup River, and 38 miles above mouth of Puyallup River. Dam is 6 miles upstream and southeast of Enumclaw, in northwestern Washington, and 38 miles east of Tacoma. (See Geological Survey topographic sheet "Cedar Lake Quadrangle, Washington".)

Existing project (including dam safety assurance improvements to date). Rock-fill dam, 700 feet long at crest elevation, rises 432 feet above bedrock. Reservoir has storage capacity of about 106,000 acre-feet. Flood control outlet works are in right abutment and permit an authorized, controlled discharge of 17,600 cubic feet per second through two concrete-lined tunnels, with a maximum capacity discharge of 21,500 cfs. Uncontrolled discharge over the spillway is maximum capacity for 245,000 cubic feet per second. Project affords flood protection to White and Puyallup River valleys and protects Tacoma industrial district, in conjunction with Puyallup River project at Tacoma, against floods about 50 percent greater than maximum discharge of record. Original project was completed in June 1953. To date, the Corps has constructed two vista areas, a picnic area, a wading pool, and playground adjacent to the project office, a reservoir access point for hunters and fishermen, and a 1,760-foot trail leading to the lower vista area. Installation of an approximately 400-foot-deep concrete cutoff wall in the core of the dam was completed in November 1990 under the major rehabilitation program. Under dam safety assurance, spillway walls were raised, the dam crest was heightened, river diversion facilities required for excavation for the new tower were completed, the 9-foot diameter and the 23-foot diameter tunnels were refurbished, and a new reservoir outlet tower was constructed. This construction was completed in 1995.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Project features were operated all year. Maintenance was accomplished on dam facilities, intake structure, gages, debris booms, power lines, roads, ditches, hiking trails, vista observation deck, recreation area, and fish facilities. Approximately 28,921 fish were transported from the fish collection facility to the upstream release point. There were 67,859 project visitors. A new work barge used to collect debris throughout the reservoir was purchased and placed in service. All picnic shelters were replaced.

Maintenance, contract: Construction of a new maintenance shop was completed.

Dam Safety Assurance. New work, hired labor: Study to identify problem areas with the new dam safety features is complete. New studies include additional tunnel armor, modified gate cylinders, new intake stop logs, and demolition of old intakes. Supervised construction work.

New work, contract: Construction continued on right bank drainage to help stabilize slope above new intake tower.

21. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Flood control storage space was available in Hungry Horse Reservoir, MT, Flathead Lake, MT (controlled by Kerr Dam), Grand Coulee project, WA, Wynoochee Dam, WA, Upper Baker and Ross Reservoirs, WA. Issues relating to project operations were addressed. Regulation instructions were provided for flood control operations. Guidance forecasts were made during the flood control season, as required. Daily and/or hourly data were collected and tabulated as required to check compliance with operating criteria. Coordination necessary in preparation or revision of reservoir regulation manuals was carried on during the year with agencies responsible for the operation of these projects. Fiscal year costs were $417,898. Total costs to date have been $7,404,986.

22. ST. MARIES, ID

Location. Project is located on the left bank of the St. Joe River in city of St. Maries, in Benewah County, ID, in the central part of the state.

Existing project. The present earthen levee system and wooden floodwall, 770 feet long, have weakened to the extent that a catastrophic failure can be expected. The proposed project will replace the existing timber floodwall with a driven sheet-pile wall and a concrete cap. Bank protection will be placed 350 feet along the St. Joe River to replace riparian vegetation and to prevent future bank destabilization. Completion is scheduled for early spring of 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of St. Maries) will provide 35 percent of total project cost. A Project Cooperation Agreement (PCA) was signed on April 23, 2003.

Operations during fiscal year. New work, hired labor: Prepared plans and specifications, executed PCA, awarded

contracts for existing timber floodwall demolishment, for construction of the new floodwall, and for bank stabilization.

New work, contract: All construction contracts are under way.

23. STILLAGUAMISH RIVER, WA

Location. Formed by confluence of its north and south forks at Arlington, in northwestern Washington, Stillaguamish River flows westerly 22 miles to Puget Sound, entering Port Susan through Hat Slough and South Pass, and Skagit Bay through West Pass. (See NOAA Survey Chart 18441, and Geological Survey Quadrangles Stanwood, Marysville, and Stillaguamish, WA.)

Existing project. Works to reduce bank erosion and channel changes on Stillaguamish River 15 miles between Arlington and head of Hat Slough, and on Cook Slough, 3 miles long, as follows: revetment at 26 places on river and Cook Slough; concrete weir (including a fishway) 275 feet long between steel sheet-pile piers at head of Cook Slough to limit flow through Slough; and two cutoff channels, each about 900 feet long, to eliminate sharp bends in Cook Slough. Tidal influence extends about 3 miles into improved section. Flood stages of 16 feet above low water at Cook Slough weir have been observed. Project was completed in July 1939. (For further details, see Annual Report for 1940.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush from the entire project along slopes of levee.

Maintenance, contract: Repaired 200 feet of bank erosion with equipment rental contracts.

24. TACOMA, PUYALLUP RIVER, WA

Location. Puyallup River has its source in glaciers on western slopes of Mount Rainier, flows northwesterly 50 miles, and empties into Commencement Bay, an arm of Puget Sound, at Tacoma, WA. Work covered by this project is on Puyallup River, within city limits of Tacoma. (See NOAA Survey Chart 18453.)

Existing project. A channel with a capacity of 50,000 cubic feet per second between East 11th Street Bridge and lower end of inter-county improvement, a distance of about 2.2 miles, by straightening channel, building levees, revetting channel and levees, and making necessary bridge changes. The 11th Street Bridge at lower end of project is 0.75 mile above mouth of Puyallup River. Diurnal tidal range at mouth of river is 11.8 feet and extreme range is 20 feet. Project was planned in conjunction with Mud Mountain Dam and affords protection against floods about 50 percent greater than maximum discharge of record. A real estate design memorandum, approved by Office of the Chief of Engineers on October 2, 1985, changed the project boundary to allow the Port of Tacoma to create a wetland adjacent to the project. This action resulted in the Corps acquiring approximately 2,450 linear feet of setback levee in fee simple. Maintenance funds to cover the increased length of the project have been provided by the Port of Tacoma for the project life. Project was completed in May 1950. (For further details, see Annual Report for 1950.)

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush and noxious weeds from the entire project along slopes of levee. Coordinated annual clean-up with the Puyallup Indian Tribe and disposed of approximately 50 tons of trash.

Maintenance, contract: Awarded equipment rental contracts to achieve removal of brush and noxious weeds.

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization).

See Table 29-L

Flood control activities pursuant to Section 14, Public Law 526, 79th Congress as amended (preauthorization).

See Table 29-M

Emergency flood control activities - repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Fiscal year costs were $1,252,598. In addition, $55,059 contributed funds were expended.

Multiple-Purpose Power Projects

25. ALBENI FALLS DAM, ID

Location. On Pend Oreille River about 25 miles west of Sandpoint, in northern Idaho, and 50 miles northeast of Spokane, WA. Dam is 838 and 90 miles upstream from mouths of Columbia and Pend Oreille Rivers, respectively. (See Geological Survey topographic sheets, Sandpoint, ID, and Newport, WA.)

Existing project. Provides flood control, hydroelectric power, and related water uses on Pend Oreille River as a part of the multiple-purpose plan for development of Columbia River Basin, including recreation development. At the dam, the river channel was formerly divided by an island and a low

waterfall of about 7 feet. Dam is a gated, gravity-structure spillway in left channel and a powerhouse having an installation of 42,600 kilowatts in right channel, creating a reservoir with a usable storage capacity of 1,153,000 acre-feet. Project was operational and essentially complete in December 1955, with miscellaneous contracts completing by June 1957. (For further details, see Annual Report for 1957.) Recreational facilities for public use have been provided at Albeni Cove, Priest River, Riley Creek, Johnson Creek, Trestle Creek, Strongs Island, and Springy Point. (Strongs Island was closed in FY 1982 to reduce O&M costs.) (Refer to Albeni Falls Master Plan dated June 1981 for further planned development.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse, and equipment. New equipment and instrumentation included generator unit synchronizers, flow gauges, net head instruments, kidney loop oil purification, and neutral ground equipment. Significant efforts in response to the USFWS Biological Opinion (December 2000) are continuing using hired labor and contracts.

Maintenance, contract: Contracts completed include project security gate, erosion protection for a cultural resource site (cemetery), and removal of an encroachment on the reservoir. Contracts awarded and continuing include design and installation of new governors, Riley Creek campground modernization, Black Rock erosion control structure, design for Generic Data Acquisition and Control Systems (GDACS), and spillway controls.

Riley Creek RAMP, Idaho

The Riley Creek recreation area at Albeni Falls Dam is 40 acres in size, was built in 1963, and is the largest recreation area within the Seattle District. There are 70 campsites, 47 picnic tables, an amphitheater, a boat ramp, and marked swimming area. The Recreation Area Modernization Program (RAMP) will help managers meet the needs of today's recreation users by improving facility functionality and protecting the natural resources which draw people to the areas.

New work includes renovating campsites, the gate house, restroom/shower houses, boat docks, boat ramp, fishing piers, and picnic shelters; repairing park roads and parking areas; upgrading the sewer system; and providing full access to individuals with disabilities. Construction is scheduled for completion in 2004.

During the current fiscal year, funds were expended for a broad cultural resource survey and awarding a construction contract.

26. CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA

Location. On Columbia River in north central Washington, at river mile 545, just upstream from mouth of Foster Creek, 1.5 miles upstream from town of Bridgeport. (Geological Survey topographic sheet, Okanogan, WA, shows general locality.)

Existing project. A concrete gravity structure, which consists of a 19-gate spillway and a 27-unit powerhouse. The powerhouse has sixteen 88,274 kilowatt and eleven 95,000 kilowatt generators with nameplate capacity of 2,457,384 kilowatts. The original 16 units were completed in 1962; additional units were completed in 1994. Recreation facilities were completed in 1972.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Routine structural, mechanical, and electrical maintenance work was performed on powerhouse, spillway, dam, equipment, and recreation grounds. Prescribed testing for power system reliability improvements continued. Data Acquisition and Control System (DACS) installation continued. Designs were initiated for emergency notification, staging area development, and powerhouse erection bay door replacement. Design continued for supervisory command and control operator console replacement, preferred AC/DC system, turbine runner replacement, crane modernization, and gas abatement. Designs continued for CO2 low pressure fire extinguishing system conversion, physical security enhancements, and biological opinion.

Maintenance, contract: Contracts for warehouse improvements, telephone switch replacement, Willow Flats recreation improvements, and visitor center exhibits were completed. Continuing contracts include powerhouse and intake elevator modernization, penstock flow measurement, station service transformer replacement, and main unit breaker replacement.

27. LIBBY DAM - LAKE KOOCANUSA, MT

Location. On Kootenai River in Lincoln County, MT, about 17 miles upstream from Libby, and 219 miles upstream from confluence of Kootenai and Columbia Rivers. (See Geological Survey topographic sheet, Thompson Lakes, MT.)

Existing project. Provides storage for local flood control protection in Montana and Idaho, and main stem flood control in Lower Columbia River, hydroelectric power generation at site and at downstream plants through storage release. Project is operated as a unit of a comprehensive system for improvement of Columbia River basin for flood control, navigation, hydroelectric power, and other purposes. Lake Koocanusa is 90 miles long, backing water 42 miles into Canada and has a usable storage capacity of 4,965,000 acre-

feet at 50 percent drawdown. Construction of dam was in accordance with a treaty between United States and Canada relating to international cooperation in water resource development of the Columbia River basin. Dam is a straight-axis concrete gravity overflow type, 420 feet high, 3,055 feet long, with normal full pool at elevation 2,459 feet above mean sea level. Powerhouse has an initial installed capacity of 480,000 kilowatts from four hydroelectric generating units; first power went on line in 1975. A fifth generating unit **(Libby Additional Units Project)** was completed in 1984 with an additional capacity of 120,000 kilowatts. Fabrication of generators for units 6 through 8 is completed and parts have been stored at the site. Project is completed with units l through 5 operational. Units 6 through 8 have been reclassified inactive. The **Libby Reregulating Dam Project** provided for construction of a reregulating dam about 10 miles downstream of Libby Dam. Funds were allocated for a construction start in 1977; however, courts have found that Congress did not authorize construction of the dam. In FY 1982, all work was terminated due to court direction. The **Libby Reregulating Dam - Power Units Project** provided for installation of three hydroelectric generating units at the reregulating dam with 78,900 kilowatt installed capacity. (For further details, see Annual Report for 1995).

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release, with concurrent power production. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse and equipment. Electrical service was extended to left-bank maintenance yard buildings. Connections for the new emergency generator were completed. Fish hatchery operation continued under contract with the State of Montana. Significant efforts in response to the USFWS Biological Opinion (December 2000) continue using hired labor and contracts.

Maintenance, contract: Contracts were completed for the following: intake crane modernization, including new controls, refurbishment of hoists and painting; construction of emergency vehicle garage near visitor center; refurbishment of a second station-service transformer; control room soundproofing; and exhibits at Murray Springs Fish Hatchery. Contracts awarded and continuing include design for Generic Data Acquisition and Control Systems (GDACS), design for main unit breaker replacements, and replacement road construction at the hatchery buffer.

Environmental

28. CHERRY CREEK, ID

Location. The project is located in northern Idaho, just west of the city of St. Maries in Benewah County.

Existing project. The project consists of replacing a periodically perched culvert structure and restoring Cherry Creek to a perennially free-running stream. This will allow fish to use the creek for spawning, migration and thermal refuge. Installation of culvert and completion of all project work is scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (Benewah County) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on March 18, 2002.

Operations during fiscal year. New work, hired labor: Revisited the design effort and all work pertaining to procurement activities.

New work, contract: Completed culvert procurement.

29. CHIEF JOSEPH DAM DISSOLVED GAS ABATEMENT, WA

Location. On Columbia River in north central Washington, at river mile 545, just upstream from mouth of Foster Creek, 1.5 miles upstream from town of Bridgeport.

Existing project. The ecosystem restoration project would construct flow deflectors in all 19 bays of the spillway at Chief Joseph Dam to abate total dissolved gas levels in the Columbia River downstream of the dam. Scheduled completion date is 2009.

Local cooperation. None required.

Operations during fiscal year. New work, hired labor: Initiated design of flow deflectors and additional hydraulic physical modeling test.

New work, contract: None.

30. CODIGA FARMS, TUKWILA, WA

Location. Project is located in Tukwila, Washington, in King County, approximately 10 miles south of Seattle along the Duwamish River.

Existing project. Restores tidal and riverine hydrology to the site in the form of an off-channel slough, estuarine marsh and riparian buffer. Construction began in August 2003 and is scheduled for completion in the spring of 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tukwila and Washington Department of Natural Resources) will provide 25 percent of project restoration, 50 percent of associated recreation, and 100 percent of hazardous waste issues.

A Project Cooperation Agreement (PCA) was signed on December 17, 2002.

Operations during fiscal year. New work, hired labor: Executed PCA, finalized real estate issues, and awarded material and equipment rental contracts.

New work, contract: Work under way by materials delivery and equipment rental.

31. HOWARD A. HANSON DAM, WA

Location. Howard A. Hanson Dam is located on the Green River, in King County, 23 miles up-stream and east of Auburn, and about 35 miles southeast of Seattle in Western Washington State.

Existing project. The project will add ecosystem restoration and municipal and industrial (M&I) water supply to the existing flood control project and will meet Endangered Species Act (ESA) requirements necessitated by the recent listing of the Puget Sound Chinook Salmon. Phase I construction will raise the existing flood control reservoir pool 20 feet (from elevation 1,147 feet to elevation 1,167 feet) to increase storage by 20,000 ac-ft for water supply use. Water will be stored in the spring for M&I use in the summer and fall with no changes to flood control capacity. The additional storage will not require structural changes to the existing dam, but may require right abutment seepage remedies. Phase I will also include construction of a new full height fish passage facility and initiation of miscellaneous ESA and environmental restoration features (reconnection of side channels, gravel nourishment, planting of sedge meadows, and placement of large woody debris at multiple locations). Phase II construction will proceed only with the concurrence of the resource agencies, the sponsor, and the Muckleshoot Tribe. It will consist of raising the pool another 10 feet (to elevation 1,177 feet) to store an additional 2,400 ac-ft of M&I water, plus 9,600 ac-ft of low flow augmentation water, for a combined total of 32,000 additional ac-ft of storage. Scheduled completion date is 2016.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tacoma) will provide 27 percent of project cost. A Project Cooperation Agreement (PCA) was signed on July 19, 2003.

Operations during fiscal year. New work, hired labor: Prepared plans and specifications for fish habitat restoration and supervised the contract after award.

New work, contract: Awarded contract for fish habitat restoration. The fish passage design continues.

32. PUGET SOUND AND ADJACENT WATERS, WA

Location. The Puget Sound and adjacent waters region encompasses over 15,000 square miles in northwest Washington State and incorporates all waters in the Puget Sound drainage basin and the Strait of Juan de Fuca

Existing project. This program provides for ecosystem restoration in the Puget Sound area and to expedite construction of critical restoration projects by developing an identification and prioritization process using existing locally provided information, conducting project implementation studies, and constructing specific projects. The program will require approximately 10 years.

Local cooperation. Not required for the program; however, each project implemented under the program authority will be cost shared with the local sponsor providing 35 percent of project cost.

Operations during fiscal year. New work, hired labor: Initiated the program coordination and selection process with local participation. Developed implementation guidance as well as a project cooperative agreement template consistent with WRDA 2000 provisions.

New work, contract: None.

33. RURAL MONTANA, MT (GRANT CREEK AT MISSOULA, MT)

This project is a joint effort of Omaha and Seattle Districts. The first Seattle District project follows:

Location. Grant Creek flows south, adjacent to Highway 93, and crosses Interstate 90 in the northern portion of the city of Missoula, MT.

Existing project. Provide flood damage protection to the Mullan Trail subdivision and other adjacent properties and to restore a degraded system with habitat improvement features.

Local cooperation. Under current cost-sharing requirements, the local sponsor (Missoula County) will provide 25 percent of design cost. A Project Cooperation Agreement (PCA) was signed on June 16, 2003.

Operations during fiscal year. New work, hired labor: Executed PCA and, with a consulting firm, developed a Project Management Plan (PMP).

New work, contract: Developed a PMP with scope of studies for needed engineering and environmental studies to support and provide basis for project features.

34. SWEENEY CREEK, WA

Location. The proposed project is located on Sweeney Creek above Howard Hanson Dam in the Green River watershed, approximately 35 miles southwest of Seattle, WA.

Existing project. Replace two perched culverts with a bridge and regrade the streambed to approximate the natural conditions which existed prior to construction of the road fill and culverts. This will allow current resident fish passage into the upstream reach of the creek for immediate spawning and rearing. This restoration project is an early-action endeavor under the larger Green-Duwamish River ecosystem restoration study. Completion of project work is scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tacoma) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on August 21, 2002.

Operations during fiscal year. New work, hired labor: Awarded and supervised construction contract.

New work, contract: Completed bridge construction.

35. UNION SLOUGH, WA

Location. The proposed project is located on the left bank of Union Slough, Snohomish River, near Everett, WA.

Existing project. The restoration project will restore fish and wildlife habitat which has been adversely affected by the past construction of the Everett Harbor and Snohomish River Navigation Project. It includes the construction of a new 6,800-foot setback levee around the entire 93-acre site, construction of about 2,800 feet of fish access channels to interior locations, filling the borrow ditches behind the abandoned levee, and construction of three breaches and a 180-foot long bridge across each breach. All new construction will be landscaped. Project is one-third complete with final completion in 2005.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Everett) will provide 25 percent of project cost. A Project Cooperation Agreement (PCA) was signed on May 16, 2003.

Operations during fiscal year. New work, hired labor: Executed PCA, administered contract design work, advertised and awarded construction contract.

New work, contract: Construction of levee was accomplished by rental equipment.

Environmental activities (Section 1135, Public Law 99-662, as amended; Section 206 Public Law 104-303).

See Table 29-N.

General Investigations

36. SURVEYS

Fiscal year costs were $17,981 for navigation studies, $459,093 for flood damage prevention studies, $65,094 for shoreline protection studies, $1,251,207 for special studies, $835,985 for review of authorized projects, $110,970 for miscellaneous activities, and $143,843 for coordination with other agencies and non-Federal interests, a total of $2,884,173. In addition, contributed funds were expended for the following: $5,847 for navigation studies, $85,270 for flood damage prevention studies, $274,340 for review of authorized projects, and $106,652 for coordination with other agencies and non-Federal interests, a total of $472,109.

37. COLLECTION AND STUDY OF BASIC DATA

The work programmed for collection and study of basic data covers international water studies, flood plain management services, and hydrologic studies. Work on international water studies included checking Kootenay Lake storage computations to determine compliance of Aquila Networks Canada with orders of International Joint Commission, and coordination with International Kootenay Lake and Osoyoos Lake Boards of Control in enforcement of International Joint Commission orders. Technical assistance was provided other Federal and non-Federal agencies and Indian tribes in flood hazard evaluation, flood reduction methods, and related services as requested. Fiscal year costs were $22,376 for international water studies, $105,972 for flood plain management services, and $5,610 for hydrologic studies, a total of $133,958.

38. PRECONSTRUCTION ENGINEERING AND DESIGN

Centralia, WA

The city of Centralia lies in west central Washington at the confluence of the Chehalis and Skookumchuck Rivers, about midway along the Chehalis River from its source in the Willapa Hills to its mouth at Aberdeen in Grays Harbor. Floods of record on Skookumchuck, Newaukum, and Chehalis Rivers occurred in February 1996.

The plan of improvement authorized in P.L. 99-662 would substantially reduce flooding in the Skookumchuck River

valley for the 22 miles between Skookumchuck Dam and the river mouth, including a major portion of Centralia, and provide minor reductions along the Chehalis River downstream from Centralia for about 20 miles to Oakville. The improvement, as recommended in the feasibility report, consisted of structural modifications (flood control outlet tunnel and spillway gate) which would enable the existing, private water supply dam to provide flood control storage during winter months.

Preconstruction Engineering and Design (PED) was started in FY 1988 to refine the project design recommended in the feasibility report. In FY 1990, refinement of project design to a less costly, gated spillway sluice and reevaluation of hydrology, existing local levees and embankments, estimated flood damages, and potential flood reduction benefits were completed. Studies determined the Skookumchuck Dam modification no longer appeared economically justifiable and further work was suspended. In FY 1992 a wrap-up report presenting results of the technical analyses completed to date was provided to local governments.

Following the severe flooding in the Centralia-Chehalis area in 1996, there was a renewed public interest in flood damage reduction. Using state and local funding sources, Lewis County reviewed past study efforts and developed a revised flood damage reduction plan that would combine the authorized dam modification with overbank excavation and flow bypass measures. The revised project would provide substantial benefits to both Centralia and Chehalis and appeared to be economically justified. In July 1998, Lewis County requested resumption of PED for the project with a view toward preparing a General Reevaluation Report and Environmental Impact Statement for an expanded project. Work resumed soon thereafter.

Accomplishments during the fiscal year included completion of the final General Reevaluation Report (GRR) and the Environmental Impact Statement (EIS) for the report. This included addressing Corps Headquarters comments on the draft documents and revising the reports. The final EIS and GRR were sent to Corps Headquarters for final review and comments in August 2003. In addition, further work on mitigation design was initiated along with developing statements of work for the design agreement. The final documents will be submitted for consideration for the next WRDA authorization. Fiscal year costs were $601,459. Total costs to date have been $7,684,349.

Duwamish and Green Rivers, WA

The Green River flows out of the Cascade Mountains and enters salt water in Puget Sound at Elliott Bay, Seattle, WA, as the Duwamish River.

The ecosystem restoration project includes 45 sites or programmatic projects throughout the river basin. The projects include everything from culvert replacements in the upper basin to replenishing habitat in Elliott Bay.

Work under Preconstruction Engineering and Design (PED) commenced in FY 2001 with the development of a Draft Design Agreement and Project Management Plan signed in February 2002.

Accomplishments during the fiscal year include initiating detailed design work on 5 sites and coordination with the local sponsor (King County), representatives of 17 cities within the basin, the Muckleshoot Indian Tribe, and local and Federal resource agencies. Fiscal year costs were $349,976. Total costs to date have been $672,692. In addition, $85,750 contributed funds were expended in FY 2003, for a total of $100,827.

Stillaguamish River Basin, WA

Stillaguamish River Basin encompasses the area in northwestern Washington from the reaches of the river's north and south forks westerly to Port Susan and Skagit Bay.

Environmental quality in the basin ecosystem has been significantly impaired by the cumulative effects of industry, urbanization, agriculture, historic forest practices, and hydraulic modifications. The result is noticeable fish and wildlife degradation.

Work under Preconstruction Engineering and Design (PED) commenced in late FY 2001, addressing the recommendations of the feasibility report. This proposes restoration features at ten sites within the basin, which would provide critical salmon habitat, including spawning, rearing, refugia, and estuarine habitats. The project sponsor is Snohomish County, WA.

Accomplishments during the fiscal year include the continuation of discussions for possible PED cooperation with Snohomish County and Stillaguamish Tribe. Fiscal year costs were $5,919. Total costs to date have been $16,538.

Other Activities

39. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

Fiscal year costs were $18,693, provided for activities required for local and national preparedness.

40. OTHER PROGRAMS AND ACTIVITIES

Fiscal year costs were $87,248, provided for anti-terrorism and force protection.

41. GENERAL REGULATORY FUNCTIONS PROGRAM

Permit Evaluation	$3,688,663
Enforcement	417,372
Appeals	5,245
TOTAL	$4,111,280

TABLE 29-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
1.	Anacortes Harbor, WA	New Work						
	(Federal Funds)	Approp.					222,345	
		Cost					222,345	1
		Maint.						
		Approp.				36,337	1,243,820	
		Cost				36,337	1,243,820	
	(Contrib. Funds)	New Work						
		Contrib.					59,524	
		Cost					59,524	
		Maint.						
		Contrib.					5,000	
		Cost					5,000	
2.	Bellingham Harbor, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	1,566,839	
		Cost	_	_	_	_	1,566,839	2
		Maint.						
		Approp.	99,293	105,001	3,168	36,953	3,334,670	
		Cost	99,293	105,001	3,168	36,953	3,334,670	3
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	29,421	
		Cost	_	_	_	_	29,421	
		Maint.						
		Contrib.	_	_	_	_	9,103	
		Cost	_	_	_	_	9,103	
3.	Ediz Hook, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	5,878,740	
		Cost	_	_	_	_	5,878,740	
		Maint.						
		Approp.	_	_	197,038	400,688	2,683,564	
		Cost	_	_	196,621	401,106	2,683,564	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	385,850	
		Cost	_	_	_	_	385,850	
		Maint.						
		Contrib.	_	_	_	52,702	304,015	
		Cost	_	_	_	54,976	284,477	
4.	Everett Harbor and	New Work						
	Snohomish River, WA	Approp.	_	_	_	_	1,723,745	
	(Federal Funds)	Cost	_	_	_	_	1,723,745	4
		Maint.						
		Approp.	607,486	1,052,003	1,322,374	291,993	21,208,349	
		Cost	608,903	1,052,043	1,320,412	252,063	21,166,457	5

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	116,618	
		Cost	_	_	_	_	116,618	
		Maint.						
		Contrib.	_	_	_	_	548,090	
		Cost	_	_	_	_	548,090	
5.	Friday Harbor, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	1,575,500	
		Cost	_	_	_	_	1,575,500	6
		Maint.						
		Approp.	335,098	4,513	283,748	-1,555	795,840	
		Cost	335,098	4,513	277,484	2,842	793,974	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	1,267,881	
		Cost	_	_	_	_	1,267,881	
6.	Grays Harbor and	New Work						
	Chehalis River, WA	Approp.	-79,105	-25,000	-27,000	20,000	23,248,248	7
	(Federal Funds)	Cost	310,710	29,941	12,999	18,835	23,239,391	8
		Maint.						
		Approp.	20,623,703	13,110,237	12,099,975	10,620,264	210,188,690	
		Cost	20,637,890	11,578,561	13,543,268	10,661,075	210,127,630	9
		Minor Rehab.						
		Approp.	_	_	_	_	9,592	
		Cost	_	_	_	_	9,592	10
		Major Rehab.						
		Approp.	_	_	_	_	4,606,145	
		Cost	_	_	_	_	4,606,145	
	(Contrib. Funds)	New Work						
		Contrib.	100,000	_	_	12,000	6,408,000	
		Cost	89,335	9,173	4,544	12,993	6,396,469	11
		Maint.						
		Contrib.	_	_	_	_	55,889	
		Cost	_	_	_	_	55,889	
7.	Lake Crockett, WA	New Work						
		Approp.	_	_	_	_	377,990	
		Cost	_	_	_	_	377,990	12
		Maint.						
		Approp.	_	8,592	_	6,762	1,194,629	
		Cost	_	8,592	_	6,762	1,194,629	
8.	Lake Washington	New Work						
	Ship Canal, WA	Approp.	_	_	_	_	4,611,436	
	(Federal Funds)	Cost	_	_	_	_	4,611,436	13
		Maint.						
		Approp.	7,242,000	7,252,517	9,072,273	7,524,270	166,052,406	
		Cost	7,317,690	7,234,106	7,914,414	8,415,325	165,728,383	14

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
		Major Rehab.						
		Approp.	_	_	_	_	7,465,230	
		Cost	_	_	_	_	7,465,230	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	250,000	
		Cost	_	_	_	_	250,000	15
		Maint.						
		Contrib.	_	_	_	_	40,000	
		Cost	_	_	_	_	39,964	
9.	Neah Bay, WA	New Work						
		Approp.	_	_	_	_	2,057,266	
		Cost	_	_	_	_	2,057,266	
		Maint.						
		Approp.	_	57,554	1,202,395	629,833	3,972,839	
		Cost	_	57,554	1,197,938	634,289	3,972,839	
11.	Puget Sound and its Tributary Waters, WA	New Work						
		Approp.	_	_	_	_	43,337	
		Cost	_	_	_	_	43,337	
		Maint.						
		Approp.	627,364	1,004,721	809,055	1,021,498	29,775,739	
		Cost	628,750	1,004,886	807,455	1,020,318	29,772,959	16
12.	Quillayute River, WA (Federal Funds)	New Work						
		Approp.	_	_	_	_	521,850	
		Cost	_	_	_	_	521,850	17
		Maint.						
		Approp.	803,917	249,352	1,701,452	988,499	29,343,315	
		Cost	840,772	250,903	1,618,960	1,070,543	29,342,865	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	20,000	
		Cost	_	_	_	_	20,000	
13.	Seattle Harbor, WA (Federal Funds)	New Work						
		Approp.	_	_	_	_	170,335	
		Cost	_	_	_	_	170,335	
		Maint.						
		Approp.	3,254,349	368,158	575,309	224,699	18,676,980	
		Cost	3,305,056	368,319	574,869	222,718	18,674,559	18
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	69,333	
		Cost	_	_	_	_	69,333	
		Maint.						
		Contrib.	2,262,975	_	_	_	2,357,450	19
		Cost	2,038,749	149,786	1	_	2,283,011	20
14.	Swinomish Channel, WA (Federal Funds)	New Work						
		Approp.	_	_	_	_	808,332	
		Cost	_	_	_	_	808,332	21
		Maint.						
		Approp.	250,630	44,180	223,975	144,451	9,290,318	
		Cost	249,796	46,515	223,779	128,622	9,274,292	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	32,000	
		Cost	_	_	_	_	32,000	
		Maint.						
		Contrib.	_	_	_	_	379,248	
		Cost	_	_	_	_	379,248	

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
15.	Willapa River and Harbor	New Work						
	and Naselle River, WA	Approp.	_	_	_	_	1,386,955	
	(Federal Funds)	Cost	_	_	_	_	1,386,955	22
		Maint.						
		Approp.	2,051,158	1,598,839	1,246,498	134,208	24,319,617	
		Cost	2,050,231	1,600,101	1,246,498	134,208	24,319,617	23
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	78,372	
		Cost	_	_	_	_	78,372	24
16.	Shoalwater Bay, Tokeland, WA	New Work						
		Approp.	_	_	500,000	571,000	1,071,000	
		Cost	_	_	495,294	555,748	1,051,041	
17.	Coeur d'Alene River	New Work						
	(South Fork), Wallace, ID	Approp.	_	80,000	29,000	448,000	619,883	
	(Federal Funds)	Cost	_	62,866	43,329	418,932	588,010	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	374,250	374,250	
		Cost	_	_	_	24,081	24,081	
18.	Howard A. Hanson Dam, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	38,311,834	
		Cost	_	_	_	_	38,311,834	25
		Maint.						
		Approp.	1,657,000	1,916,324	1,495,310	1,684,100	28,647,553	
		Cost	1,669,894	1,910,735	1,405,627	1,774,332	28,634,977	26
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	2,009,742	
		Cost	_	_	_	_	2,009,742	27
20.	Mud Mountain Dam, WA	New Work						
	(Federal Funds)	Approp.	4,400,000	3,189,000	1,749,000	2,129,000	96,605,075	28
		Cost	4,794,889	3,814,127	2,071,807	2,160,567	96,566,055	29
		Maint.						
		Approp.	2,862,000	2,773,453	2,533,200	2,035,000	48,135,643	
		Cost	2,854,976	2,777,432	2,491,190	2,075,889	48,113,394	30
		Minor Rehab.						
		Approp.	_	_	_	_	285,908	
		Cost	_	_	_	_	285,908	
		Major Rehab.						
		Approp.	_	_	_	_	30,437,500	
		Cost	_	_	_	_	30,437,500	
	(Contrib. Funds)	Maint.						
		Contrib.	_	_	_	_	3,928	
		Cost	_	_	_	_	3,928	
22.	St. Maries, ID	New Work						
	(Federal Funds)	Approp.	30,000	140,000	93,683	480,000	783,683	
		Cost	52,061	118,971	113,078	472,611	773,659	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	454,000	454,000	
		Cost	_	_	_	72,432	72,432	
23.	Stillaguamish River, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	134,595	
		Cost	_	_	_	_	134,595	31
		Maint.						
		Approp.	165,108	174,559	230,000	235,000	4,460,190	
		Cost	164,776	174,851	229,661	235,427	4,460,066	

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	21,000	
		Cost	_	_	_	_	21,000	
	24. Tacoma, Puyallup River, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	3,947,853	
		Cost	_	_	_	_	3,947,853	32
		Maint.						
		Approp.	42,585	56,832	120,436	121,000	1,534,221	
		Cost	42,514	56,029	115,652	121,087	1,528,501	
	(Contrib. Funds)	Maint.						
		Contrib.	_	_	_	_	54,405	
		Cost	4,534	-64	_	1,792	50,978	
	25. Albeni Falls Dam, ID	New Work						
		Approp.	_	_	_	370,000	32,111,561	33
		Cost	_	_	_	207,799	31,949,360	34
		Maint.						
		Approp.	6,522,770	7,215,073	6,050,897	6,630,413	110,669,871	35
		Cost	6,767,724	7,094,762	5,411,331	5,768,664	108,594,565	36
	26. Chief Joseph Dam-	New Work						
	Rufus Woods Lake, WA	Approp.	_	_	_	_	540,341,235	
		Cost	231	_	11	_	540,341,235	37
		Maint.						
		Approp.	20,548,412	19,576,598	21,438,152	25,076,894	299,788,462	38
		Cost	17,164,718	21,734,066	16,997,848	21,882,516	289,453,260	39
		Major Rehab.						
		Approp.	_	_	_	_	297,630	
		Cost	_	_	_	_	297,630	
	27. Libby Dam - Lake	New Work						
	Koocanusa, MT	Approp.	_	_	_	_	543,726,140	
	(Federal Funds)	Cost	_	_	_	_	543,726,140	40
		Maint.						
		Approp.	8,072,488	9,545,112	9,825,948	8,642,092	133,494,792	41
		Cost	7,196,483	9,452,194	9,354,742	7,785,180	130,890,892	42
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	1,458,252	
		Cost	_	_	_	_	1,458,252	43
	28. Cherry Creek, ID	New Work						
	(Federal Funds)	Approp.	_	40,000	70,000	-4,000	106,000	
		Cost	_	30,206	66,883	5,128	102,217	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	6,000	_	6,000	
		Cost	_	_	_	4,180	4,180	
	29. Chief Joseph Dam Dissolved	New Work						
	Gas Abatement, WA	Approp.	_	_	_	368,000	368,000	
		Cost	_	_	_	364,733	364,733	
	30. Codiga Farms, Tukwila, WA	New Work						
	(Federal Funds)	Approp.	_	158,000	_	873,000	1,031,000	
		Cost	_	122,160	32,295	841,678	996,133	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	11,900	11,900	
		Cost	_	_	_	7,667	7,667	

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
31.	Howard A. Hanson Dam, WA	New Work						
	(Sec. 101(b)(15))	Approp.	1,755,000	2,922,000	5,436,572	5,106,000	16,153,572	44
	(Federal Funds)	Cost	1,735,274	2,306,907	6,033,033	4,845,155	15,780,129	45
	(Contrib. Funds)	New Work						
		Contrib.	1,000,000	760,000	2,050,000	2,000,000	6,060,000	46
		Cost	793,063	768,500	1,964,127	575,951	4,102,265	47
32.	Puget Sound and Adjacent Waters, WA	New Work						
		Approp.	_	_	_	93,000	93,000	
		Cost	_	_	_	72,105	72,105	
33.	Rural Montana Program, MT	New Work						
	(Grant Creek at Missoula, MT)	Approp.	_	_	_	100,000	100,000	
		Cost	_	_	_	56,873	56,873	
34.	Sweeney Creek, WA	New Work						
	(Federal Funds)	Approp.	_	92,000	45,000	171,000	308,000	
		Cost	_	80,705	21,583	192,946	295,234	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	70,000	69,800	139,800	
		Cost	_	_	_	103,037	103,037	
35.	Union Slough, WA	New Work						
	(Federal Funds)	Approp.	90,000	210,000	15,000	277,000	642,000	
		Cost	80,535	222,695	28,354	261,905	624,894	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	187,150	187,150	
		Cost	_	_	_	150,943	150,943	

1. Excludes $2,000 Coast Guard funds expended.
2. Includes $56,582 appropriated and expended for previous project. Excludes $13,000 Coast Guard funds expended.
3. Includes $1,092 appropriated and expended for previous project.
4. Includes $418,209 appropriated and expended for previous projects. Excludes $43,000 Coast Guard funds expended.
5. Includes $5,869 for previous project and $120,000 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended.
6. Includes $1,180,500 expended under Productive Employment Appropriation Act of 1983 (P.L.98-8).
7. Includes $4,881,882 appropriated for former project, $18,128,287 for current project which includes $3,530,000 PED, $124,945 for recreation facilities at completed project (Code 710), and $113,134 for previous project. Excludes $161,909 Navy funds and $6,000 Coast Guard funds.
8. Includes $4,881,882 expended for former project, $18,119,430 for current project which includes $3,530,000 PED, $124,945 for recreation facilities at completed project (Code 710), and $113,134 for previous project. Excludes $161,909 Navy funds and $6,000 Coast Guard funds.
9. Includes $37,415 for previous projects and $3,923,511 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended. Excludes $409,660 Emergency Relief funds and $57,000 Public Works Administration funds expended.
10. Excludes $111,000 Public Works Acceleration Act funds expended.
11. Excludes $3,418,000 contributed by Port of Grays Harbor in fulfilling requirements of local cooperation.
12. Includes $117,750 appropriated and expended for recreation facilities at completed project (Code 710).
13. Includes $779,655 for recreation facilities at completed project (Code 710) and $485,002 for previous projects, appropriated and expended. Excludes $246,567 expended by State of Washington and $742,071 expended by King County. Excludes $192,516 Public Works Administration funds expended.
14. Includes $1,631,195 (1916 to 1936) and $338,163 subsequently appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
15. Previous project.
16. Includes $64,996 appropriated and expended for previous project.
17. Excludes Navy funds expended on dredging river channel in 1944 and Coast Guard funds expended for channel dredging in 1948 and 1949.
18. Includes $3,349,600 appropriated and expended for East Waterway.
19. Includes $2,262,975 contributed for East Waterway.
20. Includes $2,188,536 expended for East Waterway.
21. Excludes $1,000 Coast Guard funds expended.
22. Includes $228,084 appropriated and expended for previous projects. Excludes $40,000 Coast Guard funds and $192,314 Emergency Relief funds expended.
23. Includes $309,177 appropriated and expended for previous projects. Excludes $78,532 Public Works Administration funds expended.
24. Includes $6,597 expended for previous projects.
25. Includes $37,048,061 appropriated and expended for original project and $1,263,773 appropriated and expended for Dam Safety Assurance.
26. Includes $66,678 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

27. Includes $2,000,000 contributed for original project and $9,742 for Dam Safety Assurance.
28. Includes $13,182,063 appropriated for original project, $87,785 appropriated for recreation facilities at completed project (Code 710) and $83,335,227 appropriated for Dam Safety Assurance. Excludes $26,000 Emergency Relief funds.
29. Includes $13,182,063 expended for original project, $87,785 expended for recreation facilities at completed project (Code 710) and $83,296,207 expended for Dam Safety Assurance. Excludes $26,000 Emergency Relief funds expended.
30. Includes $198,578 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
31. Excludes $281,000 Works Progress Administration funds and $85,999 Emergency Relief funds expended.
32. Includes $5,035 appropriated and expended for recreation facilities at completed project (Code 710).
33. Includes $370,000 appropriated for current project (Riley Creek Recreation Area), $30,769,614 for original project, and $971,947 for recreation facilities at completed project (Code 710). Excludes $136,736 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).
34. Includes $207,799 expended for current project (Riley Creek Recreation Area), $30,769,614 for original project, and $971,947 for recreation facilities at completed project (Code 710). Excludes $136,736 Public Works Acceleration Act funds expended for recreation facilities at completed project (Code 710).
35. Includes funds appropriated for project O&M ($85,922,261), Special Recreation Use Fees ($174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($1,875,446), BPA/COE Merged, CAT 390 ($20,064,224) and BPA-4045 Large Capital Subagreements, CAT 300 ($2,633,164).
36. Includes funds expended for project O&M ($85,896,005), Special Recreation Use Fees ($174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($1,875,446), BPA/COE Merged, CAT 390 ($18,485,286) and BPA-4045 Large Capital Subagreements, CAT 300 ($2,163,052).
37. Includes $144,338,252 appropriated and expended for original project, $395,855,000 for additional units, and $147,983 for recreation facilities at completed project (Code 710). Excludes $58,000 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).
38. Includes funds appropriated for project O&M ($203,476,357), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($73,117,551), and BPA-4045 Large Capital Subagreements, CAT 300 ($22,419,992).
39. Includes funds expended for project O&M ($200,320,554), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($70,508,655), and BPA-4045 Large Capital Subagreements, CAT 300 ($17,849,490).
40. Includes $484,753,143 appropriated and expended for original project, $42,221,634 for additional units, $16,276,363 for reregulating dam, and $475,000 for power planning.
41. Includes funds appropriated for project O&M ($93,484,278), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($35,962,264), and BPA-4045 Large Capital Subagreements, CAT 300 ($3,273,690).
42. Includes funds expended for project O&M ($93,154,571), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($33,981,169), and BPA-4045 Large Capital Subagreements, CAT 300 ($2,980,592).
43. Excludes $161,849 expended by Federal Aviation Agency, $32,000 expended by Lincoln County- City of Libby Joint Airport Board, $8,000 expended by Bonneville Power Administration, and $379,555 expended by U.S. Forest Service.
44. Includes $5,735,572 appropriated under Preconstruction Engineering and Design.
45. Includes $5,733,801 expended under Preconstruction Engineering and Design.
46. Includes $2,010,000 contributed under Preconstruction Engineering and Design.
47. Includes $1,835,774 expended under Preconstruction Engineering and Design.

TABLE 29-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**ANACORTES HARBOR, WA**	
	March 2, 1919	Channel in Capsante Waterway.	H. Doc. 1117, 64th Cong., 1st Sess.
	Sep. 3, 1954	Mooring Basin.	S. Doc. 102, 83rd Cong., 2d Sess.
	July 14, 1960 as amended	Navigation Channel.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers Dec. 31, 1974
2.		**BELLINGHAM HARBOR, WA**	
	June 25, 1910	Whatcom Creek Waterway 26- and 18-foot channels.	H. Doc. 1161, 60th Cong., 2d Sess.
	July 3, 1930	Entrance channel in Squalicum Creek Waterway.	H. Doc. 187, 70th Cong., 1st Sess.
	Aug. 26, 1937	Maintenance of southerly half and westerly end of Squalicum Creek Basin.	Rivers and Harbors Committee Doc. 70, 74th Cong., 1st Sess.
	Sep. 3, 1954	Small-boat basin adjacent to Squalicum Creek Waterway.	H. Doc. 558, 82d Cong., 2d Sess.
	July 14, 1960 as amended	Expansion of small-boat basin.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers Feb 10, 1976.
	July 3, 1958	Whatcom Creek Waterway, 30-foot channel.	S. Doc. 46, 85th Cong., 1st Sess.
	July 14, 1960 as amended	Channel 3,200 feet long, 100 feet wide, and 18 feet deep in I&J Street Waterway.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers May 5, 1965.
3.		**EDIZ HOOK, WA**	
	Mar. 7, 1974	Construction of 10,000 linear feet of rock revetment, together with initial beach replenishment and annual nourishment. Emergency interim measures necessary to prevent breaching of Ediz Hook prior to construction of authorized project.	H. Doc. 101, 93d cong., 1st Sess. P.L. 93-251
4.		**EVERETT HARBOR AND SNOHOMISH RIVER, WA**	
	June 25, 1910	Training dike 10,500 feet long extending across bar at outlet of old river channel.	H. Doc. 1108, 60th Cong., 2d Sess.
	July 3, 1930	Raise 6,000 feet of training dike, extend spur dike, widen gap in dike as required, maintain East Waterway and channel to gap.	H. Doc. 377, 71st Cong., 2d Sess.
	June 20, 1938	Abandon project for Snohomish River and redesignate as Everett Harbor and Snohomish River. Provide settling basin near 14th Street.	H. Doc. 546, 75th Cong., 3d Sess.
	Sep. 3, 1954	Construct spur dike at Preston Point, remove training dike north of river outlet, enlarge channel to 14th Street, and deepen settling basin.	H. Doc. 569, 81st Cong., 2d Sess.
	July 14, 1960	Widen channel from settling basin to gap; extend channel to head of Steamboat Slough; and a settling basin within upper channel reach.	H. Doc. 348, 86th Cong., 2d Sess.
5.		**FRIDAY HARBOR, WA**	
	July 14, 1960 as amended	Construction of 1,600 feet of concrete floating breakwater.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers July 9, 1981
6.		**GRAYS HARBOR AND CHEHALIS RIVER, WA**	
	June 3, 1896	South jetty.	Annual Report, 1895, pp. 3517-3533
	Mar. 2, 1907	A north jetty 9,000 feet long.	Rivers and Harbors Committee Doc. 2, 59th Cong., 2d Sess.
	Mar. 2, 1907	The 18-foot channel.	H. Doc. 507, 59th Cong., 1st Sess.
	June 25, 1910	Extend north jetty 7,000 feet; length of south jetty fixed at 13,734 feet	Rivers and Harbors Committee Doc. 29, 61st Cong., 2d Sess.
	June 25, 1910	A 6-foot channel above Cosmopolis.	H. Doc. 1125, 60th Cong., 2d Sess.
	Aug. 8, 1917	Dredging in bar channel.	H. Doc. 1729, 64th Cong., 2d Sess.
	Jan. 21, 1927	Dredging in bar channel.	H. Doc. 582, 69th Cong., 2d Sess.
	Aug. 30, 1935	Reconstruct north and south jetties to an elevation of 16 feet above mean lower low water.	Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess.
	Aug. 30, 1935	Maintain 26-foot channel below Aberdeen (as authorized by Public Works Administration Dec. 11, 1933) and combining projects for Grays Harbor and bar entrance and Grays Harbor, inner portion, and Chehalis River under a modified project for Grays Harbor and Chehalis River.	H. Doc. 53, 73rd Cong., 1st Sess. Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess.

TABLE 29-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Mar. 2, 1945	Maintain 30-foot depth in channel from deep water in Grays Harbor to Port of Grays Harbor Commission terminal which was deepened from 26 to 30 feet with Navy funds.	Report in Office, Chief of Engineers
	June 30, 1948	14-foot channel to Bay City; breakwater at Westhaven; and maintenance of Westhaven entrance channel.	H. Doc. 635, 80th Cong., 2d Sess.
	Sep. 3, 1954	Dredging and maintenance of a 30-foot channel and turning basin from Aberdeen to Cosmopolis.	H. Doc. 412, 83d Cong., 2d Sess.
	Sep. 3, 1954	Additional breakwater, 1,400 feet long, at Westhaven Cove.	H.Doc. 30, 84th Cong., 1st Sess.
	July 14, 1960 as amended	Westhaven Cove small boat basin.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers Feb. 7, 1979
	Nov. 17, 1986	Improve project features with accompanying fish mitigation.	P.L. 99-662
7.		**LAKE CROCKETT, WA**	
	Mar. 2, 1945	Small-boat basin.	H. Doc. 303, 77th Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	July 14, 1960 as amended	Change authorized channel depth from –18 mean lower low water to –25 mean lower low water by dredging.	Sec. 197, P.L. 86-645 Authorized by Chief of Engineers Nov. 7, 1988
8.		**LAKE WASHINGTON SHIP CANAL, WA**	
	June 25, 1910 Mar. 4, 1913	Provides for a double lock and fixed dam with gated spillway and necessary accessory works at entrance to Salmon Bay, dredging a channel from locks to deep water in Puget Sound, and excavation by local interests of a channel from locks into Lake Washington.	H. Doc. 953, 60th Cong., 1st Sess.
	Aug. 8, 1917	Dredging below locks and revetting canal banks.	H. Doc. 800, 64th Cong., 1st Sess.
	Sep. 22, 1922	Increased dimensions of channel between Puget Sound and locks and a 600-foot extension of lower guide pier.	H. Doc. 324, 67th Cong., 2d Sess.
	June 26, 1934 1	Operating and care of locks and dam provided for with funds from War Department appropriations for Rivers and Harbors.	
	Aug. 30, 1935 2	Enlarge channel between locks and Lake Washington.	H. Doc. 140, 72d Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	July 24, 1956	Government Locks to be known as Hiram M. Chittenden Locks.	P.L. 84-779
9.		**NEAH BAY, WA**	
	June 20, 1938	Rubblestone breakwater.	Rivers and Harbors Committee Doc. 51, 75th Cong., 2d Sess.
	Sep. 3, 1954	Reinforcement of existing revetment.	H. Doc. 404, 83d Cong., 2d Sess.
11.		**PUGET SOUND AND ITS TRIBUTARY WATERS, WA**	
	July 13, 1892	Maintenance of the rivers tributary to Puget Sound by snagging and dredging, and removal of floating debris from Seattle Harbor.	Annual Report for 1893, page 3425
12.		**QUILLAYUTE RIVER, WA**	
	July 3, 1930	Jetty (5 feet high) on easterly side of mouth, and a dike on westerly side, to stabilize entrance.	H. Doc. 125, 71st Cong., 1st Sess.
	Mar. 2, 1945	Maintenance dredging to provide a channel 6 feet deep and of suitable width from ocean to within river mouth.	H. Doc. 218, 78th Cong., 1st Sess.
	Sep. 3, 1954	Raising jetty to 15 feet; channel 10 by 100 feet, 2,000 feet long; moorage basin. 3	H. Doc. 579, 81st Cong., 2d Sess.

TABLE 29-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
13.		**SEATTLE HARBOR, WA**	
	Mar. 2, 1919	Maintenance of East and West Waterways 750 feet wide and 34 feet deep, and of Duwamish Waterway 20 feet deep and 150 feet wide as far south as Eighth Avenue South Bridge.	S. Doc. 313, 65th Cong., 3d Sess.
	Mar. 3, 1925	Enlargement of Duwamish Waterway.	H. Doc. 108, 68th Cong., 1st Sess.
	July 3, 1930		H. Doc. 126, 71st Cong., 2d Sess.
	Aug. 30, 1935	Maintenance of East Waterway between 750-foot section and Spokane Street, and turning basin at junction of East and Duwamish Waterways.	H. Doc. 211, 72d Cong., 1st Sess.
	Oct. 12, 1996	East Waterway channel deepening.	P.L. 104-303
14.		**SWINOMISH CHANNEL, WA**	
	July 13, 1892	Channel 4 feet deep and 100 feet wide, and dike construction.	H. Doc. 31, 52d Cong., 1st Sess., and Annual Report for 1892, p. 2752
	Aug. 30, 1935	Enlargement of channel to present project dimensions.	S. Committee Print, 73d Cong., 1st Sess.
	Oct. 23, 1962	Removal of navigation hazards at "Hole-in-the-Wall".	H. Doc. 499, 87th Cong., 2d Sess.
15.		**WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA**	
	July 27, 1916	Channel 24 feet deep, 200 feet wide in Willapa River, and 150 feet wide in the forks.	H. Doc. 706, 63d Cong., 2d Sess.
	Aug. 30, 1935 2	Maintenance of channel over bar to a depth of 26 feet and minimum width of 500 feet.	Rivers and Harbors Committee Doc. 41, 72d Cong., 1st Sess.
	Aug. 30, 1935 4	For cutoff channel at Narrows.	Rivers and Harbors Committee Doc. 37, 73d Cong., 2d Sess.
	Mar. 2, 1945	Channel from deep water in Palix River to Bay Center dock.	H. Doc. 481, 76th Cong., 2d Sess.
	Sep. 3, 1954	Widen Willapa River channel to 360 and 250 feet between South Bend and the forks; Tokeland and Nahcotta basins; and Naselle River clearance. Willapa River and Harbor re-designated as Willapa River and Harbor and Naselle River.	H. Doc. 425, 83d Cong., 2d Sess.
16.		**SHOALWATER BAY, TOKELAND, WA**	
	Dec. 11, 2000	Coastal erosion reduction.	Sec. 545, WRDA 2000 P.L. 106-541
17.		**COEUR D'ALENE RIVER (SOUTH FORK), WALLACE, ID**	
	Jul. 24, 1946	Replace approximately 700 feet of retaining wall.	Sec. 14, P.L. 79-526 Authorized by Chief of Engineers May 8, 2003
18.		**HOWARD A. HANSON DAM, WA**	
	May 17, 1950	Eagle Gorge flood control dam on Green River.	H. Doc. 271, 81st Cong., 1st Sess.
	Aug. 6, 1958	Redesignation of project as Howard A. Hanson Dam.	P.L. 85-592
20.		**MUD MOUNTAIN DAM, WA**	
	June 22, 1936	Flood control dam on White River.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534

TABLE 29-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
22.		**ST. MARIES, ID**	
	June 30, 1948 as amended	Replace existing timber floodwall with a driven sheet-pile wall with a concrete cap.	Sec. 205, P.L. 80-858 Authorized by Chief of Engineers July 14, 2003
23.		**STILLAGUAMISH RIVER, WA**	
	June 22, 1936	Improvement of flood channel by clearing and bank revetment at 26 sites; concrete weir at head of Cook Slough; and 2 cutoff channels in Cook Slough.	H. Doc. 657, 71st Cong., 3d Sess.
	June 28, 1938	Maintenance of improvements.	P.L. 75-761
24.		**TACOMA, PUYALLUP RIVER, WA**	
	June 22, 1936	Channel improvement to protect people and industrial section of city of Tacoma.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
25.		**ALBENI FALLS DAM, ID**	
	May 17, 1950	Multi-purpose dam with powerhouse.	S. Doc. 9, 81st Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Dec. 22, 1944 as amended	Modernize recreation area at Riley Creek.	P.L. 78-534
26.		**CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA**	
	July 24, 1946	Multi-purpose dam and powerhouse on Columbia River at Foster Creek.	H. Doc. 693, 79th Cong., 2d Sess.
	June 30, 1948	Redesignation of the project as Chief Joseph Dam.	P.L. 858, 80th Cong., 2d Sess.
	July 9, 1952	Designation of reservoir as Rufus Woods Lake.	P.L. 469, 82d Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Oct. 22, 1976 as amended	School facilities for education of dependents of construction personnel.	P.L. 94-587
	May 4, 1977		P.L. 95-26
27.		**LIBBY DAM - LAKE KOOCANUSA, MT**	
	May 17, 1950	Multi-purpose dam and powerhouse, and reregulating facilities.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov. 7, 1966	School facilities for education of dependents of construction personnel, Libby project.	P.L. 89-789
	Jan. 2, 1968	Airport facility at Kelley Flats, MT.	P.L. 90-239 5
	Aug. 13, 1968	Design standards for relocation of Montana State Highway 37 to be those adopted by State of Montana pursuant to provisions of Highway Safety Act of 1966.	P.L. 90-483 6
	June 19, 1970	Participation with State of Montana in construction, operation and maintenance of fish hatchery facilities.	P.L. 91-282 7
	Dec. 31, 1970	Designation of lake formed by the waters impounded by Libby Dam as Lake Koocanusa.	P.L. 91-625
	Dec. 31, 1970	Design and construction of sewage collection and sewage treatment facility as part of relocation of municipal facilities of Rexford, MT; and compensation for railroad employees suffering long-term economic injury through reduction of income as result of the relocation of rail transportation facilities due to the construction of Libby Dam.	P.L. 91-611

TABLE 29-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Mar. 7, 1974	Phase I design memorandum stage for installation of power generating facilities at Libby Reregulating Dam.	S.Doc. 29, 93d Cong., 1st Sess. P.L. 93-251
	Mar. 7, 1974	Construction of fish production measures to compensate for fish losses attributed to the project, and for acquisition of necessary real estate, construction of access roads and utilities (amends P.L. 91-282 by increasing limitation from $750,000 to $4,000,000).	P.L. 93-251
	Mar. 7, 1974	Acquisition of land (not to exceed $2,000,000) for prevention of wildlife grazing losses caused by the project.	P.L. 93-251
	Mar. 7, 1974	Reimbursement (not to exceed $350,000) to Boundary County, ID, for reconstruction of Deep Creek Bridge made necessary by duration of high flows during drawdown operations at Libby Dam.	P.L. 93-251
	Mar. 7, 1974	Compensation (not to exceed $1,500,000) to Drainage Districts and owners of leveed and unleveed lands in Kootenai Flats, Boundary County, ID, for damages caused by duration of higher flows during drawdown operations at Libby Dam.	P.L. 93-251
	Oct. 22, 1976	Amends P.L. 93-251 by increasing limitation from $350,000 to $380,000 for reimbursement to Boundary County, ID, for reconstruction of Deep Creek Bridge.	P.L. 94-587
	Nov. 17, 1988	Alleviate low water impact on existing facilities and protect Indian archeological sites exposed during course of operations, at an estimated cost of $750,000.	H. Doc. 1098, 100th Cong., 2d Sess. P.L. 100-676
28.		**CHERRY CREEK, ID**	
	Oct. 12, 1996	Aquatic ecosystem restoration.	Sec. 206, P.L. 104-303 Authorized by Chief of Engineers Aug. 20, 2002
29.		**CHIEF JOSEPH DAM DISSOLVED GAS ABATEMENT, WA**	
	July 24, 1946	In conjunction with Fish and Wildlife Services, investigate operational and structural gas abatement measures.	H. Doc. 693, 79th Cong., 2d Sess.
30.		**CODIGA FARMS, WA**	
	Nov. 17, 1986 as amended	Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers June 23, 2003
31.		**HOWARD A. HANSON DAM, WA**	
	Aug. 17, 1999	Environmental mitigation, restoration, and protection.	Sec. 101(b) (15) WRDA 1999 P.L. 106–53
32.		**PUGET SOUND AND ADJACENT WATERS RESTORATION, WA**	
	Dec. 11, 2000	Environmental mitigation, restoration, and protection.	Sec. 544 WRDA 2000 P.L. 106-541
33.		**RURAL MONTANA, MT (GRANT CREEK AT MISSOULA, MT)**	
	Aug. 17, 1999	Environmental infrastructure.	Sec. 595 WRDA 1999 P.L. 106-53

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
34.		**SWEENEY CREEK, WA**	
	Oct. 12, 1996	Aquatic ecosystem restoration.	Sec. 206, P.L. 104-303 Authorized by Chief of Engineers Aug. 12, 2002
35.		**UNION SLOUGH, WA**	
	Nov. 17, 1986 as amended	Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers July 30, 2003

1. Permanent Appropriations Repeal Act.
2. Included in Public Works Administration program.
3. Maintenance of these items, as well as sandspit north of James Island, is included in this modification.
4. Included in Emergency Relief program, May 28, 1935.
5. Supplemental Appropriations Act of 1968, Section 502.
6. Flood Control Act of 1968, Section 212.
7. River Basin Monetary Authorization and Miscellaneous Civil Works Amendments Act of 1970, Section 7.

TABLE 29-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction		Cost to Sep. 30, 2003 Operation And Maintenance	
Anacortes Navigation Channel, WA 1	Completed	1977	825,263	7	$ –	
Bellingham Harbor, WA (I&J Street Waterway) 1	Completed	1966	125,634	8	–	
Blaine Harbor, WA	Completed	1958	346,650		–	
Blair Waterway, Tacoma, WA 1	Completed	2002	1,942,054	9	–	
Columbia River, Wenatchee to Kettle Falls, WA	Completed	1923	274,391	10	7,693	
East Bay Small Boat Basin, Olympia, WA 1	Completed	1985	1,619,956	11	–	
Edmonds Harbor, WA 2	Completed	1987	–		224,756	
Flathead River, MT	Completed	1901	9,811		–	
Grays Harbor, Point Chehalis, WA 3	Completed	1998	1,421,000		–	
Hammersley Inlet, WA	Completed	1950	9,000		10,683	
Hoquiam River, WA	Completed	1950	18,921	12	5,316	
Kenmore Navigation Channel, WA 1	Completed	2002	946,000		925,996	
Keystone Harbor, Admiralty Inlet, WA 1	Completed	1993	264,000	13	–	
Kingston Harbor, WA	Completed	1967	262,570	14	5,000	15
Kootenai River, ID and MT	Completed	1933	9,255		5,643	
Mats Mats Bay, WA 1	Completed	1970	137,679	16	–	
Neah Bay, WA 1	Completed	1997	3,874,920	17	–	
Olympia Harbor, WA	Completed	2000	337,709	18	1,071,162	19
Okanogan and Pend Oreille Rivers, WA	Abandoned	1913	63,879		7,634	
Polson Bay, Flathead Lake, MT	Completed	1918	4,491		259	
Port Angeles Harbor, WA 4	Completed	1960	470,873		–	
Port Gamble Harbor, WA	Completed	1953	11,911	20	13,337	
Port Orchard Bay, WA 5	Completed	1928	42,804		–	
Port Townsend, WA	Completed	1999	480,899	21	118,656	
Prototype Breakwater Test Program, WA 1	Completed	1985	1,461,590		–	
Shilshole Bay, Seattle, WA 6	Completed	1962	2,575,091	22	–	
Skagit River, WA	Completed	1950	102,330	23	36,258	
Squalicum Small Boat Harbor, Bellingham, WA 1	Completed	1981	1,744,025	24	–	
Tacoma Harbor, WA	Completed	2001	2,383,891	25	1,557,020	26
Waterway Connecting Port Townsend and Oak Bay, WA	Completed	1987	73,322		378,753	
Westhaven Cove Small Boat Basin, WA 1	Completed	1981	2,000,000	27	–	

TABLE 29-C OTHER AUTHORIZED NAVIGATION PROJECTS
(Continued)

1. Authorized by Chief of Engineers under authority of Section 107, Public Law 86-645.
2. Constructed by local interests at a cost of $415,000. Excludes $1,000 Coast Guard funds expended for new work. Corps of Engineers is responsible for maintenance.
3. Authorized by Chief of Engineers under authority of Section 111, Public Law 90-483.
4. Maintenance by Port of Port Angeles.
5. No maintenance required.
6. Maintenance by Port of Seattle.
7. Excludes $457,200 contributed funds expended.
8. Excludes $2,500 Coast Guard funds expended.
9. Excludes $1,883,278 contributed funds expended.
10. Includes $8,005 appropriated and expended for previous project.
11. Excludes $2,184,766 contributed funds expended.
12. Excludes $32,373 Emergency Relief funds expended.
13. Excludes $114,272 contributed funds expended.
14. Excludes $390,753 contributed funds and $3,000 Coast Guard funds expended.
15. Mitigation of shore damages study.
16. Excludes $28,288 contributed funds and $9,000 Coast Guard funds expended.
17. Excludes $528,188 contributed funds expended.
18. Includes $183,257 appropriated and expended for previous projects. Excludes $105,467 Public Works Administration funds expended.
19. Includes $14,418 appropriated and expended for previous project.
20. Excludes $21,260 contributed funds expended.
21. Excludes $92,423 contributed funds expended.
22. Excludes $15,000 Coast Guard funds expended.
23. Includes $2,500 appropriated and expended for previous project.
24. Excludes $1,570,886 contributed funds expended.
25. Includes $159,585 appropriated and expended for previous project. Excludes $51,609 Public Works Administration funds and $1,147,208 contributed funds expended.
26. Includes $5,347 appropriated and expended for previous projects. Excludes $222,500 contributed funds expended.
27. Excludes $1,230,035 contributed funds expended.

TABLE 29-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
Lincoln Park Beach, Seattle, WA	Completed	2002	1,045,832	432,211
Lummi Shore Road, WA	Completed	1999	1,980,391	924,195

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
American Lake, Vicinity of Fort Lewis, WA 1	Completed	1957	59,582	10,000
Bear Creek, Flathead County Bridge, near Essex, MT 2	Completed	1971	1,424	–
Bitterroot River, Florence, MT 2	Completed	1990	180,950	49,759
Blackfoot River, Matt Little Road, MT 2	Completed	1964	17,836	–
Bogachiel River, Highway 101, near Forks, WA 2	Completed	1981	156,000	–
Bogachiel River, Undie Road, Forks, WA 2	Completed	1981	57,000	–
Cedar River, King County, WA 3	Completed	1953	3,229	–
Cedar River, Renton, WA 1	Completed	2001	5,292,186	3,198,738
Cedar River, Renton, WA 2	Completed	1949	32,264	–
Chehalis River, City of Chehalis Raw Water Pumphouse, WA 2	Completed	1966	35,454	–
Chehalis River, Independence Road, Thurston County, WA 2	Completed	1965	47,916	–
Chehalis River, Montesano, WA 2	Completed	1977	140,080	–
Chehalis River at South Aberdeen and Cosmopolis, WA	Completed	1998	8,301,833 5	1,538,784
Clallam Bay, Sekiu, WA 2	Completed	1977	48,698	–
Clallam Bay at Sekiu, Clallam County, WA 2	Completed	1994	178,800	39,818
Clallam River, Highway 112, WA 2	Completed	1981	43,500	–
Clark Fork River, near Garrison, MT 2	Completed	1993	80,611	16,973
Clark Fork River, Drummond, MT 2	Completed	1978	18,660	–
Clark Fork River, Missoula, MT 2	Completed	1978	31,548	–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Contributed Funds
Clark Fork River, Superior, MT 2	Completed	1971	28,357		–
Clark Fork River, Vicinity of Plains, MT 2	Completed	1950	27,947		–
Clearwater River, Jefferson County Road, WA 2	Completed	1968	50,000		24,728
Clearwater River, Queets River Bridge, WA 2	Completed	1950	49,165		–
Coeur d'Alene, Spokane River, ID	Completed	1941	152,872		–
Coeur d'Alene River, Springston, ID 2	Completed	1950	25,452		–
Coffee Creek, WA 3	Completed	1966	15,000		–
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Clark Fork River, Missoula, MT	Completed	1983	384,862	6	13,500
Lightning Creek, Clark Fork, ID	Completed	1959	42,726		–
Deschutes River, Gleason Road Bridge near Tumwater, WA 2	Completed	1965	26,292		–
Deschutes River, Rich Road Bridge, near East Olympia, WA 2	Completed	1967	22,956		–
Dungeness River, Area 5, WA 2	Completed	1950	2,155		2,155
Dungeness River, Area 8, WA 2	Completed	1950	2,895		2,895
Dungeness River, Clallam County, WA 1	Completed	1964	52,040	7	–
Dungeness River, Sequim, WA 2	Completed	1981	99,000		–
Dungeness River, Clallam County, WA 2	Completed	1986	47,500		–
Dungeness River, Taylor Cut-off Road, WA 2	Completed	1961	14,093		3,314
Elwha Klallam Reservation, Elwha River, WA 1	Completed	1991	1,455,023		119,449
Elwha River, Clallam County, WA 2	Completed	1951	17,303		–
Entiat River, WA 3	Completed	1971	49,300		–
Entiat River, Chelan County, WA 2	Completed	1978	38,000		–
Flathead River, MT 2	Completed	1972	20,940		–
Flathead River, Bradley Channel Area, MT 2	Completed	1955	26,265		–
Flathead River, near Kalispell, MT 1	Completed	1995	81,500		13,467
Flathead River, near Kalispell, MT 2	Completed	1948	33,347		–
Flathead River, Old Steel Bridge, near Kalispell, MT 2	Completed	1964	13,438		–
Flathead River (North Fork), MT	Completed	1999	79,105		–
Flower and Parmenter Creeks, MT 3	Completed	1950	2,320		–
Foster Creek (West Fork), WA 2	Completed	1958	19,513		–
Foster Creek Road, Douglas County, WA 2	Completed	1962	50,000		–
Green River between Kent and Auburn, WA and Allentown, WA 2	Completed	1972	24,605		–
Green River, State Highway 181, WA 2	Completed	1976	27,001		–
Henderson Bay, Purdy, WA 2	Completed	1977	37,359		–
Hoh River, County Road 216, WA 2	Completed	1980	143,000		–
Hoh River, U.S. Highway 101, WA 2	Completed	1980	194,000		–
Hoh River Road, Jefferson County, WA (HO 1360) 2	Completed	1956	22,082		21,807
Hoh River Road, Jefferson County, WA (HO 1361) 2	Completed	1961	11,916		–
Hoh River Road, Jefferson County, WA (HO 1362) 2	Completed	1964	41,622		–
Hoh River, near Forks, WA 2	Completed	1983	173,000	8	–
Hoko River, Sekiu, WA 2	Completed	1977	21,083		–
Hood Canal, Hoodsport, WA 2	Completed	1977	59,812		–
Hoquiam River, WA 2	Completed	1977	52,600		–
Horseshoe Bend, WA 1	Completed	1997	204,989		9,146
Jackman Creek, Skagit River, WA 3	Completed	1962	24,000		–
Kootenai River, Bonners Ferry, ID 2	Completed	1950	42,325		–
Kootenai River, Kootenai Flats Area, District #1, ID 2	Completed	1965	14,885		–
La Conner, WA	Completed	1996	955,000	9	246,889
La Conner, Swinomish Channel, WA 2	Completed	1979	40,525		–
Long Road, Chehalis River, WA 1	Completed	2001	413,817		140,015
Lower Green River, King County, WA 1	Completed	1993	912,000		120,518
Lummi Shore Road, Whatcom County, WA 2	Completed	1995	482,000		134,772
Methow River, WA (MET 1-74) 2	Completed	1974	15,700		–
Methow River, WA (MET 2-74)2	Completed	1974	11,200		–
Methow River, WA (MET 3-74) 2	Completed	1974	13,450		–
Methow River, Barclay Canal, WA 2	Completed	1976	19,810		–
Methow River, State Highway No. 16 Bridge, Twisp, WA 2	Completed	1949	31,783		–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Contributed Funds
Methow River, Twisp-Carlton Highway, Vicinity of Twisp, WA 2	Completed	1951	33,300		6,786
Methow River, Vicinity of Pateros, WA 2	Completed	1951	11,726		11,726
Milo Creek, Kellogg, ID	Completed	2001	1,000,000		–
Mineral Creek, Lewis County, WA 2	Completed	1972	11,836		–
Missoula, MT (Sewage Treatment Plant) 2	Completed	1965	50,000		–
Moclips River, Moclips, WA 2	Completed	1977	17,608		–
Naches River, Naches, WA 2	Completed	1982	59,000		–
Neah Bay, Clallam County, WA 2	Completed	1991	253,995		78,433
Newaukum River, Lewis County, Hamilton, WA 2	Completed	1972	24,792		–
Nisqually River, near Elbe, WA 2	Completed	1948	37,636		–
Nisqually River, Thurston County, WA 2	Completed	1960	26,790		–
Nisqually River, Vicinity of Elbe, WA 2	Completed	1952	19,345		–
Nooksack River, WA 3	Completed	1948	24,006		–
Nooksack River, Acme, WA 2	Completed	1985	77,300		–
Nooksack River, Guide Bridge Location, WA 2	Completed	1950	6,075		6,075
Nooksack River, Middle Fork, Deming, WA 2	Completed	1986	79,000		–
Nooksack River, above Highway 12 Bridge, WA 2	Completed	1960	10,807		–
Okanogan River, WA 2	Completed	1974	10,100		–
Okanogan River at Outlet of Osoyoos Lake, WA 3	Completed	1949	52,100		–
Okanogan River, Tonasket Creek and Osoyoos Lake, WA 3	Completed	1953	7,987		–
Okanogan River, Omak, WA 1	Completed	1981	2,231,030		–
Okanogan River, Oroville, WA 1	Completed	1982	1,787,630		–
Pilchuck River, WA 3	Completed	1948	25,401		–
Pilchuck River, WA 2	Completed	1985	81,000		–
Pilchuck River, WA 2	Completed	1971	10,713		–
Pilchuck River, Everett, WA 2	Completed	1980	54,000		–
Pilchuck River, State Highway 92, Granite Falls, WA 2	Completed	1971	30,973		–
Placer Creek, ID	Completed	1986	5,865,000		–
Powell County High School, Deer Lodge, MT 2	Completed	1964	11,291		–
Puyallup River, WA	Completed	1937	50,000	10	–
Pysht River, Sekiu, WA 2	Completed	1977	86,160		–
Queets River, Jefferson County Sewage Lagoon, WA 2	Completed	1981	125,000		–
Quillayute River, Quileute Tribal Float and Bridge, WA 2	Completed	1972	39,300		–
Quinalt River, Grays Harbor, WA 2	Completed	1981	208,000		–
Quinalt River Road, Jefferson County, WA 2	Completed	1961	15,928		4,943
Rock Creek, Granite County, MT 2	Completed	1974	49,657		–
Rock Creek, Missoula County, MT 2	Completed	1973	31,565		–
Rock Creek Road, MT 2	Completed	1980	50,000		–
Rye Creek, MT 2	Completed	1973	22,819		–
St. Maries, St. Joe River, ID	Completed	1942	357,698		–
St. Regis River, MT 3	Completed	1942	7,234	11	–
St. Regis River at St. Regis, MT3	Completed	1951	2,983		–
Sammamish River, WA	Completed	1967	2,582,536	12	696,923
Sauk River, WA 2	Completed	1974	20,860		–
Sauk River, Skagit County, WA 2	Completed	1989	119,600		32,778
Shelton Creek, WA 1	Completed	1979	872,021		–
Skagit River at Burlington Bend, WA 2	Completed	1949	50,000		–
Skagit River, Cape Horn Road, WA 2	Completed	1966	46,489		–
Skagit River, Deadman's Slough, WA2	Completed	1980	93,000		–
Skagit River, Pressentin Creek, WA 2	Completed	1980	137,000		–
Skagit River, South Skagit Highway, WA 2	Completed	1963	40,753		–
Skagit River, South Skagit Highway, WA (Job 66-1) 2	Completed	1966	17,719		–
Skagit River, South Skagit Highway, WA (Job 67-1) 2	Completed	1967	50,000		24,488
Skykomish River, North Fork, Index, WA 2	Completed	1981	222,500		–
Snohomish River, Lowell-Snohomish River Road, WA 2	Completed	1969	44,227		–
Snohomish River, Snohomish, WA 2	Completed	1970	60,900		14,307
Snoqualmie River, West Snoqualmie, WA 2	Completed	1977	15,565		–
Soleduck River Bridge, WA 2	Completed	1961	16,437		1,960
Soleduck River, near Mora Road Bridge, WA 2	Completed	1963	11,433		–
Spokane River, Spokane, WA 2	Completed	1989	122,138		79,311
Startup, Skykomish and Wallace Rivers, WA 1	Completed	1970	271,713		–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS (Continued)

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2003	Contributed Funds
Stillaguamish River, South Fork, Mountain Loop Highway near Robe, WA 2	Completed	1964	50,000		46,182
Stillwater River, MT 2	Completed	1973	17,457		–
Stillwater and Whitefish Rivers, MT 2	Completed	1977	34,513		–
Strong Creek, Hope, ID 2	Completed	1970	8,442		–
Tahola, WA 2	Completed	1979	223,893		–
Upper Puyallup River, WA 4	Completed	1938	71,495	13	13,704
Willapa River, Raymond, WA 2	Completed	2000	88,504		32,101
Wynoochee Lake, WA	Completed	1994	23,494,445	14	–
Wynoochee River, County Road 141, WA 2	Completed	1976	111,072		–
Wynoochee River, near Montesano, WA 2	Completed	1969	50,000		21,311
Wynoochee River, near Montesano, WA (WR-1-72) 2	Completed	1972	50,000	15	–
Yakima, Yakima River, WA	Completed	1948	381,961		–
Yakima River, Cle Elum, WA 2	Completed	1949	8,047		–
Yakima River, below mouth of Teanaway River near Cle Elum, WA 2	Completed	1947	48,272		–
Yakima River, West Richland, WA 2	Completed	1977	36,768		–
Yakima River, Yakima WA 2	Completed	1983	125,500	16	–

1. Authorized by Chief of Engineers under authority of Section 205, Public Law 858, 80th Congress, as amended.
2. Authorized by Chief of Engineers under authority of Section 14, Public Law 526, 79th Congress, as amended.
3. Authorized by Chief of Engineers under authority of Section 2, Public Law 406, 75th Congress, as amended.
4. Authorized by Works Progress Administration Project No. OP 65-93-917.
5. Includes $2,212,000 for Preconstruction Engineering and Design, appropriated and expended.
6. Includes $7,850 appropriated and expended for recreation facilities at completed project (Code 710).
7. Excludes $340,066 Public Works Acceleration Act funds expended.
8. Productive Employment Appropriation Act of 1983 (P.L. 98-8). Excludes $189,000 Federal Highway Administration funds expended.
9. Includes $183,000 for Preconstruction Engineering and Design, appropriated and expended.
10. Emergency Relief funds, Works Progress Administration.
11. Excludes amount expended by Works Progress Administration which is not available.
12. Excludes $1,000 Coast Guard funds expended.
13. Emergency Relief funds, Works Progress Administration.
14. Includes $102,200 appropriated and expended for recreation facilities at completed project (Code 710). Excludes $17,070,670 for project maintenance and $66,678 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended.
15. Excludes $17,988 Office of Emergency Planning funds expended.
16. Includes $118,000 expended under Productive Employment Appropriation Act of 1983 (P.L. 98-8).

TABLE 29-F OTHER AUTHORIZED MULTIPLE-PURPOSE POWER PROJECTS

Project	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2003	Operation and Maintenance
Priest Rapids Dam, Columbia River, WA	1954	$350,000	1	–

1. For partnership planning. Excludes funds expended for acquisition of lands under partnership arrangement for Priest Rapids and Wanapum Dams, in accordance with Public Law 544, 83d Congress. Project constructed by Grant County Public Utility District.

TABLE 29-G OTHER AUTHORIZED ENVIRONMENTAL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
Deepwater Slough, WA 1	Completed	2001	1,985,642	108,560
Goldsborough Creek, WA 2	Completed	2002	3,397,000	3,387,557
Howard A. Hanson Dam, WA 1	Completed	2002	355,900	354,605
Lake Washington Ship Canal, WA 1	Completed	2001	1,715,186	584,162
Loomis Lake, WA 2	Completed	2002	62,453	13,544
Porter Levee, WA 1	Completed	2000	158,471	18,166
Puget Creek, WA 1	Completed	2000	111,894	–
Sammamish River Restoration, WA 1	Completed	1995	326,900	64,333
Sammamish River Weir Restoration, WA 1	Completed	2000	185,246	38,244
Thornton Creek, WA 1	Completed	2000	286,364	28,500
Turning Basin #3, Seattle, WA 1	Completed	2001	1,907,458	–

1. Section 1135, Public Law 99-662, as amended.
2. Section 206, Public Law 104-302.

TABLE 29-I OTHER AUTHORIZED PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
Aquatic Plant Control	Completed	1997	6,023,906	–
Green River, King County, WA	Completed	1985	498,320	–
Oak Harbor, WA	Completed	1983	519,000	–

TABLE 29-J DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended		Contributed Funds Expended
Blair and Sitcum Waterways, Tacoma Harbor, WA 6	–	2002	1,310,000	14,19	–
Calispell Creek, WA 1	1968	1968	25,000	14	–
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Crab and Wilson Creeks, WA 2	1958	1964	9,000	14	–
Entiat River, WA 3	1958	1986	–		–
Methow River, WA 3	1958	1986	–		–
Okanogan River, WA 3	1958	1986	1,100	14	–
St. Regis River, MT 4	1958	1978	1,400	14	–
Wenatchee River, WA 4	1958	1978	–		–
Yakima River at Ellensburg, WA 3	1980	1986	44,300	14, 15	–
East, West and Duwamish Waterways, Seattle Harbor, WA 6	–	2002	663,000	14	–
Everett Harbor and Snohomish River, WA (RH 68) 7	1973	1990	52,000	14	–
Flathead River at Kalispell, MT 7	1981	1995	300,000	14	–
Grays Harbor and Chehalis River, WA (RH 48) (Unconstructed Portion) 7,8	1962	1990	–		–
Grays Harbor and Chehalis River, WA (RH 30) 7,9	1933	1990	35,834		35,834
Hammersley Inlet, WA (RH 30) (Unconstructed Portion) 4,10	1950	1978	–		–
Hoquiam, Aberdeen, and Cosmopolis, Chehalis River, WA 5	1948	1952	83,631	14	–
Olympia Harbor, WA (RH 45) 7	1973	1990	21,606	14,16	–
Port Angeles Harbor, WA (RH 35) 4	1960	1977	–		–

TABLE 29-J DEAUTHORIZED PROJECTS
(Continued)

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended		Contributed Funds Expended
Port Gamble Harbor, WA) (RH 35) 4	1953	1977	–		
Quillayute River, WA(RH 30) (Unconstructed Portion) 3,11	1986	1986	–		–
Seattle Harbor, WA (RH 30) (Unconstructed Portion) 3,12	1986	1986	–		–
Skagit River, WA (RH 10) (Unconstructed Portion) 4,13	1950	1978	–		–
Skagit River, WA (RH19) 4	1950	1978	–		–
Skagit River, WA (Avon Pass) 7	1968	1990	54,468	14	–
Skagit River, WA (Levee and Channel Improvements) 7	1982	1995	1,934,792		–
Spokane River, Spokane, WA 3	1939	1986	2,944	14	–
Stillaguamish River, WA (RH 45) 3	1946	1986	4,234	17	–
Wenatchee, Canyons 1 and 2, WA 7	1978	1990	544,331	14	–
Willapa River at Raymond, WA 7	1982	1995	508,130	14, 18	–
Yakima River at Union Gap, WA 6	–	2002	502,000	14	–

1. Authority for project expired October 27, 1968.
2. Authority for project expired July 1964.
3. Deauthorized under authority of Section 1002, P.L. 99-662 dated November 17, 1986.
4. Deauthorized under authority of Section 12, P.L. 93-251 dated March 7, 1974.
5. Authority for project expired in October 1952.
6. Deauthorized under authority of Section 1001 (b) (2), P.L. 99-662 dated November 17, 1986, as amended.
7. Deauthorized under authority of Section 1001 (b) (1), P.L. 99-662 dated November 17, 1986.
8. 2200 linear feet of revetment at Point Chehalis.
9. 16-foot channel from Cosmopolis to Montesano.
10. Deepening shoal area near Cannery Point from 10 to 13 feet.
11. Groin feature of the project.
12. Settling basin at upper end of existing Duwamish Waterway, about 1.4 miles above 14th Avenue South Bridge.
13. 5500-foot extension of training dike.
14. Preconstruction planning only.
15. Includes $14,300 expended for restudy, FY 1970.
16. Includes $18,700 expended for restudy, FY 1968-1973.
17. Economic restudy only.
18. Includes $8,888 expended for restudy, FY 1967-1972.
19. Includes $300,000 appropriated and expended under Section 101(c).

TABLE 29-K LAKE WASHINGTON SHIP CANAL, WA, PRINCIPAL FEATURES OF DOUBLE LOCK AND DAM (SEE SECTION 8)

Section			Large Lock	Small Lock
Miles above mouth			1 ¼	1 ¼
Clear width of chamber		Feet	80	28
Maximum available length		Feet	760	123
Lift		Feet	26	26
Depth on upper miter sill	1	Feet	33 ½	16
Depth on intermediate miter sill	2	Feet	29	–
Depth on lower miter sill	2	Feet	29	16
Character of foundation			Clay	Clay
Kind of dam			Fixed dam with gated spillway	Fixed dam with gated spillway
Type of construction			Concrete	Concrete
Year completed			1916	1916
Cost			3	3

1. Low water in upper pool.
2. Mean lower low water in Puget Sound.
3. Cost of double lock and dam was $2,382,200 and the emergency gates, completed in 1923, $262,300.

TABLE 29-L FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205, PUBLIC LAW 858, 80TH CONGRESS, AS AMENDED (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs (2003)	
Conconully, WA	0	1
Concrete, WA	117	1
Northbend, WA	448	
Rural Montana Program, MT (Grant Creek at Missoula, MT)	4,973	
Section 205 Coordination	15,141	
Snoqualmie River, WA	146,984	2
Stillaguamish River Valley, Stanwood, WA	2,869	3
St. Maries, ID	0	4
TOTAL	$170,532	

1. Terminated.
2. Excludes $-2,255 contributed funds expended.
3. Excludes $1,955 contributed funds expended
4. Construction initiated in FY 2003.

TABLE 29-M FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 14, PUBLIC LAW 526, 79TH CONGRESS, AS AMENDED (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs (2003)	
Bogachiel River, WA	31,963	
Coeur d'Alene River (South Fork), Wallace, ID	0	1
Emma Schmitz Seawall, Seattle, WA	40,040	
Goldsborough Creek, Shelton, WA	0	2
Independence Road, Centralia, WA	0	2
Sauk-Suiattle near Darrington, WA	393	2
Section 14 Coordination	13,921	
Upper Hoh Road, Forks, WA	499	2
TOTAL	$86,816	

1. Construction initiated in FY 2003.
2. Terminated

.

TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Study Identification	Fiscal Year Costs (2003)	
Bear Creek Restoration, WA	11,306	2
Carpenter Creek, WA (Sec. 1135)	0	2,5
Carpenter Creek, WA (Sec. 206)	265,636	3
Cedar River @ RM 7.4, WA	0	3,4
Codiga Farms, WA	0	1,2
Harper Estuary, WA	212,015	3
Issaquah Creek, WA	114,311	3
Little Baker River, WA	82,639	3
Little Oak Bay, WA	10,476	2
Lower Puyallup River, WA	242,800	2
Mapes Creek, WA	9,410	2
Nooksack River Diversion Dam (Middle Fork), WA	11,857	3
Nooksack River (South Fork), WA	27,368	3

TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION
(Continued)

Study Identification	Fiscal Year Costs (2003)	
North Satus Drain, Yakima, WA	433,790	3
Old Soldier's Home, Orting, WA	184,799	3
Port of Sunnyside, WA	53,787	3
Preliminary Restoration Plans (Sec. 206)	109	3
Preliminary Restoration Plans (Sec. 1135)	59	2
Satsop River, WA	303,734	3
Seahurst Park, Burien, WA	115,759	3
Section 206 Coordination	33,146	3
Section 1135 Coordination	35,629	2
Snoqualmie River (Mid Fork), WA	1,833	3,4
Squak Valley Park, WA	140,021	3
Stillaguamish Old Channel, WA	97	2,4
Tokul River, WA	46,769	3
Union Slough, WA	0	1,2
Whatcom Creek Estuary, WA	10,409	2,4
Willapa River, WA	40,134	2
Wynoochee Anadromous Fish, WA	494,843	2
TOTAL	$2,882,736	

1. Construction initiated in FY 2003.
2. Section 1135, Public Law 99-662, as amended.
3. Section 206, Public Law 104-303.
4. Terminated
5. Converted to Section 206.

WALLA WALLA, WA, DISTRICT

This U.S. Army Corps of Engineers (Corps), Walla Walla District (District), consists of all Columbia River drainage and tributaries thereto between the head of the McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam, except the Yakima River Basin above the Van Giesen Street Bridge (river mile 8.4) near Richland, WA. The primary tributary drainage area is the Snake River that includes more than 107,000 square miles in six states: Washington, Oregon, Idaho, Wyoming, and small portions of Nevada and Utah.

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Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

Location. Improvements included in this project are along the Columbia River and its tributaries.

Existing project. The Flood Control Act of 1950 approved a general comprehensive plan for the Columbia River Basin for flood control and other purposes based on plans in H. Doc. 531, 81st Congress, 2nd Session, and authorized $75 million to be appropriated for partial accomplishment of certain projects. From that authorization, an amount (not to exceed $15 million) was allotted for construction of local flood protection works throughout the Columbia River Basin, subject to conditions that all work undertaken pursuant to authorization would be economically justified prior to construction, and local cooperation specified in the Flood Control Act of 1936, as amended, should be required.

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies.

Operations during the fiscal year (FY). No projects were deauthorized.

2. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal law requires local interests to maintain and operate completed local protection projects in accordance with regulations prescribed by the Secretary of the Army. Inspections were made to determine the extent of compliance and to advise local interests, as necessary, of measures required to correct deficiencies.

The FY costs were $71,552. Total costs through September 30, 2003, were $3,163,113.

3. JACKSON HOLE, WY

Location. This project is located on the banks of the Snake River, Teton County, west of Jackson, WY.

Existing project. On the Snake River, approximately 23.5 miles of Federally-constructed levees consist of the following: (1) On the right bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge for a total of 13.5 miles; and (2) On the left bank: a series of Federally-constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles upstream. The project resumes 1.5 miles immediately upstream of the same bridge and continues to 3.5 miles below the bridge for a total of 10 miles. In addition, a series of Federal and non-Federal constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

The project also includes riprap-protected levees on the left and right banks of the Gros Ventre River. The left bank levee begins 1.5 miles west of Cattlemen's Bridge and extends 0.5 mile east of the same bridge. The right bank levee begins 0.5 mile west of Cattlemen's Bridge and extends 0.3 mile east of the same bridge.

The Project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The PL 104-303 modified the original PL 81-516 to ensure the operation, maintenance, modifications, and additions to the project become Federal responsibility.

Local cooperation. Non-Federal sponsors pay the initial $35,000 in cash or materials of any such costs expended in any 1 year, plus inflation as of the date of enactment of the Water Resources Development Act of 1986.

Since 1978, $63,946,000 (adjusted to October 2003 price index) in potential flood damages has been prevented by the levees.

Operations during FY. Teton County, under their Local Cooperative Agreement, worked with the Corps performing levee maintenance. The FY costs were $655,267. (See table 30-A, Cost and Financial Statement.)

New Project. The Water Resources Development Act of 2000 authorized the Upper Snake River Restoration Project. Congress added new start funding to the FY 03 budget. The project is located in and along a 22-mile stretch of the Upper

Snake River near Jackson, WY, in Teton County. It is partially in and adjacent to Grand Teton National Park, the National Elk Refuge, and in close proximity to Yellowstone National Park. The project will restore fish and wildlife habitat that was lost as a result of construction, operation, and maintenance of levees constructed by Federal and non-Federal interests. Restoration measures include eco-fences, channel capacity excavation, spur dikes, anchored rootwads, rock grade control, and secondary channels, off-channel and channel stabilization pools. The project has a 14-year phased construction schedule and includes continuing construction, adaptive management, and monitoring to provide implementation flexibility. The FY 03 activities closed out the pre-construction engineering and design phase; prepared non-standard project cooperation agreement submittal package for Headquarters review; and completed biddability, constructability, operability, and environmental review of contract plans and specifications for Site 9. The FY 03 Construction General costs were $33,000, and $569,000 has been programmed for FY 04.

4. LUCKY PEAK LAKE, ID

Location. This project is located on the Boise River in southwestern Idaho about 10 miles southeast of the city of Boise, ID. (See table 30-B for Authorizing Legislation of projects in the District).

Existing project. The project includes a rolled earthfill dam about 250 feet above the streambed and 1,700 feet long at the crest, with a lake providing a total storage at upper operating lake level of 306,000 acre-feet. The project provides for flood control, irrigation, and recreation.

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, $594,837,000 (adjusted to October 2003 price index) in potential flood damages has been prevented by the project.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in the Water Resource Development Act of 1976. In FY 78, an *Interim Feasibility Report on Modification of Lucky Peak Dam and Lake* (power facilities) was submitted to the Board of Engineers for Rivers and Harbors and approved. States, agencies, and the Chief of Engineers commented on the report to the Secretary of the Army. The report was forwarded to the Office of Management and Budget in February 1982.

A license to construct and operate power facilities at the project was issued by the Federal Energy Regulatory Commission (FERC) (Project #2832) to the Boise Project Board of Control on June 10, 1980, and modified on October 9, 1980, and in 1982. Construction of the auxiliary outlet facility began in May 1984 and was completed in August 1986. Construction of modifications to the existing outlet tunnel and powerhouse excavation began in August 1986 and was completed January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was initiated on August 18, 1988. A Federally-authorized second outlet was deauthorized in FY 90.

Recreation facilities at Lucky Peak Lake consist of 20 picnic/day-use areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 661,317.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance, which included the dam structures and recreation areas, continued. The FY costs were $1,571,213. (See table 30-A, Cost and Financial Statement.)

5. MILL CREEK, BENNINGTON LAKE, WA

Location. This project is located in and upstream from Walla Walla, WA, on Mill Creek, a tributary of the Walla Walla River.

Existing project. The project includes an off-stream earthfill storage dam, about 125 feet above the streambed and 3,200 feet long at the crest, two concrete-lined outlet channels, an earthfill diversion dam, and diversion structures. The project provides for flood control and recreation. Authorizing legislation to provide a channel through the city of Walla Walla was added to the project in 1941. Recreation was added to the project purposes through the Federal Water Project Recreation Act of 1965.

Construction of the dam and appurtenant works was completed in 1942. Paving of the channel through the city of Walla Walla was completed in 1966. Since 1942, $51,481,000 (adjusted to October 2003 price index) in potential flood damages has

been prevented by the combined storage and channel operation.

Rehabilitation of the existing project was initiated in FY 78 and completed in FY 79. The plan of rehabilitation included action to correct the seepage and internal erosion that has occurred during each subsequent filling of the reservoir. A cutoff wall was constructed but did not alleviate the seepage problem, thus requiring limited flood control use of the project. The seepage and internal erosion create a high vulnerability for dam failure.

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 164,053.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas. The right abutment test grouting contract was initiated. The FY costs were $1,078,734. (See table 30-A, Cost and Financial Statement.)

6. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects was accomplished under several authorities. Regulation was accomplished as authorized under Section 7, Flood Control Act of 1944, and coordinated with the Bureau of Reclamation for Palisades, Little Wood, and Anderson Ranch Reservoirs, ID; and Bully Creek, Warm Springs, Agency Valley, and Mason Reservoirs, OR.

Flood control operations at Jackson Lake, WY, Arrowrock Reservoir and Lake Lowell, ID, were in accordance with formal agreements with the Bureau of Reclamation. Flood control regulation was accomplished under informal agreements for the Owyhee Reservoir, OR; and American Falls, Magic, Mackay, Cascade, and Deadwood Reservoirs, ID. Brownlee and Oxbow Reservoirs, OR, and Hells Canyon Reservoir, OR and ID, provided flood control regulation in accordance with provisions of the Federal Power Commission license to Idaho Power Company. The FY costs were $311,027.

Multipurpose Projects, Including Power

7. COLUMBIA RIVER FISH MITIGATION PROGRAM (WALLA WALLA PROJECTS), OR, WA, AND ID

Location. This project is located at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams on the lower Snake River in the State of Washington and McNary Lock and Dam on the Columbia River in the states of Oregon and Washington.

Existing project. The eight Corps hydroelectric projects on the Columbia and lower Snake Rivers have been identified as a major contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead. Without adequate bypass facilities to guide these juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Indian fisheries. The Corps has recognized the need to reduce juvenile fish mortality and has undertaken bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill as an additional bypass route over the spillways has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed, and the President signed, the FY 89 Energy and Water Development Appropriation Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River fish mitigation projects. Completion of bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. The mitigation study will determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams. The mitigation study project was added to the President's FY 91 budget.

The plan of improvement includes the following facilities: (1) Ice Harbor Lock and Dam: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental Lock and Dam: hold/load and collection bypass facility, screens, passive integrated transponder tag (PIT-Tag) facility, barge load facility modifications, barges, gate raise modifications, gantry crane, fish ladder temperature control, and surface bypass; (3) Little Goose Lock and Dam: screens, gantry crane modification, collection bypass

facility, outfall pipe, fish ladder temperature control, fallout fences, gate raise, deck screen modifications, PIT-Tag facility, and surface bypass; (4) Lower Granite Lock and Dam: juvenile fish facility, gantry crane, gate raise, outfall pipe, fish barges, screens, additional moorage facility, fish slot closures, juvenile fish facility improvements, barge exit modifications, deck screen modifications, fish ladder temperature control, surface bypass, PIT-Tag facility, and fallout fences; and (5) McNary Lock and Dam: gantry crane, screens, hold/load facility, gate raise modifications, tilted weirs fish ladder, maintenance facility, fish ladder exits, hold/load facility, adult/juvenile collection channel stoplogs, juvenile fish facility, surface bypass, and gantry crane modifications.

In response to the 1995 Biological Opinion issued by the National Marine Fisheries Service, the District conducted a feasibility study (Lower Snake River Juvenile Salmon Migration Feasibility Study) to evaluate salmon migration problems on the lower Snake River. The objective of the study is to improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focuses on how these dams can be changed to improve survival and recovery prospects for Snake River salmon stocks under the Endangered Species Act. The total completed cost of the study was $31.1 million.

The District is currently managing a surface bypass and collection technology development effort that focuses on improving juvenile fish passage for endangered and threatened salmon migration past all Corps hydroelectric projects on the Columbia and lower Snake Rivers. It is an aggressive, nontraditional approach to prototype development that involves fast-track design, construction, testing, and evaluation.

The fully-funded Federal project cost is estimated at $682,700,000 for District projects.

Local cooperation. None required.

Operations during FY. The following improvements and studies were accomplished during FY 03:

- Continued construction on the Ice Harbor Lock and Dam fish ladder emergency auxiliary water supply contract. The purpose is to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

- Continued construction on the Lower Granite Lock and Dam fish ladder emergency auxiliary water supply contract. The purpose is to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

- Completed second year prototype test of Removable Spillway Weir (RSW) at Lower Granite Lock and Dam. The purpose of the tests is to determine the overall efficiency of the RSW.

- Completed third year of the Juvenile Salmon Spillway Survival Study at Ice Harbor Lock and Dam. Survival studies are being conducted for indication of levels of survival. Spill levels, patterns, and spill duration to provide the best conditions for smolts must be balanced with the negative impacts of high spill on adult salmon passage, fallback, and water quality.

- Initiated design of RSW at Ice Harbor Lock and Dam. The RSW, in combination with basin and deflector modifications may help improve spillway passage conditions and efficiencies.

- Continued modifications to the adult PIT-Tag detection facilities at Ice Harbor Lock and Dam and Lower Granite Lock and Dam.

- Initiated design of spillway gate rehabilitation at McNary Lock and Dam. The gates need repair due to years of use.

- Continued monitoring of forebay temperature at McNary Lock and Dam. During the summer months, water temperature in the McNary forebay, gatewells, and fish collection channel is sometimes deleterious to fish survival and health.

- Completed construction of flow deflectors at Lower Monumental Lock and Dam. The purpose of the deflectors is to allow for higher spill levels for passing juvenile salmonids while staying below the 120 percent total dissolved gas supersaturation waiver limit as recorded by existing tailrace fixed monitoring stations.

- Completed first year of Juvenile Salmon Spillway Survival Study at Lower Monumental Lock and Dam. Fish survival information is extremely limited. Survival of fish that pass via spillway, turbines, and bypass system is largely unknown. It is imperative to collect data, estimate survival, and make improvements necessary to improve fish survival.

Several mitigation studies continued throughout FY 03, including the Turbine Survival Study, the Cylindrical Dewatering Evaluation, and the Fish Ladder Transition Pool Evaluation. Many multi-year research studies were also conducted, including Multiple Bypass Evaluation, Delayed Mortality Evaluation, Temperature Impacts on Adults, and Estuary PIT-Tag Recovery.

The FY costs were $21,339,347. Total project costs are $459,400,000. (See table 30-A, Cost and Financial Statement.)

8. DWORSHAK DAM AND RESERVOIR, ID

Location. The dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, near Orofino, ID, and about 35 miles east of Lewiston, ID.

Existing project. The project includes a dam, powerplant, public parks, and appurtenant facilities. The project provides for flood control, navigation, hydroelectric power generation, recreation, and area redevelopment. The reservoir has a normal operating range between the elevations of 1,600 and 1,445 mean sea level (msl). The reservoir has a gross storage capacity of 3,468,000 acre-feet (2 million acre-feet of which are effective for both local and regional flood control and for at-site and downstream power generation). In addition, the reservoir, which extends 59 miles into rugged and relatively inaccessible timberland, provided cost-effective transportation for moving marketable logs. The reservoir provides habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and about 717 feet above the streambed. Fish passage is not feasible due to the height of the dam. A hatchery has been built below the dam to assure continuance of anadromous fish runs. The powerhouse has two 90,000-kilowatt (kW) and one 220,000-kW generating units in operation for a capacity of 400,000 kW. Provisions had been made for three additional 220,000-kW generating units for an ultimate installed capacity of 1,060,000 kW.

A reconnaissance report justifying the feasibility and cost benefits for the addition of a fourth 200,000-kW generating unit was completed in FY 78. However, environmental and economic studies on additional generating units have been curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were deauthorized in FY 90, and Unit 4 was deauthorized in FY 95. Principal project data are set forth in table 30-C.

Construction of the project began in July 1966. It was placed in operation in 1972 and completed in 1986. Since the project became operational in June 1972, it has prevented about $2,836,000 (adjusted to October 2003 price index) in potential flood damages. Power generation through September 2003 was 51.45 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boats launches, and 2 swim areas. Total visitation to Dworshak Reservoir for the FY was 126,983.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat browse continued on project lands to provide winter browse for elk and deer. A paving contract was completed at recreation areas. During the FY, 1.69 billion kW hours of electrical power were generated by the three generating units. The FY costs were $10,239,516. (See table 30-A, Cost and Financial Statement.)

9. ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA

Location. This dam is located on the Snake River, 9.7 miles above the river mouth at the head of Lake Wallula (McNary Reservoir) and 12 miles east of Pasco, WA.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, recreation areas, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 440 and 435 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental Lock and Dam. The dam structure is approximately 2,822 feet long and approximately 130 feet above the streambed. The fish passage facilities include two fish ladders.

The powerhouse has three 90,000-kW units and three 111,000-kW generating units in operation for a capacity of 603,000 kW.

The spillway dam is 590 feet long, and the overflow crest at elevation 391 msl is surmounted by 10 tainter gates, 50 feet wide and 52.9 feet high, that provide the capacity to pass a design flood of 850,000 cubic feet per second (cfs). The deck is at elevation 453 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 675 feet and a 16-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 41.6 miles long is provided from the mouth of the Snake River to the dam and from the dam to Lower Monumental Lock and Dam. Principal data are set forth in table 30-C.

Construction of the original project began in December 1955. It was placed in operation in 1961 and completed in 1971. Construction of the additional generating units was started in 1971 and completed in 1981. Power generation through September 2003 was 87.91 billion kW hours.

Recreation areas on Lake Sacajawea include 11 picnic/day-use sites, 4 camping areas, 7 areas with boat launching, and 4 swimming areas. Total visitation on Lake Sacajawea for the FY was 346,814.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.67 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 3,218,700 tons during calendar year 2003. The FY costs were $11,268,235. (See table 30-A, Cost and Financial Statement.)

10. LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA

Location. The dam is 70.3 miles above the mouth of the Snake River and at the head of Lake Herbert G. West (Lower Monumental Reservoir), about 40 miles northerly of Walla Walla, WA, and 50 miles westerly of Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 638 and 633 msl. Lake Bryan extends upstream about 37.2 miles and provides slack water to Lower Granite Lock and Dam. The dam structure is 2,655 feet long and approximately 165 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores and a fish channel through the spillway, which connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 581 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 668 feet and a 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 37.2 miles long is provided from the dam to Lower Granite Lock and Dam. Relocations along the lake included 32 miles of Camas Prairie Railroad, 6.8 miles of county roads, 2.2 miles of state highways, and the Central Ferry Bridge. Principal project data are set forth in table 30-C.

Construction of the original project began in 1963. It was placed in operation in 1970 and completed in 1976. Construction of additional generating units started in 1974 and was completed in 1984. Power generation through September 2003 was 82.23 billion kW hours.

Lake Bryan provides seven day-use sites, five campgrounds, five boat launching areas, and two swimming areas. Total FY visitation was 178,660 for Lake Bryan.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.16 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,587,800 tons during calendar year 2003. The FY costs were $8,260,804. (See table 30-A, Cost and Financial Statement.)

11. LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA

Location. This dam is at river mile 107.5 on the Snake River at the head of Lake Bryan (Little Goose Reservoir) and about 33 miles downstream from Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and includes approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738 and 733 msl in Lewiston, ID, and Clarkston, WA. Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, which provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is single-lift type with clear plan dimensions of 86 by 674 feet and 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 39.3 miles long is provided from the dam to the confluence of the Snake and Clearwater Rivers. Principal data are set forth in table 30-C.

Construction of the original project started in July 1965. It was placed in operation in 1975 and completed in 1984. Construction of additional generating units was started in 1974 and completed in 1979. Power generation through September 2003 was 73.48 billion kW hours. Approximately $19,848,000 (adjusted to October 2003 price index) in potential flood damages has been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/ picnic sites, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. Total recreation visitation to Lower Granite Lake for the FY was 1,137,162.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.15 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 1,544,500 tons during calendar year 2003. The FY costs were $12,148,272. (See table 30-A, Cost and Financial Statement.)

Juvenile Fish Transportation Program. As the first collector dam on the Snake River, Lower Granite is a primary component of the Juvenile Fish Transportation Program. Transport began in the late 1960's as a research program on how to bypass juvenile salmon and steelhead around the Corps' dams and reservoirs of the Snake and Columbia Rivers. Transport became an operational program in 1981 with collection and transport from Lower Granite, Little Goose, and McNary Locks and Dams. Transport was expanded in 1993 to include Lower Monumental Lock and Dam. Development and improvement of collection and bypass systems continues with a new collection system completed at McNary Lock and Dam in 1994; a new bypass system completed at Ice Harbor Lock and Dam in 1996; and extended-length submersible bar screens installed at Lower Granite, Little Goose, and McNary Locks and Dams in 1996 and 1997.

The 2003 juvenile fish transport season was marked by slightly below average river flows, similar to 2002 river conditions. Normal river operations continued in 2003 with projects spilling for juvenile fish per the National Marine Fisheries Service biological opinion. In addition, a new RSW was tested at Lower Granite Lock and Dam. Operation of the test RSW in 2003 resulted in increased project passage via the spillway.

Juvenile fish collection at Lower Granite Lock and Dam was 6,184,228 compared with 4,001,025 in 2002 and 8,341,701 in 2001. A total of 101,343 fish were bypassed back to the river in 2003 and 5,959,371 transported. At Little Goose Lock and Dam, a total of 4,492,886 juvenile salmon and steelhead were collected in 2003, compared to 3,890,617 collected in 2002. A total of 28 fish were bypassed back to the river in 2003, compared to no fish in 2002. A total of 4,478,603 juvenile fish were transported from Little Goose Lock and Dam in 2003. At Lower Monumental Lock and Dam, 2,016,757 juvenile salmon and steelhead were

collected, compared to 4,376,912 in 2002. A total of 117,625 fish were bypassed from Lower Monumental Lock and Dam in 2003, compared to 25,756 in 2003. Voluntary spill for juvenile fish passage resumed at Lower Monumental Lock and Dam during 2003 after repair of erosion areas in the spillway stilling basin.

At McNary Lock and Dam, normal operations are to bypass fish in the spring until approximately mid-June when collection and transport of summer migrants begins. Some marked fish were transported during the spring of 2003 for research purposes. A total of 8,843,494 juvenile salmon and steelhead were collected in 2003, compared to 9,106,355 in 2002. Approximately 4,070,737 of the fish collected were bypassed back to the river to meet fishery agency requirements. A total of 4,698,443 juvenile fish were transported from McNary Lock and Dam in 2003.

A grand total of 21,537,365 juvenile salmon and steelhead were collected at all projects in 2003, compared to 21,374,909 in 2002. A total of 17,126,811 fish were transported in 2003, 80 percent of those collected. Of the fish transported, 16,863,095 were transported by barge (98.5 percent) and 263,716 were trucked (1.5 percent).

12. LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA

Location. This dam is on the Snake River at the head of Lake Sacajawea (Ice Harbor Reservoir), about 45 miles northeast of Pasco, WA, and 41.6 miles above the river mouth.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 540 and 537 msl. Lake Herbert G. West extends upstream approximately 28.7 miles and provides slack water to Little Goose Lock and Dam. The dam structure is approximately 3,791 feet long and approximately 135 feet above the streambed. The fish passage facilities include two fish ladders, one at each end of the dam. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 572 feet long, and the overflow crest at elevation 483 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide capacity to pass a design flood of 850,000 cfs. The deck is at elevation 553 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 666 feet and a 15-foot minimum depth of the sills. A navigation channel 250 feet wide, 14 feet deep, and 28.1 miles long is provided from the dam to Little Goose Lock and Dam. Relocations along the lake included railroads and highways. Principal data are set forth in table 30-C.

Construction of the original project started in June 1961. It was placed in operation in 1969 and completed in 1976. Construction of the additional generating units started in 1975 and was completed in 1981. Power generation through September 2003 was 97.02 billion kW hours.

Lake West offers seven day-use areas, five areas offering camping, five boat launch areas, and one designated swimming beach. Total visitation on Lake West for the FY was 127,202.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.12 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,870,800 tons during calendar year 2003. The FY costs were $11,557,794. (See table 30-A, Cost and Financial Statement.)

13. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID

Location. This project is at various locations within the Columbia and Snake River drainages in the states of Idaho, Oregon, and Washington.

Existing project. The project consists of a series of fish hatcheries, wildlife development areas, and purchase of off-site project lands for fishing and hunting access. The project will compensate for loss of wildlife habitat and anadromous and resident fishery inundated as a result of construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams).

The real estate design memorandum and feature design memorandums on all hatcheries and satellites, the off-project wildlife lands, and the site selection

report have all been approved. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion, Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions have been completed except for Big Canyon, Pittsburg Landing, and Captain John Rapids Acclimation Facilities. Transfer of Big Canyon and Pittsburg Landing is scheduled to be complete by the end of FY 04 and Captain John Rapids by the end of FY 05. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100-percent complete. Habitat development continues at many of these sites. A plan for woody riparian habitat development is being initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in the creation of new riparian habitat areas. The compensation project is scheduled for completion in FY 10.

Estimated Federal cost for the project is $261,000,000. (See table 30-A, Cost and Financial Statement.)

Local Cooperation. None required.

14. McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA

Location. This dam is on the Columbia River, 292 miles above the mouth, near Umatilla, OR, and 3 miles above the mouth of the Umatilla River.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, appurtenant facilities, and a system of levees and pumping plants. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 340 and 335 msl. Lake Wallula extends upstream approximately 64 miles and provides slack water to Ice Harbor Lock and Dam. The dam structure is 7,365 feet long and approximately 183 feet above the streambed. Fish passage facilities include two fish ladders. The powerhouse has fourteen 70,000-kW generating units in operation for a capacity of 980,000 kW. The spillway dam is 1,310 feet long, and the overflow crest is at elevation 291 msl and is surmounted by 22 vertical lift gates, 50 feet wide and 51 feet high, which provide the capacity to pass a design flood of 2.2 million cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 683 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 32 miles long) is provided from the dam to the mouth of the Snake River. Relocations along the lake included railroad bridges over the Columbia and Snake Rivers in order to eliminate hazards to navigation. Principal project data are set forth in table 30-C.

Construction began in May 1947. It was placed in operation in 1953 and was completed in 1982. Power generation through September 2003 was 307.90 billion kW hours.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 5.69 billion kW hours of electrical power were generated by the 14 generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 7,000,200 tons during calendar year 2003. The FY costs were $19,748,971. (See table 30-A, Cost and Financial Statement.)

Recreation areas on Lake Wallula include 19 sites offering day use or picnicking, 5 campgrounds, 14 boat launching ramps, and 9 swimming areas. The Pacific Salmon Visitor Information Center at McNary Lock and Dam, staffed by park rangers, provides a regional overview of Corps efforts in salmon recovery issues. Total visitation on Lake Wallula for the FY was 4,419,377.

15. SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

Location. This project is on the Snake River, downstream from Johnson Bar Landing, river mile 230. The Snake River, which is the largest tributary of the Columbia River, rises in Yellowstone National Park in western Wyoming, flows generally in a westerly direction for approximately 1,000 miles, and empties into the Columbia River, near Pasco, WA, 324 miles from the Pacific Ocean.

Existing project. The River and Harbor Act of 1945 authorized construction of dams, as necessary, for power, incidental irrigation, and open channel improvements for purposes of providing slack water navigation and irrigation between the mouth of the Snake River and Lewiston, ID. That authorization

modified previous authorizations only for the portion of improvement below Lewiston, ID. Acts of June 13, 1902, and August 30, 1935, as they pertain to open river improvement from Lewiston, ID, to Johnson Bar Landing, remain part of the existing project.

Improvements included in existing projects are Ice Harbor Lock and Dam, Lake Sacajawea; Little Goose Lock and Dam, Lake Bryan; Lower Granite Lock and Dam; Lower Monumental Lock and Dam, Lake Herbert G. West; and open-river improvement, Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual report, and cost and financial data for the entire project are shown on tables 30-A and D.

Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams are in full operation.

Local cooperation. None required.

Terminal facilities. On the Snake River from the mouth to Johnson Bar Landing, there are 18 privately-owned barge terminals in use for shipping grain, petroleum products, fertilizers, wood products, cement, and other general cargo. There are also 5 marinas and 28 small-boat launching ramps, all open to the public. The facilities serve slack water navigation to river mile 140, the site of Lewiston, ID. That slack water reaches the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite Lock and Dam was filled in February 1975.

Operations during FY. See individual reports for Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams. On the Snake River from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted and survey markers were maintained.

16. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended:

The FY costs were $246,729 with four continuing flood control activities: (1) Section 205 coordination ($42,000); (2) Coppei Creek, WA ($173,706); (3) Mill Creek, WA ($13,823); (4) Boise River Eckart Road to Warm Springs, ID ($17,200). There were no new flood control activities.

Emergency flood control activities-repair, flood fighting, and rescue work (PL 99, 84th Congress, and antecedent legislation):

There were no Federal costs this FY.

Emergency bank protection (Section 14, Flood Control Act of 1946, PL 526, 79th Congress):

The FY costs were $22,000 for Section 14 Coordination.

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress):

The FY costs were $6,000 for Section 208 Coordination.

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended):

The FY costs were $386,224 for continuation of eight environmental restoration projects and coordination funds including: (1) Coordination Account ($47,300); (2) Walla Walla River, OR ($18,937); (3) Grande Ronde River, OR ($5,850); (4) Milton-Freewater, OR ($25,000); (5) City of Richland Ecosystem Restoration ($84,893); (6) Portneuf River at Pocatello, ID ($4,300); (7) Boise River at Eagle Island ($133,444); and (8) Bennington Lake Diversion Dam, WA ($66,500). Two new projects: (1) Mill Creek Channel, WA ($9,900) and (2) Two Rivers, Benton County, WA ($29,898).

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended):

The FY costs were $735,158 for continuation of six aquatic ecosystem restoration projects and coordination account, including: (1) Coordination Account ($36,000); (2) Ladd Marsh, OR ($61,600); (3) Salmon River, ID ($267,850); and (4) Portneuf River, Lava Hot Springs, ID ($179); (5) Paradise Creek, Moscow, ID ($220,900); and (6) Indian Creek Ecosystem Restoration, ID ($148,629). Six new projects include (1) Twin Falls, ID ($104,772); (2) City of Pullman, WA ($9,600); (3) Fox Creek, Huntsman Reach, ID ($66,490); (4) Walla Walla River Ecosystem Restoration ($29,800); (5) Camp

Creek, OR ($24,200); and (6) Wawawai Creek, WA ($6,100).

General Investigations

17. SURVEYS

Boise River. Lack of sponsor.

Little Wood River. Lack of sponsor.

The total FY 03 costs for surveys were $81,404, including special studies [Walla Walla River Watershed ($605,746)]; Miscellaneous Activities [Special Investigations, FERC Licensing Activities, North American Waterfowl Management Plan, and Interagency Water Resource Development ($91,000)]; Coordination with other Federal Agencies ($10,000); and Planning Assistance to States ($107,200).

18. COLLECTION AND STUDY OF BASIC DATA

During the FY, flood hazard data for a number of locations in the District were collected and analyzed. Flood information was provided to several Federal agencies; to the states of Idaho, Oregon, and Washington; to various cities and counties in those states; and to some private organizations.

Total cost of collection and study of basic data during the FY was $99,473, which included: Flood Plain Management Services ($20,450); Technical Services ($21,882); Quick Responses ($4,151); and Special Studies ($52,990).

19. PRECONSTRUCTION, ENGINEERING, AND DESIGN

Upper Snake River, Jackson Hole, WY. This feasibility study was authorized under the Water Resources Development Act of 2000. The project recommended the Progressive National Ecosystem Restoration plan at a cost of $66,500,000 to construct 12 sites located along a 22-mile stretch of the upper Snake River, which includes continuing construction, monitoring, and adaptive management. The pre-construction, engineering, and design phase will produce construction plans and specifications at Site 9 to enhance and restore fish and wildlife habitat. The Site 9 project design will apply project restoration features, including eco-fences, channel capacity excavation, spur dikes, rock grade control, and bed stabilization ($4,203).

TABLE 30-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00 ($)	FY 01 ($)	FY 02 ($)	FY 03 ($)	Total Cost to Sep 30, 2003 ($)
3.	Jackson Hole, WY	New Work					
		Approp.	-	-	-	33,000	2,558,070
		Cost	-	-	-	33,000	2,558,070
		Maint.					
		Approp.	1,140,507	1,871,951	968,488	700,000	11,204,125
		Cost	1,133,473	1,783,387	1,064,412	655,267	11,884,633
	(Contributed funds)	Maint.					
		Contrib.	-	-	-	-	378,798
		Cost	-	-	-	-	378,798
4.	Lucky Peak Lake, ID	New Work					
		Approp.	-	-	-	-	19,652,081
		Cost	-	-	-	-	19,652,081
		Maint.					
		Approp.	1,419,675	1,451,180	1,619,997	1,540,826	29,503,352
		Cost	1,099,314	1,768,708	1,592,648	1,571,213	29,493,407
5.	Mill Creek, WA	New Work					
		Approp.	-	-	-	-	2,258,495
		Cost	-	-	-	-	2,258,495
		Maint.					
		Approp.	836,064	1,377,275	2,036,402	1,093,000	22,469,458
		Cost	866,919	1,435,619	2,041,853	1,078,734	22,455,155
		Rehab					
		Approp.	-	-	-	-	17,714,102
		Cost	-	-	-	-	17,714,102
7.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work					
		Approp.	25,696,999	41,040,000	29,210,362	21,094,457	459,413,819
		Cost	30,656,582	41,882,547	30,947,014	21,339,347	459,400,361
8.	Dworshak Dam and Reservoir, ID	New Work					
		Approp.	-	-	-	-	327,482,196
		Cost	-	-	-	-	327,482,196
		Maint.					
		Approp.	9,524,659	9,769,017	11,122,654	10,553,006	191,599,359
		Cost	9,535,939	9,781,613	11,080,909	10,239,516	191,135,762
9.	Ice Harbor Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	210,249,757
		Cost	-	-	-	-	210,249,757
		Maint.					
		Approp.	9,077,285	10,201,830	10,515,723	11,808,101	194,012,851
		Cost	9,123,794	10,017,804	10,585,642	11,268,235	193,303,571
10.	Little Goose Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	262,632,022
		Cost	-	-	-	-	262,632,022
		Maint.					
		Approp.	6,307,453	6,737,274	8,425,824	8,450,437	135,238,099
		Cost	6,476,682	6,724,597	8,254,150	8,260,804	134,811,561

TABLE 30-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00 ($)	FY 01 ($)	FY 02 ($)	FY 03 ($)	Total Cost to Sep 30, 2003 ($)
11.	Lower Granite Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	400,080,315
		Cost	-	-	-	-	400,080,315
		Maint.					
		Approp.	9,416,297	9,740,100	14,099,858	12,888,666	193,715,927
		Cost	9,121,087	9,993,910	14,108,361	12,148,272	192,827,663
12.	Lower Monumental Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	238,612,732
		Cost	-	-	-	-	238,612,732
		Maint.					
		Approp.	7,831,705	15,627,677	4,162,583	11,432,459	146,340,623
		Cost	7,775,230	8,470,468	10,722,283	11,557,794	145,640,906
13.	Lower Snake River Fish and Wildlife Compensation Plan WA, OR, and ID	New Work					
		Approp.	1,230,032	888,000	1,570,638	1,250,543	233,483,181
		Cost	1,061,330	1,054,271	1,572,257	1,267,395	233,482,652
	(Contributed funds)	New Work					
		Contrib.	-	-	-	-	223,965
		Cost	-	-	-	-	223,965
14.	McNary Lock and Dam, Lake Wallula, OR and WA	New Work					
		Approp.	-	-	-	-	375,214,469
		Cost	-	-	-	-	375,214,469
		Maint.					
		Approp.	15,675,724	15,111,061	17,805,600	22,344,583	341,386,753
		Cost	16,002,925	14,980,047	17,668,731	19,748,971	338,086,364
	(Contributed funds)	Maint.					
		Contrib.	-	-	-	-	43,707
		Cost	-	-	-	-	43,707

TABLE 30-B AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
4.		**LUCKY PEAK LAKE, ID**	
	Jul 24, 1946	Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976	Second outlet for streamflow maintenance. Deauthorized in 1990.	PL 94-587
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
5.		**MILL CREEK, WALLA WALLA, WA**	
	Jul 28, 1938 as amended	Off-stream storage project upstream from Walla Walla.	H. Doc. 578, 75th Cong., 3rd Session
	Aug 18, 1941	Channel improvement through Walla Walla; concrete-lined channel.	H. Doc. 719, 76th Cong. Sec 377, PL 77-228, Cong. 3rd Session
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec. 118 PL 102-580 102nd Cong.
7.		**COLUMBIA RIVER FISH MITIGATION PROGRAM**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
8.		**DWORSHAK DAM AND RESERVOIR, ID**	
	Jul 3, 1958	Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
	Aug 15, 1963	Redesignation of project as Dworshak Dam and Reservoir.	PL 88-96
	Oct 23, 1962	Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were deauthorized in FY 1990. Unit 4 was deauthorized in FY 95.	PL 87-874
9.		**ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA**	
	Mar 2, 1945	Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
10.		**LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA**	
	Mar 2, 1945	Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
11.		**LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA**	
	Mar 2, 1945	Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
12.		**LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA**	
	Mar 2, 1945	Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285

TABLE 30-B (Continued) AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
13.		**LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID**	
	Oct 22, 1976 as amended	Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
14.		**McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA**	
	Mar 2, 1945	Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse. McNary Lock and Dam Second Powerhouse automatically deauthorized on Nov 16, 1991.	H.R. 6, PL 99-662 Sec. 1001, PL 99-362
15.		**SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID**	
	Jun 13, 1902	Open-river navigation Riparia to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparia.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation, mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session

TABLE 30-C PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Dworshak Dam and Reservoir, ID (see Section 8 of text)	**SPILLWAY DAM**	
	Type of Construction	Concrete Gravity
	Completed	September 1974
	Maximum Capacity	150,500 cfs[1]
	Crest Elevation	1,545 ft[2]
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 56.4 ft
	Number	2
	POWERPLANT	
	Length	428 ft
	Generating Units:	
	Number Installed	3
	Rating, Each	2 @ 90,000 kW[3] 1 @ 220,000 kW
	Total Capacity Installed	400,000 kW
	Space for Additional	3
	Rating, Each	3 @ 220,000 kW
	Total Potential Capacity	1,060,000 kW
	Maximum Structural Height	717 ft
	First Power-On-Line	March 1973
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	1,600 to 1,445 ft
	Maximum	1,605 ft
	Flood Control Storage	2,000,000 ac-ft[4]
	Lake Length	53.6 mi[5]
	Lake Water Surface Area at Elevation 1,600	17,090 ac[6]
	Length of Shoreline	175 mi
Ice Harbor Lock and Dam, WA (see Section 9 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	675 ft
	Lift:	
	Minimum	97 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	16 ft
	Open to Navigation	May 1962
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1962
	Maximum Capacity	850,000 cfs
	Crest Elevation	391 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 52.9 ft
	Number	10

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	POWERPLANT	
	Length	671 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	3 @ 90,000 kW
		3 @ 111,000 kW
	Total Capacity Installed	603,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	December 1961
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	440 to 437 ft
	Maximum	446 ft
	Lake Length	31.9 mi
	Lake Water Surface Area at Elevation 440	8,375 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	80 mi
Little Goose Lock and Dam, WA (see Section 10 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	668 ft
	Lift:	
	Minimum	93 ft
	Average	98 ft
	Maximum	101 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1970
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1970
	Maximum Capacity	850,000 cfs
	Crest Elevation	581 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	March 1970

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	638 to 633 ft
	Maximum	646.5 ft
	Lake Length	37.2 mi
	Lake Water Surface Area at Elevation 738	10,025 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	92 mi
Lower Granite Lock and Dam, WA (see Section 11 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	674 ft
	Lift:	
	Minimum	95 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1975
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	February 1975
	Maximum Capacity	850,000 cfs
	Crest Elevation	681 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	228 ft
	First Power-On-Line	April 1975
	IMPOUNDMENT	
	Elevations:	
	Normal Operation Range	738 to 733 ft
	Maximum	746.5 ft
	Lake Length	39.3 mi
	Lake Water Surface Area at Elevation 738	8,900 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	91 mi

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Lower Monumental Lock and Dam, WA (see Section 12 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	666 ft
	Lift:	
	Minimum	97 ft
	Average	98 ft
	Maximum	103 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	April 1969
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1969
	Maximum Capacity	850,000 cfs
	Crest Elevation	483 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	242 ft
	First Power-On-Line	May 1969
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	540 to 537 ft
	Maximum	548 ft
	Lake Length	28.7 mi
	Lake Water Surface Area at Elevation 540	6,590 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	78 mi
McNary Lock and Dam, OR and WA (see Section 14 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	683 ft
	Lift:	
	Minimum	67 ft
	Average	75 ft
	Maximum	83 ft
	Minimum Water Depth Over Sills	15 ft
	Open to Navigation	November 1953

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	October 1953
	Maximum Capacity	2,200,000 cfs
	Crest Elevation	291 ft
	Control Gates:	
	Type	Vertical Lift
	Size, Width by Height	50 by 51 ft
	Number	22
	POWERPLANT	
	Length	1,348 ft
	Generating Units:	
	Number Installed	14
	Rating, Each	70,000 kW
	Total Capacity Installed	980,000 kW
	Maximum Structural Height	220 ft
	First Power-On-Line	November 1953
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	340 to 335 ft
	Maximum	356.5 ft
	Lake Length	64 mi
	Lake Water Surface Area at Elevation 340	38,800 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	242 mi

[1] cubic feet per second
[2] feet
[3] kilowatt
[4] acre-feet
[5] miles
[6] acres

SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

TABLE 30-D **(SEE SECTION 15 OF TEXT)**

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2003 Approp.	New Work to September 30, 2003 Cost	Maintenance to September 30, 2003 Approp.	Maintenance to September 30, 2003 Cost	Percent Completed	Constr. Started
Ice Harbor Lock and Dam							
Initial Project	$365,891,051	$172,587,480	$172,587,480	$194,012,851	$193,303,571	100	FY 56
Code 710 Rec Facilities	914,256	914,256	914,256	0	0	100	FY 57
Power Units 4-6	36,748,021	36,748,021	36,748,021	0	0	100	FY 71
Fish Bypass Program	88,085,000	53,912,000	53,912,000	0	0	61	FY 91
Totals	491,638,328	264,161,757	264,161,757	194,012,851	193,303,571	93	
Little Goose Lock and Dam							
Initial Project	336,501,776	201,690,215	201,690,215	135,238,099	134,811,561	100	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	85,508,000	43,287,000	43,287,000	0	0	51	FY 89
Totals	482,951,583	305,919,022	305,919,022	135,238,099	134,811,561	91	
Lower Granite Lock and Dam							
Initial Project	546,631,554	353,803,981	353,803,981	193,715,927	192,827,663	100	FY 65
Code 710 Rec Facilities	63,800	63,800	63,800	0	0	100	FY 84
Power Units 4-6	46,212,534	46,212,534	46,212,534	0	0	100	FY 74
Fish Bypass Program	58,620,000	35,620,000	35,620,000	0	0	61	FY 88
Totals	651,527,888	435,700,315	435,700,315	193,715,927	192,827,663	96	
Lower Monumental Lock and Dam							
Initial Project	332,592,267	186,951,361	186,951,361	146,340,623	145,640,906	100	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	90,134,000	37,063,000	37,063,000	0	0	41	FY 90
Totals	474,387,638	275,675,732	275,675,732	146,340,623	145,640,906	89	
Open River Lewiston to Johnson Bar Landing	34,613	34,613	34,613	401,583	401,583		
Open River Pasco to Lewiston	0	0	0	4,350	4,350		
Totals Existing Project	2,100,540,050	1,281,491,439	1,281,491,439	669,713,433	666,989,634	93	
Previous Projects Pasco to Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	$2,100,940,200	$1,281,891,589	$1,281,891,589	$669,900,003	$667,176,204		

HONOLULU ENGINEER DISTRICT

The civil works responsibilities of the Honolulu District encompass the State of Hawaii, the Territory of Guam, the Territory of American Samoa, and the Commonwealth of the Northern Mariana Islands. The district is unique in that its area of responsibility is totally comprised of islands dispersed over an ocean environment exceeding 6 million square miles.

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Navigation

1. KIKIAOLA SMALL BOAT HARBOR, KAUAI, HAWAII

Location. Kikiaola Harbor is located on the southwest coast of the island of Kauai, approximately 1 mile southeast of Kekaha and approximately 2 miles west of Waimea (See NOAA Chart 19386)

Existing project. The authorized project consists of removing a 150-foot long portion from an existing outer east stub breakwater; removing and reconstructing a 85-foot long inner east stub breakwater; modifying 220-foot long portion of the existing west breakwater; modifying 820-foot long portion of the existing east breakwater; dredging a new 700-foot long entrance channel to a depth of 11-feet and varying in width from 105 to 205-feet; and dredging a 320-foot long access channel to a 7-foot depth and varying in width from 70 to 105-feet.

Local cooperation. The local sponsor has reviewed and approved the Project Cooperation Agreement (PCA). Legal certification of the PCA is being prepared by District counsel.

Terminal facilities. There is an existing 1,280–foot long east breakwater with two short stub breakwaters; a 600-foot long west breakwater; a 150-foot long by 10-foot wide wooden wharf; a 50-foot long loading dock and adjacent launch ramp, all constructed by the State of Hawaii.

Operations during fiscal year. Work during the Fiscal Year included completion of plans and specifications and environmental coordination. Breakwater modifications were redesigned to reduce costs and improve constructability. A Limited Reevaluation Report was completed to update the economic analysis. Total costs incurred during the Fiscal Year were $97,924.

2. MAALAEA HARBOR, MAUI, HAWAII

Location. Maalaea Bay is situated on the southwest coast of Maui, approximately 7 miles south of Wailuku, the county seat of Maui. (See NOAA Chart 19350)

Existing project. For a description of the existing project, see page 36–3 of the Fiscal Year 1989 Annual Report. (See Table 36–B for Authorizing Legislation)

Local cooperation. The Project Cooperation Agreement (PCA) is delayed due to concerns raised as a result of the Supplemental Environmental Impact Statement review.

Terminal facilities. There is an existing 1,000–foot long south breakwater, a 870–foot long east breakwater, 300–foot long wharf, 90–foot wide entrance channel, and a single lane launch ramp, all constructed by the State of Hawaii.

Operations during fiscal year. Work during the Fiscal Year included continuing coordination with the local sponsor and various agencies on resolving controversial environmental issues, continuing development of acceptable mitigation features for impacts to environmental resources and completing a physical model study of the alternatives to address environmental concerns. Total costs incurred during the Fiscal Year were $140,217.

3. KAUMALAPAU HARBOR, LANAI, HAWAII

Location. The project is located on the southwestern coast of the Island of Lanai. (See NOAA Chart 19351)

Existing project. The project would repair the existing breakwater built in 1925 that was previously owned by private interests. The existing breakwater will be repaired using 35-ton core loc concrete armor units. The length of the breakwater will be 320 feet long.

Local cooperation. The Project Cooperation Agreement (PCA) was executed in September 2003. The local sponsor, the State of Hawaii, shall:

(1) Contribute 10 percent of that portion of the total cost of construction of the general navigation features assigned to dredging to a depth not in excess of 20 feet plus associated over-depth and entrance channel wave allowances; plus 25 percent of that portion of the total cost of construction of general navigation features assigned to dredging to a depth in excess of 20 feet but not in excess of 45 feet plus associated over-depth and entrance channel wave allowances;

(2) Provide all lands easements and rights of way or to perform relocations that the Government determines to be necessary for the construction, operation, and maintenance of general navigation features including the borrowing of material or the disposal of dredged or excavated materials;

(3) Contribute over a period not to exceed 30 years an amount equal to the 10 percent amount reduced by credit for lands, easements, rights of way, or relocations.

Terminal Facilities. A damaged rubblemound breakwater protects the harbor basin approximately 200 feet in length, with a crest elevation of about 10 feet.

Operations during fiscal year. Work during the Fiscal Year included completion of plans and specifications.

Total costs incurred during the Fiscal Year were $95,849.

4. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys were conducted by the Portland District at Barbers Point and Honolulu Harbors, island of Oahu; Nawiliwili Small Boat Harbor and Port Allen Harbor, island of Kauai; Kalaupapa Harbor and Kaunakakai Harbor, island of Molokai; Hilo Harbor, Honokohau Small Boat Harbor, Kawaihae Deep Draft Harbor, Kawaihae Small Boat Harbor, and Laupahoehoe Light Draft Navigation Facility, island of Hawaii; and Rota Harbor, Commonwealth of the Mariana Islands during Fiscal Year 2003. Total cost to conduct the survey was $109,100. See Table 31-H for navigation inspections performed during the Fiscal Year.

5. INSPECTION OF COMPLETED FLOOD CONTROL AND BEACH EROSION CONTROL PROJECTS

Inspection of completed local flood protection projects is performed periodically in compliance with Section 208.10, of Title 33, Code of Federal Regulations, which contains regulations for operation and maintenance of local flood-protection works approved by the Secretary of the Army in accordance with authority in Section 3, Flood Control Act of June 22, 1936.

Inspection costs for completed flood control and beach erosion control projects incurred during the Fiscal Year were $247,830. See Table 31-I for inspections performed during the Fiscal Year.

6. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86–645, as amended (Preauthorization).
See Table 31-J.

Beach Erosion Control

7. LAUNIUPOKO SHORELINE PROTECTION, MAUI, HAWAII

Location. The project is located on the western coast of the Island of Maui. The Island of Maui is located approximately 100 miles southeast of Honolulu, Hawaii. (See NOAA Chart 19348)

Existing project. The project construction consists of two reaches, totaling approximately 500 feet, of rubble mound revetments with a crest elevation of +12-feet (MLLW). The single layer revetment will be constructed of 1600-2500 pound armor stone, over a 2-foot thick underlayer of 50-150 pound stone.

Local cooperation. The Project Cooperation Agreement (PCA) was executed in January 2002. Requirements are described in full on Page 31-3 of the FY2002 Annual Report.

Operations during fiscal year. Work has been temporarily suspended. Total costs incurred during the Fiscal Year were $39,737.

8. BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

Emergency streambank and shoreline protection activities pursuant to Section 14, Public Law 79–526, as amended (Preauthorization). See Table 31–K.

Beach Erosion control activities pursuant to Section 103, Public Law 87-874, as amended (Preauthorization). See Table 31-L.

Shoreline Erosion control development and demonstration program pursuant to Section 227, Public Law 104-303, as amended. Fiscal Year costs were $20,000.

Flood Control

9. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, Public Law 80–858, as amended (Preauthorization).
See Table 31-M.

Project Modifications for Improvements of Environment pursuant to Section 1135, Public Law 99–662, as amended (Preauthorization).
See Table 31-N.

Aquatic Ecosystem Restoration pursuant to Section 206, Public Law 104-303. (Preauthorization)
Fiscal year costs were $143,789 for Saipan Lagoon, CNMI; $49,251 to conduct initial appraisal reports; and $10,214 for coordination with other agencies.

Emergency flood control activities pursuant to Public Law 84–99.
Federal cost during the fiscal year for Flood Control and Coastal Emergencies appropriation was $3,013,346 of which $321,661 was for disaster preparedness; and $760,852 for emergency operations; $25,000 for field investigations; $1,880,346 for rehabilitation, and $25,487 for continuing eligibility inspections.

General Investigations

10. SURVEYS

Fiscal year costs were $979,693 of which $211,791 was for navigation studies; $69,135 was for flood damage prevention studies; $375,314 for special studies; $295,453 for miscellaneous activities; and $28,000 for coordination with other agencies. In addition, $25,254 in non–Federal funds for coordination with other agencies; $266,305 for cost–shared navigation studies; and $216,314 for cost-shared special studies.

11. COLLECTION AND STUDY OF BASIC DATA

Flood plain management services. The Flood Plain Management Services Program is authorized and implemented under Section 206, PL 86–645, 1960 Flood Control Act, as amended. Through technical services and planning guidance, the program provides information on floods and flood related information to improve planning for the careful use of the nation's flood plains, thereby reducing the potential for losses to life and property from floods and wave actions. Non–Federal agencies are assisted with flood hazard evaluation and planning information for flood and coastal hazard areas without charge.

As of November 1991, Federal agencies and private entities were also offered these services on a cost recovery basis. This assistance is in the form of local flood plain regulations, National Flood Insurance Requirements, and Executive Order 11988 requirements for federal agencies. Such assistance may include flood information and timing, floodwater velocity, extent of flooding, duration of flooding, flood frequency and regulatory floodway limits.

Services accomplished during fiscal year. There were 598 site requests for technical services and planning assistance and publication responses. These services were requested and provided to Federal agencies, state and local government agencies, individuals, realtors, corporations, lending institutions, engineers, architects and other private parties. Costs for providing these services during the fiscal year were $218,207.
Hydrologic Studies. Storm studies cost was $40,001. Total costs for collection and study of basic data during the fiscal year were $258,208.

TABLE 31–A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
1.	Kikiaola Small	New Work:					
	Boat Harbor,	Approp.	94,000	70,000	81,000	95,000	1,560,000
	Kauai, HI	Cost	60,330	108,409	95,465	97,924	1,551,798
	(Federal Funds)						
2.	Maalaea Harbor	New Work:					
	Maui, HI	Approp.	445,000	272,000	223,000	284,000	4,489,700
	(Federal Funds)	Cost	602,203	202,060	229,799	140,217	4,279,701
3.	Kaumalapau Harbor	New Work:					
	Lanai, HI	Approp.	---	2,994,000	1,300,000	994,000	5,288,000
	(Federal Funds)	Cost	---	100,994	324,455	95,849	521,298
7.	Launiupoko	New Work:					
	Shoreline Protection	Approp.	10,000	36,000	292,000	-61,000	390,000
	Maui, HI	Cost	6,818	45,833	34,869	39,737	231,800
	(Federal Funds)						
	(Contributed	Contrib.	---	---	244,000	---	244,000
	Funds)	Cost	---	---	3,533	12,160	15,693

TABLE 31–B AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**KIKIAOLA SMALL BOAT HARBOR, KAUAI, HAWAII**	
	Aug. 3, 1968	A 700–foot long, 105 to 205–foot wide, and 11–foot deep entrance channel; a 320-foot long, 70 to 105–foot wide, and 7-foot deep access channel; modification of 220–foot portion of the existing west breakwater; and modification of 820-foot portion of the existing east breakwater; removal and reconstruction of a 85-foot long inner east breakwater; removal of a 150-foot long portion of the existing outer east stub breakwater.	Sec 101, PL 90–483 Cong., 2nd sess.
2.		**MAALAEA HARBOR, MAUI, HAWAII**	
	Aug. 3, 1968	A 620–foot long extension of the south breakwater, a new 610–foot length, 150 to 180–foot width, 12 to 15–foot depth entrance channel, a 1.7 acre and 12–foot depth turning basin and a 720–foot length, 80–foot width and an 8–foot deep access channel.	Sec 101, PL 90–483 Cong., 2nd sess.
3.		**KAUMALAPAU HARBOR, LANAI, HAWAII**	
	Oct. 27, 2000	Repair existing breakwater using 35-ton core loc concrete armor units. The length of the repaired breakwater will be 320 feet.	Sec 1(a), PL 106-377 Cong, 2nd sess.
7.		**LAUNIUPOKO SHORELINE PROTECTION, MAUI, HAWAII**	
	Jul. 24, 1946 As amended	Two reaches of rubble mound revetment totaling 500 feet in length; the single layer revetment constructed of 1,600 to 2,500 pound armor stone, over a 2-foot underlayer of 50 to 150 pound stone.	Sec 14, PL 79–526 Authorized by POD Dec. 27, 2001

TABLE 31–C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for:	Cost to September 2003	
			Construction	Operations and Maintenance
Agana Small Boat Harbor, Guam	Completed	1978	$ 937,798 [1]	$ 52,555
Agat Harbor, Guam	Completed	1989	2,000,000 [2]	---
Auasi Harbor, American Samoa	Completed	1982	1,033,015 [3]	141,797
Aunuu Harbor, American Samoa	Completed	1982	1,783,129 [4]	1,413,179
Barbers Point Harbor, Oahu, Hawaii	Completed	1990	53,519,193 [5]	2,247,953
Haleiwa Small Boat Harbor, Oahu, Hawaii	Completed	1978	527,047 [6]	498,402
Hilo Harbor, Hawaii, Hawaii	Completed	1991	5,512,440	4,106,308
Honokohau Small Boat Harbor, Hawaii, Hawaii	Completed	1971	781,036 [7]	63,693
Honolulu Harbor, Oahu, Hawaii	Completed	1985	16,044,095 [8]	4,803,957
Kahului Beach Road, Maui, Hawaii	Completed	1976	751,867 [9]	---
Kahului Harbor, Maui, Hawaii	Completed	1984	7,203,221 [10]	9,103,254
Kalaupapa Harbor, Molokai, Hawaii	Completed	1968	157,997 [9]	3,127
Kaulana Bay Boat Harbor, Hawaii, Hawaii	Inactive	1990	171,400	---
Kawaihae Harbor, Hawaii, Hawaii	Completed	1998	12,043,843 [11]	61,800
Keehi Lagoon, Oahu, Hawaii	Completed	1956	3,348,000 [12]	41,857
Kikiaola Small Boat Harbor, Kauai, Hawaii	Active	1981	193,000	---
Laupahoehoe Harbor, Hawaii, Hawaii	Completed	1990	3,623,450 [13]	---
Manele Bay Small Boat Harbor, Lanai, Hawaii	Completed	1986	372,000 [14]	555,926
Nawiliwili Harbor, Kauai, Hawaii	Completed	1987	2,127,724 [15]	11,047,279
Nawiliwili Small Boat Harbor, Kauai, Hawaii	Completed	1976	584,513 [16]	30,707
Ofu Small Boat Harbor, American Samoa	Completed	1976	980,018 [17]	5,054,930
Pohoiki Bay, Hawaii, Hawaii	Completed	1979	432,523 [9]	---
Port Allen Harbor, Kauai, Hawaii	Completed	1984	752,645 [18]	3,135,801
Rota Harbor, CNMI	Completed	1985	2,000,000 [19]	436,200
Saipan Small Boat Harbor, CNMI	Deferred	1982	194,000	---
Tau Small Boat Harbor, American Samoa	Completed	1985	1,991,569 [20]	546,600
Waianae Small Boat Harbor, Oahu, Hawaii	Completed	1979	1,940,011 [21]	122,400
Welles Harbor, Midway Island	Completed	1950	2,448,056 [22]	2,111

[1] Authorized by the Chief of Engineers. In addition, Contributed Funds of $282,474 for Construction.
[2] In addition, Contributed Funds of $1,239,364 for Construction.
[3] Authorized by the Chief of Engineers. In addition, Contributed Funds of $86,563 for Construction.
[4] Authorized by the Chief of Engineers. In addition, Contributed Funds of $231,437 for Construction.
[5] In addition, Contributed Funds of $2,402,909 for Construction.
[6] Authorized by the Chief of Engineers. In addition, Contributed Funds of $410,077 for Construction and $84,388 for Operation and Maintenance.
[7] In addition, Contributed Funds of $630,568 for Construction.
[8] In addition, Contributed Funds of $201,282 for Construction.
[9] Authorized by the Chief of Engineers.
[10] In addition, Contributed Funds of $30,200 for Construction.
[11] In addition, Contributed Funds of $647,569 for Construction.
[12] Abandonment authorized by R & H Act of 1965 (HD 98, 89th Congress, 1st Session).
[13] Authorized by the Chief of Engineers. In addition, Contributed Funds of $364,757 for Construction.
[14] In addition, Contributed Funds of $370,845 for Construction.
[15] In addition, Contributed Funds of $223,261 for Construction.
[16] Authorized by the Chief of Engineers and completed in November 1974. In addition, Contributed Funds of $405,471 for Construction.
[17] Authorized by the Chief of Engineers. In addition, Contributed Funds of $61,953 for Construction.
[18] In addition, Contributed Funds of $200,000 for Construction.
[19] Authorized by the Chief of Engineers. In addition, Contributed Funds of $774,373 for Construction.
[20] Authorized by the Chief of Engineers. In addition, Contributed Funds of $54,034 for Construction.
[21] In addition, Contributed Funds of $1,791,068 for Construction.
[22] Completed in 1941 and Maintenance transferred to Department of Navy.

TABLE 31–D OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for:	Cost to September 2003	
			Construction	Operations and Maintenance
Afono Area and Aoa Area, American Samoa	Completed	1978	$ 254,015 [1]	$ ---
Alii Drive, Hawaii, Hawaii	Completed	2000	103,000 [16]	---
Asquiroga Bay, Guam	Completed	1986	227,181 [2]	---
Haleiwa Beach, Oahu, Hawaii	Completed	1967	240,148 [3]	---
Kaaawa Beach, Oahu, Hawaii	Completed	1976	176,488 [4]	---
Kapaa Town, Kauai, Hawaii	Completed	1977	158,916 [5]	---
Kekaha Beach, Kauai, Hawaii	Completed	1981	999,996 [6]	---
Kihei Beach, Maui, Hawaii	Completed	1972	154,313 [7]	---
Kualoa Regional Park, Oahu, Hawaii	Terminated	1982	355,472 [8]	---
Lepua Area, American Samoa	Completed	1992	1,706,225 [9]	---
Masefau Bay, American Samoa	Completed	1992	500,000 [2]	---
Matafao Shoreline, American Samoa	Completed	1984	225,000 [2]	---
Ofu Airstrip, American Samoa	Completed	1987	189,500	---
Pago Pago Airport, American Samoa	Completed	1984	174,941 [2]	---
Pago Pago to Nuuuli, American Samoa	Deferred	1978	394,187 [10]	---
Poloa Area, American Samoa	Completed	1978	136,040 [11]	---
Saipan Beach Road, CNMI	Completed	1992	176,000 [2]	---
Sand Island, Oahu, Hawaii	Completed	1981	301,879 [12]	---
Sand Island Shore Protection, Oahu, Hawaii	Completed	1992	1,313,400 [13]	---
Vatia Area, American Samoa	Completed	1978	154,309 [14]	---
Waikiki Beach, Oahu, Hawaii	Deferred	1979	729,087 [15]	183,000

[1]Authorized by the Chief of Engineers. In addition, $209,549 in Contributed Funds.
[2]Authorized by the Chief of Engineers.
[3]In addition, $160,098 in Contributed Funds.
[4]Authorized by the Chief of Engineers. In addition, $97,075 in Contributed Funds.
[5]Authorized by the Chief of Engineers. In addition, $56,916 in Contributed Funds.
[6]Authorized by the Chief of Engineers. In addition, $1,672,524 in Contributed funds.
[7]Authorized by the Chief of Engineers. In addition, $1,672,524 in Contributed Funds.
[8]Authorized by the Chief of Engineers and terminated in April 1980 as a Circuit Court ruled sand mining to be illegal. In addition, $177,300 in Contributed Funds.
[9]Authorized by the Chief of Engineers. In addition, $485,371 in Contributed Funds.
[10]Authorized by the Chief of Engineers. In addition, $312,480 in Contributed Funds.
[11]Authorized by the Chief of Engineers. In addition, $101,547 in Contributed Funds.
[12]Authorized by the Chief of Engineers. In addition, $255,728 in Contributed Funds.
[13]Authorized for construction by Public Law 100Ð71. In addition, $1,226,486 in Contributed Funds.
[14]Authorized by the Chief of Engineers. In addition, $132,075 in Contributed Funds.
[15]In addition $82,000 in Advanced Funds and $17,640 in Contributed Funds.
[16]Authorized by the Chief of Engineers. In addition, $126,000 in Contributed Funds.

TABLE 31–E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for:	Cost to September 2003	
			Construction	Operations and Maintenance
Alenaio Stream, Hawaii, Hawaii	Completed	1997	10,226,000 [7]	---
Asan Village, Guam	Completed	1986	1,275,500	---
Hanapepe River, Kauai, Hawaii	Completed	1967	784,867 [1]	---
Iao Stream, Maui, Hawaii	Completed	1985	12,621,108	356,523
Kahawainui Stream, Oahu, Hawaii	Completed	1998	4,672,021 [2]	---
Kahoma Stream, Maui, Hawaii	Completed	1990	10,988,750 [3]	---
Kaneohe-Kailua Area, Oahu, Hawaii	Completed	1985	25,552,400 [4]	---
Kaunakakai Stream, Molokai, Hawaii	Completed	1950	73,478 [5]	---
Kawainui Marsh, Oahu, Hawaii	Completed	1987	3,714,000 [8]	---
Kawainui Swamp, Oahu, Hawaii	Completed	1967	1,265,567	---
Kuliouou Stream, Oahu, Hawaii	Completed	1971	1,000,000 [6]	---
Namo River, Guam	Completed	1982	2,416,314 [5]	---
Paauau Stream, Hawaii, Hawaii	Completed	1985	1,978,514	---
Wailoa Stream and Tributaries, Hawaii, Hawaii	Completed	1966	1,044,888	---

[1]In addition, $11,953 in Contributed Funds.
[2]Authorized by the Chief of Engineers. In addition, $679,205 in Contributed Funds.
[3]In addition, $645,992 in Contributed Funds.
[4]Includes Non-Federal reimbursement of recreation construction cost of $5,668,300. In addition, $8,175 in Contributed Funds.
[5]Authorized by the Chief of Engineers.
[6]Authorized by the Chief of Engineers. In addition, $540,335 in Contributed Funds.
[7]In addition, $4,483,300 in Contributed Funds.
[8]Authorized by the Chief of Engineers. In addition, $1,293,000 in Contributed Funds.

TABLE 31–F OTHER AUTHORIZED MULTIPLE PURPOSE PROJECTS, INCLUDING POWER

Project	Status	For Last Full Report See Annual Report for:	Cost to September 2003	
			Construction	Operations and Maintenance
Nanpil River Hydropower, Pohnpei, Federated States of Micronesia	Completed	1994	$ 8,000,000	$ ---

TABLE 31–G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for:	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Agana River, Guam	1989	April 2002 PL 99-662	$ 250,000	$ ---
Ala Wai Harbor, Oahu, Hawaii	1976	November 1986 PL 99-662	40,117	---
Coconut Point, Nu'uuli, Tutuiula Island, American Samoa	---	April 2002 PL99-662	50,000	---
Hana Small Boat Harbor, Maui, Hawaii	1967	November 1977 HD #94-413	---	---
Hanalei Small Boat Harbor, Kauai, Hawaii	1967	November 1981 HD #97-59	---	---
Hanapepe Bay, Kauai, Hawaii	1965	November 1986 PL 99-662	---	---
Heeia–Kea Small Boat Harbor, Oahu, Hawaii	1972	January 1990 PL 99-662	1,481	---
Hilo Deep Draft Harbor, Hawaii, Hawaii	---	April 2002 PL 99-662	89,000	---
Kailua Small Boat Harbor, Oahu, Hawaii	1967	January 1990 PL 99-662	---	---
Kaimu Black Sand Beach, Hawaii, Hawaii	1975	July 1981 Director of Civil Works	86,235	---
Kapaakea Homestead Flood Control, Molokai, Hawaii	1979	July 1981 Director of Civil Works	221,500	---
Kaunakakai Deep Draft Harbor, Molokai, Hawaii	1966	January 1990 PL 99-662	133,188	292,441
Kaunakakai Small Draft Harbor, Molokai, Hawaii	---	January 1990 PL 99-662	---	---
Kewalo Harbor, Oahu, Hawaii	1976	September 1975 Director of Civil Works	98,800	---
Lahaina Small Boat Harbor, Maui, Hawaii	1977	January 1990 PL 99-662	186,937	---
Maunalua Bay Small Boat Harbor, Oahu, Hawaii	1972	January 1990 PL 99-662	30,378	---

TABLE 31–G (Contd.) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for:	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Nawiliwili Deep Draft Harbor, Kauai, Hawaii	---	January 1990 PL 99-662	---	---
Rainmaker Hotel, American Samoa	---	November 1991 PL 99-662	---	---
Reeds Bay Small Boat Harbor, Hawaii, Hawaii	1967	January 1990 PL 99-662	---	---
Saipan Harbor, Northern Marianas	---	November 1991 PL 99-662	---	---
Talofofo Bay Shore Protection, Guam	---	August 1981 Director of Civil Works	80,764	---
Waimea Beach, Kauai, Hawaii	---	November 1986 PL 99-662	---	---
Wake Island Harbor, Wake Island	1950	November 1986 PL 99-662	---	---

TABLE 31–H INSPECTION OF COMPLETED NAVIGATION PROJECTS

Location	Dates of Inspection
Navigation Projects	
Agana Small Boat Harbor, Guam	June 2003
Agat Small Boat Harbor, Guam	June 2003
Auasi Small Boat Harbor, American Samoa	August 2003
Aunuu Small Boat Harbor, American Samoa	August 2003
Barbers Point Harbor, Oahu, Hawaii	September 2003
Haleiwa Small Boat Harbor, Oahu, Hawaii	September 2003
Hilo Harbor, Hawaii, Hawaii	May 2003
Honokohau Small Boat Harbor, Hawaii, Hawaii	May 2003
Kahului Deep Draft Harbor, Maui, Hawaii	July 2003
Kaulapapa Barge Harbor, Molokai, Hawaii	October 2002
Kawaihae Deep Draft Harbor, Hawaii, Hawaii	May 2003
Kawaihae Small Boat Harbor, Hawaii, Hawaii	May 2003
Laupahoehoe Harbor, Hawaii, Hawaii	May 2003
Manele Small Boat Harbor, Lanai, Hawaii	September 2003
Nawiliwili Deep Draft Harbor, Kauai, Hawaii	May 2003
Nawiliwili Small Boat, Kauai, Hawaii	May 2003
Ofu Small Boat Harbor, American Samoa	April 2003

TABLE 31–H (Contd.) INSPECTION OF COMPLETED NAVIGATION PROJECTS

Location	Dates of Inspection
Pohoiki Launch Ramp Facility, Hawaii, Hawaii	May 2003
Port Allen Harbor, Kauai, Hawaii	May 2003
Rota Harbor, CNMI	June 2003
Tau Small Boat Harbor, American Samoa	August 2003
Waianae Small Boat Harbor, Oahu, Hawaii	September 2003

TABLE 31–I INSPECTION OF COMPLETED FLOOD CONTROL AND BEACH EROSION CONTROL PROJECTS

Location	Dates of Inspection
Flood Control Projects	
Alenaio Stream, Hawaii, Hawaii	November 2002
Asan River, Guam	September 2003
Asan Village, Guam	July 2003
Iao Stream, Maui, Hawaii	October 2002
Kahawainui Stream, Oahu, Hawaii	January 2003
Kahoma Stream, Maui, Hawaii	October 2002
Kaneohe-Kailua Dam, Oahu, Hawaii	January 2003
Kaunakakai Stream, Molokai, Hawaii	October 2002
Kawainui Marsh, Oahu, Hawaii	December 2002
Kuliouou Stream, Oahu, Hawaii	December 2002
Namo River, Guam	September 2003
Paauau Stream, Hawaii, Hawaii	November 2002
Wailoa Stream, Hawaii, Hawaii	November 2002
Beach Erosion Control Projects	
Afono Area, American Samoa	April 2003
Alii Drive, Hawaii, Hawaii	May 2003
Aoa Area, American Samoa	April 2003
Asquiroga Bay, Guam	July 2003
Haleiwa Beach Park, Oahu, Hawaii	September 2003
Kaaawa Beach Park, Oahu, Hawaii	September 2003
Kahului Bay, Maui, Hawaii	June 2003
Kahului Wastewater Facility Shoreline, Maui, Hawaii	June 2003
Kapaa Beach, Kauai, Hawaii	October 2002
Kekaha Beach, Kauai, Hawaii	October 2002
Kihei Beach, Maui, Hawaii	June 2003
Masefau Bay, American Samoa	April 2003
Matafao Shoreline, American Samoa	April 2003
Ofu Airstrip, American Samoa	April 2003
Pago Pago Airport, American Samoa	April 2003
Pago to Nuuuli, American Samoa	April 2003

TABLE 31–I (Contd.) INSPECTION OF COMPLETED FLOOD CONTROL AND BEACH EROSION CONTROL PROJECTS

Location	Dates of Inspection
Beach Erosion Control Projects	
Poloa Area, American Samoa	April 2003
Saipan Beach Road, CNMI	July 2003
Sand Island, Oahu, Hawaii	April 2003
Sand Island State Park, Oahu, Hawaii	April 2003
Vatia Area, American Samoa	April 2003

TABLE 31–J NAVIGATION ACTIVITIES PURSUANT TO SECTION 107, PUBLIC LAW 86-645, AS AMENDED (PREAUTHORIZATION)

Study	Fiscal year Costs
Apra Small Boat Harbor, Guam	11,881
Aunuu Small Boat Harbor, American Samoa	9,285
Kahului Small Boat Harbor, Maui, Hawaii	91,135
Kukuiula Harbor, Kauai, Hawaii	12,033
Kahoolawe Small Boat Harbor, Hawaii	3,042
Outer Cove Marina, CNMI	527
Tau Small Boat Harbor, American Samoa	23,645
Western District Small Boat Harbor, American Samoa	8,190
Rota East Harbor, CNMI	27,365
Coordination Account	14,698
TOTAL	$201,801

TABLE 31–K EMERGENCY STREAMBANK AND SHORELINE PROTECTION ACTIVITIES PURSUANT TO SECTION 14, PUBLIC LAW 79–526, AS AMENDED (PREAUTHORIZATION)

Study	Fiscal year Costs
Hauula Highway, Oahu, Hawaii	2,588
Kaaawa Highway, Oahu, Hawaii	1,746
Power Plant Road, Guam	910
Punaluu Highway, Oahu, Hawaii	2,097
South Agat, Guam	3,119
Talofofo Bay, Guam	12,034
Coordination Account	10,349
TOTAL	$32,843

TABLE 31–L BEACH EROSION CONTROL ACTIVITIES PURSUANT TO SECTION 103 PUBLIC LAW 87-874, AS AMENDED (PREAUTHORIZATION)

Study		Fiscal year Costs
Commercial Port Road, CNMI		$47,955
F-1 Fuel Pier, Guam		6,117
Inarajan, Guam		719
Lanikai Beach, Oahu, Hawaii		9,033
Leloaloa, American Samoa		33,619
Pago Pago Airport, American Samoa		12,780
Coordination Account		10,676
	TOTAL	$120,899

TABLE 31–M FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205, PUBLIC LAW 80–858, AS AMENDED (PREAUTHORIZATION)

Study		Fiscal year Costs
Awaiakeakua Stream, Hawaii, Hawaii		$10,039
Kapaakea Stream, Molokai, Hawaii		4,221
Keopu-Hienaloli Stream, Hawaii, Hawaii		25,087
Kuliouou Stream, Oahu, Hawaii		28,359
Palai Stream, Hawaii, Hawaii		134,491
Waiakea Stream, Hawaii, Hawaii		14,103
Wailele Stream, Oahu, Hawaii		1,921
Coordination Account		15,849
	TOTAL	$234,070

TABLE 31–N MODIFICATIONS FOR IMPROVEMENTS OF ENVIRONMENT PURSUANT TO SECTION 1135 PUBLIC LAW 99–662, AS AMENDED (PREAUTHORIZATION)

Study		Fiscal year Costs
Kanaha Pond, Maui, Hawaii		$32,329
Kawainui Marsh, Oahu, Hawaii		190,037
Kaunakakai Stream, Molokai, Hawaii		50,859
Pelekane Bay, Hawaii, Hawaii		40,193
Preliminary Restoratin Plans		5,041
Coordination Account		9,044
	TOTAL	$327,503

ALASKA DISTRICT

This District consists of the State of Alaska.

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Navigation

1. ANCHORAGE HARBOR, AK

Location. Anchorage is in south-central Alaska on the southeast shore of Knik Arm, north of Turnagain Arm near its junction with Cook Inlet. (See NOAA Charts 16660 and 16664.)

Existing project. Provides for dredging along a 3,300 foot baseline adjacent to the port of Anchorage dock to a depth of 35 feet below mean lower low water. The tidal range between mean lower low water and mean higher high water is 29 feet with an extreme range of 41 feet.

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance dredging by contract was conducted from June until the end of October. A total of 844,968 cubic yards was removed from the project in FY 03. American Construction's bucket dredge received support from Manson's hopper dredge, *Westport,* in August to keep the port open.

2. COOK INLET NAVIGATION, AK

Location. Southern flank of Knik Arm Shoal about 6 miles southwest of Anchorage, AK.

Existing project. Navigation channel 310-meters (1,017) feet wide, 11.5 meters (38-feet) deep, about 3,330-meters (10,925-feet) long.

Local cooperation. Fully complied with.

Terminal facilities. This project reduces delays for the container ships that supply cargo for 80 percent of the Alaskan people.

Operations during fiscal year. The PCA was executed on 9 Jan 98. Construction contract was awarded on 2 Dec 98 and was completed in September 2000 for a combined Federal and Contributed Cost of $10,507,100. A total of 1,459,543 cubic yards were removed in the two seasons of dredging by Manson Construction. The sponsor reimbursed the CORPS 10% of the project and the project is now fiscally complete.

3. CHIGNIK HARBOR, AK

Location. The city of Chignik is located on the south side of the Alaska Peninsula about 450 miles southwest of Anchorage.

Existing project. The city of Chignik is situated on the south shore of Alaska Peninsula in Southwestern Alaska. It is an active and growing island port whose economy is heavily dependent on commercial fishing. The local fleet presently anchors in the ice free, but inadequately protected harbor or ties up at the exposed city dock. At present boats are subject to overcrowding and hazardous mooring conditions between fishing periods. The anchorage is exposed to all storms from the southeast clockwise to the northwest. The violent southeast and northwest storms often damage and sometimes destroy boats by forcing them ashore or on the exposed rock reefs at low tides.

Local cooperation. Fully complied with.

Terminal facilities. The authorized project will provide a protected harbor, which will produce benefits in the form of reduced boat damage, increased fish harvest, and a harbor of refuge. The average annual navigation benefits attributable to the project are currently estimated at $1,695,400.

Operations during fiscal year. A construction contract was awarded on 20 August 2001 for $6,549,270. Construction work continued through Fiscal Year 2005.

4. DILLINGHAM HARBOR, AK

Location. Dillingham Harbor is located at the head of Nushagak Bay, an arm of Bristol Bay, on the right bank of Nushagak River, just below its confluence with Wood River; about 470 miles northeast of Dutch Harbor and 300 miles southwest of Anchorage. (See NOAA/NOS Chart #16660.)

Existing project. A small-boat basin 230,000 square feet in area with a depth of +2.0 feet mean lower low water along Scandinavian Creek with an entrance channel 250 feet long and 40 feet wide in Scandinavian Creek. Tidal range between mean lower low water and mean higher high water is 19.8 feet. Extreme range is 30 feet.

Local cooperation. Fully complied with.

Terminal facilities. There are four docks at the city of Dillingham; three privately owned, one owned by the city. Four publicly owned small boat floats located in the Harbor basin were installed in June 1982. The floats are removed before fall freezeup and replaced each spring.

Operations during fiscal year. Annual maintenance dredging was carried out by Nehalem River Dredging in June with the removal of 103,299 cubic yards. This was year 1 of a 3-year continuing contract.

5. FALSE PASS, AK

Location. False Pass is a small community located on the east side of Unimak Island, which is the east end of the Aleutian Island chain in Southwest Alaska. False Pass is approximately 700 air miles from Anchorage.

Existing project . The recommended plan will accommodate a fleet of 88 vessels in a 5.2-acre basin protected by two rubble-mound breakwaters, 1,300 feet and 600 feet in length. The project will require dredging of the inner basin and the entrance channel. Plans and specifications are being completed for construction in Fiscal Year 2004.

Local cooperation. Fully complied with.

Operation during fiscal year. The feasibility study was initiated in 1999. The project was authorized in the Water and Resources Development Act of 2000. A limited reevaluation report is currently being developed.

6. HOMER HARBOR, AK

Location. In Kachemak Bay, on Kenai Peninsula, 152 miles by water, southwest of Anchorage. The harbor site is near the extremity of Homer Spit, a narrow extension of land protruding southeasterly some 4.5 miles into the bay. (See NOAA/NOS Chart #16645.)

Existing project. Provides for a sheltered small-boat harbor about 50 acres in area near the terminus of Homer Spit. Project depth varies from 10 feet mean lower low water in the west end of the harbor to 20 feet below mean lower low water in the entrance channel and the east end. The entrance channel is protected by a main rock breakwater 1,018 feet long and secondary rock breakwater 238 feet long. Tidal range between mean lower low and mean higher high water is 18.1 feet, with an extreme range of 30.4 feet.

Operation during fiscal year. Annual maintenance dredging was carried out by Portable Hydraulic Dredging in September with the removal of approximately 4,438 cubic yards. This was year 1 of a 2-year continuing contract.

7. KAKE HARBOR, AK

Location. Kake, a community of 700, is located in Southeastern Alaska about 40 miles west of Petersburg and 800 miles northwest of Seattle.

Existing project. Commercial fishing and logging are the primary industries in the area. A feasibility report was completed in 1968, and the recommended project was authorized for construction. The completed project includes a rubblemound breakwater at the Portage Cove site. The city of Kake is the local sponsor, with financial support from the State.

Local cooperation. A Project Cooperation Agreement was signed on 26 Nov 1997.

Operation during fiscal year. Construction contract was awarded on 29 April 1998 to Kake Tribal Logging & Timber Corporation for $14,554,257. The breakwater was physically completed in October 2000 at a total cost of $15,825,588

8. NINILCHIK HARBOR, AK

Location. Ninilchik Harbor is located at the mouth of Ninilchik River in Cook Inlet, at the village of Ninilchik. The community of Ninilchik, AK, is about 40 miles upcoast from Homer and 112 miles southwest of Anchorage. (See NOAA/NOS Chart #16640.)

Existing project. A small-boat basin 400 feet long by 150 feet wide is dredged to an elevation of 2 feet above mean lower low water, with an approach channel 400 feet long and 50 feet wide dredged to an elevation of 9 feet above mean lower low water; protected by two rock jetties. Modifications for river channel diversion, the 2 armor rock jetties, and beach protection were accomplished in 1967 and 1969. Range between mean lower low water and mean higher high water is 19.1 feet, with an extreme range of 29.3 feet.

Local cooperation. Fully complied with.

Operation during fiscal year. Annual maintenance dredging was carried out by Portable Hydraulic Dredging in May with the removal of 11,432 cubic yards. This was year 1 of a 2-year continuing contract.

9. NOME HARBOR, AK

Location. Nome Harbor is located at the mouth of the Snake River at the city of Nome, AK, on the northerly shore of Norton Sound, an arm of the Bering Sea. It is a shallow open roadstead, 581 nautical miles north of Dutch Harbor and 545 air miles northwest of Anchorage. (See NOAA/NOS Chart #16206.)

Existing project. The federal navigation project, at 8 feet below mean lower low water, consists of a dogleg entrance channel 75 feet wide by 1550 feet long running form Norton Sound to a turning basin 250 feet wide by 600 feet long, located at the confluence of the Snake River with Dry and Bourbon Creeks. The entrance is flanked to seaward by a 400 foot eastern jetty and a 240 foot western jetty and is further protected through its length by a steel sheet pile revetment on both sides. The eastern waterfront is protected by a 3350-foot long seawall that extends from the eastern jetty. Range between mean lower low water and mean higher high water is 1.6 feet and extreme tidal range is 7.5 feet, but water levels are influenced more by wind than tide. Levels of 5 feet below mean

lower low water have been observed during offshore winds, and a level of 14 feet
above mean lower low water has been observed during a southerly storm.

Local cooperation. Fully complied with.

Terminal facilities. Cargoes and passengers from ocean vessels are lightered to and from shore, a distance of about 2 miles. Traffic enters the dredged channel and is handled over revetment, where a lighterage company has transfer facilities that are open to the public. Facilities are considered inadequate for existing commerce. In July 1984, the city of Nome received Department of Army authorization (permit)
to construct a 3,600-foot gravel filled causeway. Construction of the causeway began in July 1985. Due to lack of complete funding, the length of the causeway was shortened to 2,700 feet. Construction was completed in May 1987. Use of this causeway for off-loading petroleum products was delayed until the September 1987 arrival of a required berthing barge.

Operations during fiscal year. Received authorization for a project consisting of a harbor complex that includes a new breakwater that protects the existing causeway docks. Provides for a new entrance to the existing small boat harbor and a sediment management scheme to keep the channel open. Initial Construction funds were appropriated in FY 2001. PCA was executed 28 May 2002 and construction contract awarded to Kiewit-Manson on 30-Sep-03 for $42,167500.

Annual maintenance dredging was carried out in the outer portion of the entrance channel in June with the removal of 7,222 cubic yards. The work was accomplished by Portable Hydraulic Dredging of Portland, Oregon. This was year 2 of a 3-year continuing contract.

10. ST. GEORGE, AK

Location. The city of St. George is located on St. George Island, the southernmost island of the Pribilof Islands, near the edge of the southwest Bering Sea shelf.

Existing project. The project was authorized in the Energy and Water Development Appropriations Act of 1993, P.L. 102-377. The work consists of excavating the St. George Harbor entrance channel to 20 feet below mean lower low water in accordance with cost-sharing provisions in P.L. 99-662.

Local cooperation. A portion of the project was done by the Local Sponsor under Section 215, P.L. 90-483 with reimbursement to the Local Sponsor by the Government for its share on completion.

Operations during the fiscal year. The Local Sponsor completed the portion of the project under the Section 215 agreement. A limited reevaluation report is being developed.

11. ST. PAUL ISLAND HARBOR, AK

Location. St. Paul Island Harbor is located on the shore of Village Cove, the southern side of St. Paul Island, the largest and most populated island of the Pribilof group in the central southeast Bering Sea.

Local cooperation. The Project Cooperation Agreement was executed on November 24, 1998.

Operations during the fiscal year. Congress authorized improvements to the breakwater, the entrance channel, and the maneuvering area in WRDA of 1996. The construction contract for Phase I to build the three underwater reefs was awarded 19 March 1999 for $10,411,000 and completed in August 2001. A severe scour at the toe of the main breakwater was identified in the Spring of 2001. The Phase I contract was modified to repair the scour, but the contractor was able to complete a small portion of the repair at a cost of approximately $8 million. The Phase II construction contract for dredging the harbor was awarded to Kelly Ryan Construction on 27-June-2003 for $26,279,960, and is scheduled for completion in 2006.

A small boat harbor was authorized in WRDA 99 and it will be in a Phase III construction contract.

12. SAND POINT, AK

Location. Sand Point is a commercial fishing community on the Pacific coast off the southwestern Alaska Peninsula. Sand Point is about 570 air miles southwest of Anchorage and about midway between Kodiak and Dutch Harbor. The harbor provides close access to one of the State's most productive fishing areas. For the past few years the population has been stable at around 1,000. The economy is based almost wholly on commercial fishing.

The harbor currently provides no permanent protected moorage for vessels larger than 80 feet. In recent years, the fleet operating in the Bering Sea/Aleutian Island area, made up primarily of vessels ranging from 80 to 160 feet, has grown significantly. Skippers fishing in the Sand Point area currently travel long distances to secure protected moorage.

Existing Project. The authorized harbor improvements at Sand Point consist of construction of a 570-foot and a 730-foot breakwater from shore to form the basin and entrance channel of the new harbor. The crest height of the rubblemound breakwaters would be +16 ft MLLW. The breakwaters would be designed to withstand the forces of a 6.6-foot wave. The entrance channel would be dredged to –18 ft MLLW, it would be 120 feet wide to allow one-way traffic of vessels 150 feet in length with a 34-foot beam and 10.5 foot draft. The mooring basin would be dredged to a depth of –17 ft MLLW and would provide room for 37 vessels.

Local Cooperation. A Preconstruction Engineering and Design Agreement was signed on 10 July 1998.

Operations during fiscal year. Pacific Ocean Division approved the feasibility report on 14 May 1998. Plans and specifications are being developed and Steller Eider surveys are conducted every winter. A limited reevaluation report is being developed.

13. SEWARD HARBOR, AK

Location. Seward, located on the Kenai Peninsula is about 125 miles south of Anchorage, Alaska by road. The town is located at the northern end of Resurrection Bay off the Gulf of Alaska and can be reached by air, sea and rail as well as road. It lies at about 60 degrees 6 minutes N Latitude and 149 degrees 2 minutes W longitude.

Existing Project. The current harbor is filled to capacity with a waiting list of more than 330 boats. The Feasibility Report recommends expansion of the existing harbor eastward. The recommended project would accommodate 339 additional vessels and cost $11,930,000.

Local Cooperation. A Pre-construction Engineering and Design Agreement was signed on 23 April 1999.

Operations during fiscal year. Expansion of the harbor was authorized in WRDA of 1999. The PCA was executed on 13-June-2003. The construction contract is scheduled to be awarded in FY-2004.

14. WRANGELL HARBOR, AK

Location. Wrangell Harbor is located on the northwest side of Wrangell Island, 824 miles from Seattle and 160 miles from Juneau. (See U.S. Coast and Geodetic Survey Charts Nos. 8164, 8161, and 8201.)

Existing project. The project consists of a rubblemound breakwater 300 feet long to protect the southern portion of the outer harbor; a mooring basin 600 feet long, 400 feet wide, and 10 feet deep below mean lower low water within the protected area; an inner basin in the tide flat area east of Shakes Island, 325 feet wide and 550 feet long; a connecting channel 120 feet wide and approximately 530 feet long; a connecting channel 120 feet wide and approximately 530 feet long from the outer mooring basin all at a depth of 10 feet at mean lower low water; and construction of a rock mound breakwater 320 feet long on the reef north of Shakes Island. The range between mean lower low water and mean higher high water is 15.7 feet. The extreme tidal range is 26 feet. Heavy swells, dangerous to small fishing boats, are caused by the wind, which causes an additional rise of about one foot.

Construction of the breakwater north of Shakes Island was placed on inactive status as material to be used from the inner basin was unsuitable and the breakwater considered unnecessary for safe moorage of vessels. The cost of this portion was last revised in 1956 and estimated to be $6,500. (See table 40-B for authorizing legislation.)
The Heritage Harbor was authorized to be built in the Cemetery Point site in WRDA 99. This project will consist of two breakwaters and dredging an entrance channel and inner harbor area.

Local cooperation. The Project Cooperation Agreement will be executed when construction funds are appropriated and the plans and specifications are being developed.

Terminal facilities. There are eight wharves and floats in Wrangell Harbor. Two privately owned wharves serving general cargo and passenger terminals, one of which includes a cold storage facility, are open for public use. The remaining wharves serve various industrial purposes. One of the floats is publicly owned and is open for public use for mooring and servicing of small craft, and two privately owned floats serve oil-handling facilities.

Operations during fiscal year. A feasibility study for a new harbor was initiated in FY 97 and the project was authorized in WRDA 99. The PCA was executed on 7-March-2003 and the construction contract awarded to Kiewit Pacific Company on 11-July-2003 for $13,841,550

Flood Control

15. BETHEL BANK STABILIZATION, AK

Location. Bethel, AK is located in southwestern Alaska on the north bank of the Kuskokwim River 400 miles west of Anchorage.

Existing project. The project consists of rock riprap toe protection to be installed on the unprotected riverbank and at locations where existing city construction bulkheads are threatened by erosion. This includes 4,000 feet of unprotected riverbank and 4,200 feet of previously installed bulkheads. The construction contract was awarded on 26 May 1995. Emergency erosion protection for the Bethel Cargo Dock and the Mission Road Bulkhead began in July 1995 and continued through FY 1995 due to accelerated erosion that accumulated after spring runoff.

Location cooperation. A Project Cooperation Agreement was signed on 3 March 1994.

Terminal facilities. The POL tank farm is situated at the downstream end of the project and the city's general cargo dock is at the upstream end of the project.

Operations during fiscal year. The project was physically complete in September 1997. . The total project cost was $24,000,000 of which Bethel contributed $6,000,000. An FY01 Congressional Add authorized and directed the Corps to extend the existing project an additional 1,200 feet upstream. A post authorization letter report was completed and approved in FY02. PCA was executed on 27 December 2002 and a construction contract is scheduled to be awarded in FY-2005.

16. CHENA RIVER LAKES, AK

Background. For details, see Annual Report for FY00.

Operations during fiscal year. Two high water events occurred on the Chena River. The project had a very successful recreation season supported by volunteer hosts. This was year 2 of a 5 year Reimbursable Services Agreement with USGS for data collection and maintenance of ground water monitoring wells. An inspection was performed on all piezometer wells. Phase I of a complete boundary survey was performed.

17. DILLINGHAM EMERGENCY BANK STABILIZATION, AK

Location. Dillingham is located 350 miles southwest of Anchorage, Alaska. The project is located along the southeastern edge of Dillingham adjacent to the Nushagak River. Erosion of the toe of the bluff in this area was endangering critical utilities and numerous buildings and homes. Erosion at the west entrance to the harbor is endangering the facilities and vessels.

Existing project. The authorized project consists of a 1,600-foot long steel sheet pile bulkhead along the toe of the bluff from the Dillingham City Cargo dock to Snag Point. An additional 600 feet of bulkhead with riprap revetment was constructed at the east side of the entrance to the harbor. The sheet pile wall was constructed to an elevation of 28 feet MLLW. Mitigation measures including emergency access ladders and eyebolts for anchoring set nets used for by subsistence fishermen are included in the project. The authorized project also includes extending the sheet pile wall at the west entrance to the harbor. Designs for extending the wall are being evaluated.

Local cooperation. A Project Cooperation Agreement with the City of Dillingham Alaska was signed in January 1998 and will be amended to incorporate the extension of the sheet pile wall at the west entrance to the harbor.

Terminal Facilities. Dillingham has a general cargo dock and a fuel facility adjacent to the authorized project.

Operations during fiscal year. A construction contract was awarded in September 1998 in the amount of 1,798,850. Construction of the project was performed and a mod was awarded for $1,389,472. A second construction contract was awarded to complete the construction of the storm drain removed from the original contract. Extension of the project to the west entrance to the harbor was directed in the FY 2001 Appropriation Conference Report. A decision document is being developed to identify the scope and cost of the extension prior to preparing a PCA.

18. GALENA EMERGENCY BANK STABILIZATION

Location. Galena is located on the north bank of the Yukon River, 45 miles east of Nulato and 270 air miles west of Fairbanks.

Existing project. The project consists of a rock revetment along the Yukon River to protect the City of Galena from river erosion. In 1987, the Corps of Engineers constructed 1300 feet of riprap revetment protection along the river. The project is currently being out-flanked at the ends of the revetment by the river erosion. Approximately 1600 feet of additional revetment protection is required. Continued erosion and yearly ice breakups along the Yukon river are causing imminent danger to local facilities. Vital facilities, including barge facilities, utilities, and roads are in potential danger of being destroyed in the next year or two. Immediate action to protect these facilities is recommended because erosion is advancing at an accelerated pace in one area.

Local cooperation. The sponsor, the City of Galena supports the project. A post authhorization letter report was completed and approved in FY-03. The PCA has been executed and a construction contract is scheduled to be awarded in FY04.

19. KAKE DAM

Location. The city of Kake is located in southeast Alaska on the northwest shore of Kupreanof Island and has a population of approximately 700 residents, about 95 percent of which are Alaska natives. It is a Tlingit village with a fishing, logging, and subsistence lifestyle.

Existing project. Project is to construct a replacement dam on Gunnuk Creek in Kake, AK to provide drinking water and hydroelectricity. The recommended plan calls for construction of a gravity concrete dam approx. 53 feet upstream from the previous dam, covering an area about 4,750 ft^2, and a spillway height of 23 feet.

Local cooperation. Construction, General funds will be reprogrammed within available funds into the project. A letter report is being prepared, which will include required formulation, economic, engineering, design, cost estimates,

and environmental documentation. The hydroelectric segment will be evaluated and, if warranted, FERC licensing procedures initiated. Plans and specifications are being prepared. The project will be 100 percent federally funded with the Sponsor providing all of the necessary LERRD. The project will be turned over to the City of Kake for operation and maintenance after construction completion.

20. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities--repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Federal costs for the fiscal year were $345,107 for disaster preparedness, and field investigations.

21. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspections were made of the following flood control works: Bethel Bank Stabilization at Bethel; Deering Streambank Protection at Deering; Metlakatla Erosion Protection at Metlakatla; Homer Spit Revetments at Homer; Tanana River Levee at Fairbanks, Talkeetna River at Talkeetna; Lowell Creek at Seward; Klutina River at Copper Center; Skagway River at Skagway; Gold Creek at Juneau; and Emmonak Streambank Protection on the Yukon River at Emmonak. An inspection was made of the shore protection works at Nome.

General Investigation

22. SURVEYS

Fiscal year costs were $3,387,916 of which $2,873,392 was for navigation studies, $34,815 for flood damage prevention studies, $69,529 for shoreline protection studies, $167,522 for special studies, $24,515 for watershed comprehensive studies, $128,966 for miscellaneous studies, and $89,177 for coordination studies with other agencies. In addition contributed funds in the amount of $454,496 were expended for General Investigation's Feasibility Studies: $84,612 for Akutan, $40,165 for Douglas Harbor, $52,486 for Valdez Harbor, $92,392 for Haines Harbor and for $142,028 PAS-Planning Assistance to States.

23. COLLECTION AND STUDY OF BASIC DATA

Technical assistance, information, flood plain manage-ment guidance, and other flood plain management services have been provided to military and nonmilitary Federal agencies, local communities, state agencies, Architectural Engineering firms, lending institutions, and private individuals at a fiscal year cost of $173,479.

Fiscal year costs for Hydrologic Studies were $29,961.

24. PRECONSTRUCTION ENGINEERING AND DESIGN

No PED in FY-2003.

25. SPECIAL PROJECTS

Alaska Environmental – Coordination with multiple State and Federal agencies on design consideration has been provided to the City of Buckland on its water and sewer project. The design is scheduled for construction start in 2004. FY-03 Costs were $93,976.

TABLE 32-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total to 30 Sep 03
1.	Anchorage Harbor, AK	New Work					533,235
		Approp.					533,235
		Cost					
		Maint.	6,816,434	3,414,043	3,602,447	6,317,923	54,759,569
		Approp.	6,812,665	3,058,210	3,401,411	5,768,401	53,636,134
		Cost					
	(Contrib. Funds)	Maint.					638,080
		Contrib.					638,080
		Cost					
2.	Cook Inlet Navigation, AK	New Work					
		Approp.	2,837,000	230,030	-443,466		7,844,492
		Cost	3,133,052	284,402	-443,216		8,384,493
		Maint.				131,730	131,730
		Approp.				131,730	131,730
		Cost					
	(Contrib. Funds)	New Work					
		Approp.	2,428,000	547,027	45,915		2,843,216
		Cost	1,483,671		443,273		2,842,945
3.	Chignik Harbor, AK	New Work					
		Approp.	97,000	299,000	4,229,075	444,000	5,591,774
		Cost	108,929	264,664	4,001,240	-7,554	4,880,922
		Maint.					
		Approp.					
	(Contrib. Funds)	Cost					
		New Work					
		Approp.		100,000	895,000		1,087,660
		Cost.			527,294		618,552
4.	Dillingham Harbor, AK	New Work					
		Approp.					
		Cost					
		Maint.	379,152	727,510	996,741	601714	13,504,175
		Approp.	381,114	724,582	809,148	759,947	13,486,492
	(Contrib. Funds)	Cost					
		New Work					
		Approp.					1,700
		Cost.					1,700
5.	False Pass Harbor, AK	New Work					
		Approp.	230,000	-10000		180,000	550,000
		Cost	252,472	46,436	587	58,790	426,247
	(Contrib. Funds)	New Work					
		Approp.	222,113			-6,957	300,156
		Cost	219,312			-4,700	300,154

TABLE 32-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total to 30 Sep 03
6.	Homer Harbor, AK	New Work					
		Approp.					3,512,350
		Cost					3,512,350
		Maint.					
		Approp.	195,325	185,937	351,891	398,612	7,124,011
	(Contrib. Funds)	Cost	195,766	187,087	346,647	403,3223	6,803,650
7.	Kake Harbor, AK	New Work					
		Approp.	4,279,000	803,000	-338,115		15,198,543
		Cost	4,931,274	1,035,450	-338,115		15,194,674
		Maint.					
		Approp.	375,000		0		1,971,000
	(Contrib. Funds)	Cost	764,683		384,000		1,587,385
8.	Ninilchik Harbor, AK	New Work					
		Approp.					428,720
		Cost					428,720
		Maint.					
		Approp.	193,859	177,914	193,329	228,461	6,297,253
		Cost	195,361	178,725	193,329	228,461	6,297,452
9.	Nome Harbor, AK	New Work					
		Approp.		308,000	105,000	385,000	798,000
		Cost		191,111	138,949	248,183	578,243
		New Work					
		Approp.					
		Cost					
10.	St. George, AK	New Work					
		Approp.	9,375				7,116,940
		Cost				59,860	5,122,122
	(Contrib. Funds)	New Work					
		Approp.					3,004,000
		Cost					2,777,682
11.	St. Paul Island Harbor, AK	New Work					
		Approp.	4,254,452	4,611,000	7,153,000	395,000	34,446,200
		Cost	4,765,051	4,747,508	7,179,794	500,404	33,821,455
		Maint.					
		Approp.	195,010	-10		11,000	436,464
		Cost	195,000				425,464
	(Contrib. Funds)	New Work					
		Approp.	1,593,450		1,400,000		3,219,836
		Cost.	200,000	195,321	2,598,129		3,218,810

TABLE 32-A **COST AND FINANCIAL STATEMENT**

(Continued)See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total to 30 Sep 03
12.	Sand Point	New Work					
		Approp.				308,000	308,000
		Cost				104,580	104,580
13.	Seward Harbor	New Work					
		Approp.			1,000,000	4,000	1,004,000
		Cost			44,517	218,246	262,763
		New Work					
		Approp.					
		Cost				9,692	9,692
14.	Wrangell Harbor, AK	New Work					
		Approp.			215,000	339,000	554,000
		Cost			158,060	340,000	498,060
	(Contrib. Funds)	New Work					
		Approp.				8,573	8,573
		Cost				30,254	30,254
15.	Bethel Bank Stabilization, AK	New Work					
		Approp.	936,000		350,000	163,000	19,997,854
		Cost	957,145	16,327	257,704	195,802	19,714,944
	(Contributed Funds)	New Work					
		Approp.					4,690,000
		Cost					4,275,000
16.	Chena River Lakes, AK	New Work					
		Approp.			-9000		214,054,928
		Cost					214,054,134
		Maint.					
		Approp.	3,066,448		1,296,335	1,594,150	21,739,782
		Cost	3,725,421	2,124,267	1,301,289	1,504,217	19,666,998
	(Contrib. Funds)	New Work		2,131,442			
		Approp.		12,000			2,194,300
		Cost		12,000			2,157,929
17.	Dillingham Emergency Bank Stabilization	New Work					
		Approp.	2,400,000	-80,000	350,000	565,000	5,597,515
		Cost	3,484,210	478,403	155,795	735,021	5,531,853
18.	Galena Emergency Bank Stabilization	New Work					
				2,994,000	0	2,983,000	5,977,000
				81,289	154,398	132,493	368,180
		Approp.					
		Cost					
		New Work					
		Approp.					
		Cost					
19.	Kake Dam, AK	New Work					
		Approp.		629,000	650,915	631,000	1,910,915
		Cost		403,000	809,879	490,000	1,702,879
		Maint.					
	(Contrib. Funds)	Approp.					
		Cost					

Table 32-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**ANCHORAGE HARBOR, AK**	
	Jul. 3, 1958	Deep winter harbor, adjacent to docks, dredge to 35 feet below mean lower low water, protected by two jetties.[1]	H.Doc. 34, 85th Cong., 1st Sess.[2]
	Oct. 22, 1976	Extension of project limits.	P.L. 94-587
2.		**COOK INLET NAVIGATION, AK**	
	Oct. 12, 1996	Deepen the entrance channel to -30 feet. Enlarge and deepen the maneuvering basin to -29.0 feet with an area of 415 by 830 feet. Wave spending beach to +4 feet. Three offshore reefs each, 1,300 feet long, constructed to a depth of –12 feet. Wave energy channel 100 feet wide with bottom elevation of +2 feet.	Section 101(b)(2), Water Resources Development Act of 1996. Energy and Water Development Appropriations Act, 1999. P.L. 105-245.
3.		**CHIGNIK HARBOR, AK**	
	Oct. 12, 1996	Deepen the entrance channel to -30 feet. Enlarge and deepen the maneuvering basin to -29.0 feet with an area of 415 by 830 feet. Wave spending beach to +4 feet. Three offshore reefs each, 1,300 feet long, constructed to a depth of –12 feet. Wave energy channel 100 feet wide with bottom elevation of +2 feet.	P.L. 104-303, Water Resources Development Act of 1996. FY 1999 Congressional Add
4.		**DILLINGHAM HARBOR, AK**	
	Jul. 3, 1958	Basin 230,000 square feet in area with depth of 2 feet above MLLW along Scandinavian Creek, with entrance channel 1,100 feet long and 40 feet wide.	H. Doc. 390, 84th Cong., 2d Sess.[2]
5.			
	Oct. 31, 2000	**FALSE PASS HARBOR, AK** Dredging of the inner basin and the entrance channel to accommodate a fleet of 88 vessels in a 5.2 acre basin protected by two rubble-mound breakwaters, 1,300 feet and 600 feet in length.	House Report 106-1020, Section 101 (b)(1) (2), Water Resources Development Act of 2000, 106th Congress
6.		**HOMER HARBOR, AK**	
	Jul. 2, 1958	Basin 2.7 acres in area with depth of 12 feet below mean lower low water, and rock breakwater 1,260 feet long.	H.Doc. 34, 85th Cong., 1st Sess.[2]
	Aug. 19, 1964	Relocation and rehabilitation of project destroyed by March 27, 1964 earthquake, by construction of basin 10 acres in area with 12-foot depth over 2.75 acres and 15-foot depth over 7.25 acres protected by rock breakwaters, 1,018 feet and 238 feet long.	P.L. 88-451
	Jul. 14, 1960	Increased width and depth of entrance channel and an enlarged staging area. Basin enlarged from 16.5 to 50 acres.	Section 107, P.L. 86-645 Authorized by Chief of Engineers, Nov. 13, 1981
7.		**KAKE HARBOR, AK**	
	Aug. 13, 1968	Provides for a 1,580 foot long west breakwater and a 900 foot long south breakwater enclosing a 7 acre berthing area at -15 feet MLLW.	S. Doc. 249, 75th Cong., 1st Sess.
8.		**NINILCHIK HARBOR, AK**	
	Jul. 3, 1958	Basin 320 feet long by 150 feet wide with depth of 2 feet above mean lower low water, approach channel 400 feet long and 50 feet wide with depth of 9 feet above mean lower low water, protected by 410 foot jetty.	H.Doc. 34, 85th Cong., 1st Sess.[2]

Table 32-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
9.		**NOME HARBOR, AK**	
	Aug. 8, 1917	Two jetties, easterly 335 feet and westerly 460 feet long revetment, channel and basin 200 feet wide and 250 feet long.	H.Doc. 1932, 64th Cong., 1st Sess.[2]
	Aug. 30, 1935	Extension of the jetties and enlarging basin to 250 feet wide and 600 feet long.[3]	H.Doc. 404, 71st Cong., 2d Sess., and Rivers and Harbors Committee Doc. 38, 73d Cong., 2d Sess.
	Jun. 16, 1948	Seawall	Reports of Chief of Engineers dated March 8, 1948
	Aug 17, 1999	New entrance to Nome Harbor; 2,986 feet long breakwater; 230 feet long causeway spur; 3,450 feet long entrance channel with depth to 22 feet; sediment traps and causeway bridge.	Report of Chief of Engineers as amended, dated August 2, 1999. Section 101 (a) (3), P.L. 106-53 Water Resource Development Act of 1999, 106th Cong.
10.		**ST. GEORGE, AK**	
	Nov. 17, 1986	Dredging the maneuvering area from an average depth of 3 feet above mean lower low water to 18 feet below mean lower low water and dredging the entrance channel from an average depth of 14 feet below mean lower low water to 20 feet below mean lower low water.	Section 107 of The Rivers and Harbors Act of 1960, Public Law 86-645, as amended.
11.		**ST. PAUL ISLAND, AK**	
	Nov. 17, 1986	Add 1,050 feet of breakwater at existing crest height, 37 below feet mean lower low water and 1,000 feet long with a crest height of 18 above mean lower low water.	Section 202, P.L. 99-662
	Oct. 12, 1996	Deepen the entrance channel to -30 feet. Enlarge and deepen the maneuvering basin to -29.0 feet with an area of 415 by 830 feet. Wave spending beach to +4 feet. Three offshore reefs each, 1,300 feet long, constructed to a depth of –12 feet.	Section 101(b)(3), P.L. 104-303 Water Resources Development Act of 1996.
	Aug 17, 1999	Wave energy channel 100 feet wide with bottom elevation of +2 feet. Added small boat harbor with entrance channel and maneuvering area to –20MLLW and appropriate wave protection features.	Section 302, P.L. 106-53 Water Resource Development Act of 1999, 106th Cong.
12.	Aug 17, 1999	**SAND POINT HARBOR, AK** Construct a mooring basin adjacent and south of the existing harbor. It incorporates the southern breakwater and causeway to the city dock by extending the existing breakwater.	Section 101 (a) (3), P.L. 106-53 Water Resource Development Act of 1999, 106th Cong.
13.	Aug 17, 1999	**SEWARD HARBOR, AK** Provide more moorage space. Project would accommodate 339 additional vessels.	Section 101 (a) (3), P.L. 106-53 Water Resource Development Act of 1999, 106th Cong
14.		**WRANGELL HARBOR, AK**	
	Sep. 22, 1922	Breakwater 300 feet long to protect southern portion of harbor.	H.Doc. 161, 67th Cong., 2d Sess.
	Aug. 30, 1935	Mooring basin 600 feet long, 400 feet wide, and 10 feet deep.	H.Doc. 202, 72nd Cong., 1st Sess.
	Mar. 2, 1945	Inner basin and connecting channel from the existing mooring basin, both 10 feet deep at mean lower low water, and breakwater 320 feet long on the reef north of Snakes Island.	H.Doc. 284, 76th Cong., 1st Sess.
	Aug 17, 1999	Project for navigation, Heritage Harbor, AK	Section 101 (a) (3), P.L. 106-53 WRDA of 1999, 106th Cong.

Table 32-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
15.		**BETHEL BANK STABILIZATION, AK**	
	Nov. 17, 1986	Streambank protection by placing riprap along 8,500 feet of riverbank.	Section 202, P.L. 99-662
16.		**CHENA RIVER LAKES, AK**	
	Aug. 13, 1968	Provides for construction of a dam and floodway for the Chena River (17 miles east of Fairbanks) for a dam and reservoir on the Little Chena River, and for a 27 mile long levee system with interior drainage works on the north side of the Tanana River.	H. Doc. 148, 90th Cong., 2nd Sess. P.L. 90-483
17.	Dec. 19, 1985	**DILLINGHAM EMERGENCY BANK STABILIZATION, AK** Install 1,600 feet of steel sheetpile bulkhead along the toe of the bluff from the Dillingham city cargo dock to Snag Point.	Sec. 114 P.L. 99-190

1. Purchase of dredge and deepwater jetties deauthorized November 6, 1977 under section 12, Public Law 93-251.
2. Contains latest published map.
3. Extension of jetties classified "inactive".
4. Little Chena Dam deauthorized in 1991.

TABLE 32-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 1994 Construction	Cost to Sep. 30, 1994 Operation and Maintenance
Apoon Mouth of Yukon River, AK[1]	Completed	1920	128,896	2,154
Bar Point Harbor, AK[2]	Completed	1983	2,000,000[3]	
Bethel Small Boat Harbor, AK	Completed	1985	1,520,272	
Cook Inlet Shoals, AK	Completed	1977	1,220,000	5,000
Cordova Harbor, AK[2]	Completed	1978	843,534	488,156
Cordova, AK	Completed	1986	9,642,000	
Craig Harbor, AK	Completed	1983	1,033,500[4]	72,500
Douglas Harbor, AK	Completed	1963	282,019	
Dry Pass, AK	Completed	1983	943,351	23,466
Egegik River, AK	Completed	1972	4,441	3,107
Elfin Cove, AK	Completed	1959	154,191	
Gastineau Channel, AK	Completed	1964	789,461	102,701
Haines Harbor, AK[2]	Completed	1977	1,000,000[5]	
Homer Harbor, AK[2]	Completed	1987	2,000,000	
Hoonah Harbor, AK	Completed	1983	4,255,000[6]	
Humboldt Harbor, AK	Completed	1977	3,679,683[7]	
Iliuliuk Harbor, AK	Completed	1941	66,037	
Juneau Harbor, AK	Completed	1974	1,381,150	260,991
Kake Harbor, AK	Completed	1991	870,700	
Kasilof Harbor, AK[2]	Completed	1975	109,848	
Ketchikan Harbor, AK	Completed	1979	1,602,417	331,256
Kodiak Harbor, AK	Completed	1973	1,891,212[8]	37,946
Mekorykuk, AK	Completed	1986	1,372,139	
Myers Chuck Harbor, AK	Inactive	1970	9,700	
Naknek River, AK	Completed	1961	20,789	
Neva and Olga Straits, AK	Completed	1960	155,009	
Old Harbor, Kodiak Island, AK[2]	Completed	1972	370,415	132,946
Pelican Harbor, AK	Completed	1964	369,683	18,973
Petersburg Harbor, AK	Completed	1972	252,932	26,800
Port Alexander, AK	Completed	1949	17,000	
Port Lions, AK[2]	Completed	1986	1,825,311	
Rocky Pass, AK	Completed	1960	337,668	
St. Michael Canal, AK	Completed	1916	377,062	560
Seldovia Harbor, AK	Completed	1974	1,051,883[9]	5,518
Sergius Whitestone, AK	Completed	1973	1,798,010	1,934
Seward Harbor, AK	Completed	1973	712,369[10]	219,789
Sitka Harbor, AK	Completed	1973	1,611,009	15,400
Skagway Harbor, AK	Completed	1972	133,180	32,665
Stikine River, AK	Completed	1987		8,804
Valdez Harbor, AK	Completed	1968	649,740[11]	221,498
Wrangell Narrows, AK	Completed	1979	3,562,343	309,260

1. Abandonment recommended in H.Doc. 467, 69th Cong., 1st Sess.
2. Authorized by Chief of Engineers (Sec. 107).
3. In addition, $272,779 of State funds.
4. Includes $656,240 for Sec. 107 project.
5. In addition, $925,500 of State funds.
6. In addition, $973,875 of State funds.
7. In addition, $857,000 of State funds.
8. Includes $594,163 for rehabilitation.
9. Includes $400,000 for rehabilitation.
10. Includes $90,026 for rehabilitation and $2,528 Code 710. Recreation facilities at Completed projects.
11. Includes $73,000 for rehabilitation and $2,713 Code 710. Recreation facilities at Completed projects.

TABLE 32-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 1994 Construction	Cost to Sep. 30, 1994 Operation and Maintenance
Bethel Bank, Kuskokwim River[1]	Completed	1985	553,970	
Fairbanks, Tanana River & Chena Slough, AK	Completed	1943	557,000	
Gold Creek, AK	Completed	1975	876,006[2]	4,301
Klutina River, Copper Center, AK[3]	Completed	1973	260,681	
Lowell Creek, AK[4]	Completed	1945	416,382[5]	30,771
Salmon River, AK	Completed	1963	37,770[6 7]	162,925[8]
Talkeetna River, AK	Completed	1981	516,694	

1. Section 14.
2. In addition, $25,000 expended from contributed funds.
3. Authorized by Chief of Engineers (Sec. 205).
4. During FY88, $551,690 was expended from FC and CE.
5. In addition $25,000 expended from contributed funds.
6. Includes $34,197 of PWA funds.
7. In addition, $7,000 expended from contributed funds.
8. In addition, $27,400 expended from contributed funds.

TABLE 32-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Allison Lake, AK (Valdez Hydropower)		1992		
Anchorage Harbor, AK (Uncompleted Portion)	1967	1977		
Bradley Lake, AK 1983	1983	1982	46,701,000	
Ketchikan Harbor, AK (West Breakwater)	1979	1979		
Port Alexander, AK (Inner Harbor)	1949	1977		
Tolovana River, AK (Snagging)	1931	1977		
Little Chena River Dam	1983	1990		
Long Lake Dam	1975	1990		
Myers Chuck Harbor, AK	1970	1991	9,700	
Scammon Bay, AK		1992		
Skagway River, AK	1966	1991	26,385	

TABLE 32-H

NAVIGATION WORK UNDER
SPECIAL AUTHORIZATION
NAVIGATION ACTIVITIES PURSUANT TO SECTION 107,
PUBLIC LAW 86-645, AS AMENDED
(PREAUTHORIZATION)

Study Identification	Fiscal Year Costs
Coordination Account	35,954
Brown's Slough	21,070
Chenega Bay	17,301
Homer	60,252
King Cove	2,963
Ketchikan Navigation	0
Kokanok Harbor	33,731
Larsen Bay	0
Manley Hot Springs	41,501
Metlakatla	0
Noatak	19,035
Ouzinkie	144,831
Savoonga	21,524
St. Herman Harbor	5,111
Tatitlek	24,828
Teller Navigation	12,136
Haines	22
Whittier	0
Unalaska	0
TOTAL	440,259

TABLE 32-I

PROJECT CONDITION SURVEYS

Name of Project Date	**Date Survey Conducted**
Cordova Harbor	June 2000
Douglas Harbor	May 2000
Dry Pass Channel	May 2000
Haines Small Boat Harbor	May 2000
Kodiak, Near Is. Channel and St. Herman's Harbor	June 2000
Petersburg, North Harbor	May 2000
Seldovia Harbor and Deep Draft Channel	June 2000
Skagway Small Boat Harbor and Deep Draft Dock	May 2000
Valdez Small Boat Harbor	June 2000

TABLE 32-J

STREAM BANK EROSION WORK UNDER SPECIAL AUTHORIZATION EROSION ACTIVITIES PURSUANT TO SECTION 14, PUBLIC LAW 79-526, AS AMENDED (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs
Coordination Account	16,027
Nenana	3,911
Big Delta State Historical Park	0
McGrath	20,477
Akiak	5,411
Kotlik	30,355
Northway	0
Port Heiden	7,465
Mekoruk	1,146
Egegik	957
Ninilchik	8,357
Kwethluk	2,105
Yakatak	3,889
Chevak	363
King Cove	2,963
Karluk	983
TOTAL	104,409

TABLE 32-K

ENVIRONMENTAL ACTIVITIES PURSUANT TO SECTION 1135, PUBLIC LAW 99-662

Study Identification	Fiscal Year Costs
Coordination Account	16,027
Preliminary Restoration Plan	523
Gold Creek Salmon Restoration	181,145
TOTAL	197,695

TABLE 32-L

AQUATIC ECOSYSTEM RESTORATION PURSUANT TO SECTION 206, PUBLIC LAW 104-303

Study Identification	Fiscal Year Costs
Coordination Account	13,000
Swiftwater Park Recreation	0
Preliminary Restoration Plan	11,507
Duck Creek Restoration	85,135
Chester Creek Restoration	98,223
Northway	40,708
Black Lake Ecosystem	30,571
TOTAL	279,144

LOS ANGELES, CA, DISTRICT

This district (total area about 230,000 square miles) comprises those drainage basins tributary to the Pacific Ocean that are in California between the Mexican boundary and Cape San Martin (about 265 miles north of the entrance to the Los Angeles Harbor). The lower Colorado River drainage basin (below Lee Ferry, AZ) which is southeastern California, southeastern Nevada, southwestern Utah, and all of Arizona, except the northeastern corner; that part of the Great Basin that is in southern Nevada and southeastern California; and the southern Arizona that drain southward into Mexico.

IMPROVEMENTS

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Navigation

1. CHANNEL ISLANDS HARBOR, CA

Location. On the coast of southern California about a mile northwest of Port Hueneme, 65 miles northwest of Los Angeles Harbor, and 345 miles south of San Francisco. (See Coast and Geodetic Survey Charts 5007 and 5202.)

Existing project. For details see page 33-2 of Annual Report for 1981.

Local cooperation. Fully complied with.

Terminal facilities. For details see page 33-2 of Annual Report for 1989.

Operations during fiscal year. A six year, three-cycle dredging contract was designed and awarded in FY2000. The contract covers FY2001 through FY2006. Mobilization and dredging activities began in September 2002 and continued into FY2003. Total O&M, General obligations in FY2003 were $3,388,509. Project condition good.

2. IMPERIAL BEACH, SILVER STRAND SHORELINE, CA

Location: Imperial Beach area is located in San Diego County on the southern end of the Silver Strand Peninsula, about 3.5 miles north of the United States-Mexico border.

Existing project The authorized project consisted of a system of five stone groins, the most northern groin at the north end of the existing seawall of the U. S. Naval Radio Station, and four other groins spaced at intervals of about 1,000 feet to a point 400 feet south of Coronado Avenue (now Imperial Beach Boulevard). A General Reevaluation Report was completed in FY 2002.

Local cooperation. City of Imperial Beach is the local sponsor.

Operations during fiscal year. Chief of Engineers Report was approved in December 2003 recommending an initial sand fill with periodic beach nourishment. The new recommended project is currently awaiting authorization in WRDA 2004.

3. LOS ANGELES – LONG BEACH HARBORS, CA

Location. On the coast of southern California in San Pedro bay about 25 miles south of the city of Los Angeles, about 96 miles northwest of San Diego Harbor, and about 410 miles southeast of San Francisco Harbor.

Existing project. The project consists of four increments of dredging to be constructed in two stages - deepening the existing entrance channel for the Port of Los Angeles and providing new channels to existing and new port facilities. The dredge material will be used for fill to create Pier 400. Estimated cost (October 1998) for existing project is $401,000,000 (includes an allowance for estimated inflation through the construction period), of which $115,200,000 is Federal ($114,900,000 Corps and $300,000 U.S. Coast Guard) and $285,800,000 is non-Federal.

Local cooperation. All items of local cooperation required under the terms of the previous authorizing acts have been fully complied with. See page 33-3 of Annual Report for 1981 for requirements under the terms of the 1976 Water Resources Development Act. The revised recommended project was changed due to the withdrawal of the Port of Long Beach on October 1, 1991. The Port of Los Angeles, the local sponsor, received credit, for advance work (Stage 1) performed per WRDA 1988. Project Cooperation Agreement executed March 18, 1997.

Terminal Facilities. Of the 82,553 feet of wharves in the Los Angeles Harbor, 75,729 feet are owned by the city and 6,824 feet are owned by private interests. The final report presented and recommended four project increments. Increment No. 2 would deepen the existing Los Angeles Harbor approach and entrance channels to Pier 300 to provide better access to dry bulk facilities. Increment No. 3 would further deepen the Los Angeles approach and entrance channel to Pier 300 and part of Pier 400, and deepen a south channel to provide access to the eastern side of Pier 400 and liquid bulk facilities. Increments No. 4 and 5 would extend Increment No. 3 of Los Angeles to provide access to container terminals that would be located on part of Pier 300 and Pier 400. The material obtained from the dredging was used to create new landfill within the port and shallow water habitat for the least tern.

Operations during fiscal year. A Long-Term Disposal Management Plan and a Pilot Project were continued from FY2002. Also, portions of the project were surveyed. Total O&M, General obligations were $304,555. Project condition is good.

4. LOS ANGELES HARBOR MAIN CHANNEL DEEPENING, CA

Location. The project area is located at the Port of Los Angeles on the coast of southern California in San Pedro

Bay, approximately 25 miles south of downtown Los Angeles.

Existing project. The proposed project would dredge 6.6 million cubic yards of sediment from the Los Angeles Main Channel, West Basin, East Channel, East Basin, and Cerritos Channel with disposal at Southwest Slip, Cabrillo Shallow Water Habitat and pier 400. The plan would also create approximately 40 acres of additional terminal space at Pier 300.

Local cooperation. The Port of Los Angeles and the Corps of Engineers executed the Project Cooperation Agreement July 25, 2002.

Operations during fiscal year. Continued construction and dredging of main channel.

5. MARINA DEL REY, CA

Location. Marina del Rey is located on Santa Monica Bay, 15 miles west of downtown Los Angeles, 29 miles northwest of Los Angeles Harbor and 390 miles southeast of San Francisco Bay.

Existing project. For details see page 33-3 of Annual Report for 1981. Existing Federal navigation project consists of two jetties a breakwater and navigation channels. Contaminated materials, causing costly maintenance and a potential threat to navigation, complicate a severe shoaling problem in the harbor.

Local cooperation. County of Los Angeles Department of Beaches and Harbors requested a new study, and expressed local support by letter dated August 5, 1992. Feasibility Cost Sharing Agreement signed February 21, 1997.

Terminal facilities. Marina del Rey is homeport to about 15 commercial fishing boats and 50 other transit boats with an annual fish catch valued at approximately $10 million. There are about ten charter boat and five tour boat operations used by over 100,000 people each year and over 6,000 berths servicing recreational craft within the harbor. Eight yacht clubs call the marina homeport. The marina offers sailing instruction, boat rental, repair and storage, harbor tours, sport fishing, retail facilities, coffee shops, snack bars and fine restaurants. The U.S. Coast Guard has a cutter permanently assigned to the harbor.

Operations during fiscal year. A hydrographic survey of the harbor was conducted. A Dredging Disposal Pilot Project supported by WES was continued from FY2002. Total O&M, General obligations were $48,489. Project condition is good.

6. MORRO BAY HARBOR, CA

Location. On coast of southern California 110 miles south of Monterey Bay, 120 miles northwest of Santa Barbara Harbor, and nearly midway between San Francisco and Los Angeles. (see Coast and Geodetic Survey Chart 5387).

Existing project. For details, see page 33-4 of Annual Report for 1980.

Local cooperation. Project Cooperation Agreement executed on April 7, 1995.

Terminal facilities. Facilities which are adequate for existing commerce, comprise 640 feet of existing piers and 150 feet of floating docks constructed by San Luis Obispo County; 263 feet of floating docks constructed by California Department of Parks and Recreation; 1,396 feet of floating docks constructed by the city of Morro Bay; 1,398 feet of privately-owned piers; and 5,435 feet of privately-owned floating docks.

Operations during the fiscal year. Annual maintenance dredging of the Entrance Channel was performed. Total O&M, General obligations were $1,160,560.

7. NEWPORT BAY HARBOR, CA

Location. Forty miles southeast of Los Angeles.

Existing project. Provides rubblemound entrance jetties, 920-foot deep and 500-foot wide entrance channel and main channel, inner channels, a turning basin, and anchorage areas. Upper Newport is a shallow 800-acre marine estuary. Navigation project is maintained by Corps of Engineers. Pursuant to Section 841 and subject to Section 903(b) of WRDA 1986, the project for navigation for the harbor is modified to dredge and maintain a 250-foot wide channel in Upper Newport Bay to the boundary of Upper Newport Bay State Ecological Preserve to a depth of 15 feet.

Local cooperation. In a resolution dated August 20, 1996, Orange County Board of Supervisors indicated strong support of feasibility study and understanding of cost sharing requirements.

Operations during fiscal year The Committee added $880,000 for maintenance dredging. Only portions of the Entrance, Main, and Balboa Channels were dredged due to contaminants in the dredge material making it unsuitable for beach or ocean disposal. Total O&M,

General obligations were $1,232,936. Project condition is adequate.

8. OCEANSIDE HARBOR, CA

Location. On the coast of southern California at Oceanside, about 30 miles north of city of San Diego and 80 miles south of Los Angeles.

Existing project. For details, see page 33-4 of Annual Report for 1981.

Local cooperation. Fully complied with. Oceanside Small Harbor Craft District sent letter of support dated April 1985 and Letter of Intent in March 1989. Project Cooperation Agreement executed in January 1993.

Terminal Facilities. Berthing for 957 boats, single-tie slips, 38 double-tie slips and 136 side-ties, of which 54 are visitors' slips; 12 dry storage spaces at Oceanside Marine Center; a fuel dock; a boat hoist; a launching ramp, which can accommodate 4 launchings at the same time; parking for 1,732 cars; with temporary parking for about 141 boat trailers; a boat-repair facility; a pump-out facility; a Coast Guard cutter; restaurants; retail stores; yacht brokers; a hotel/motel; condominiums; and a sport-fishing facility. Navigation improvements include new dredging and biannual dredging of expanded entrance channel area.

Operations during fiscal year. Annual contract maintenance dredging was performed. Total O&M, General obligations were $1,173,434. Project condition is fair.

9. OCEANSIDE HARBOR SAND BYPASS, CA

Location. On the coast of southern California along Oceanside Beach near jetty, about 30 miles north of city of San Diego and 80 miles south of Los Angeles.

Existing project. Underwater experimental pumping system with the pumps, fluidizers, and submerged pipeline to remove sand from harbor entrance and deposit it to down-coast beaches, on a continual basis. Phase I and Phase II have both been completed and successfully tested. The experiment is complete and we have determined the bypass technology can be installed with a successful operation but, not at Oceanside.

Local Cooperation. City of Oceanside officials support closure of the experimental bypass project.

Operations during fiscal year. Project close out completed.

10. PORT HUENEME, CA

Location. On the coast of southern California about 65 miles northwest of Los Angeles and Long Beach Harbors, about one mile southeast of Channel Islands Harbor, immediately west of the city of Port Hueneme, four miles southwest of the city of Oxnard, and 10 miles southeast of the city of Ventura.

Existing Project. Authorized in 1970 for restudy of completed project. The harbor serves both military and commercial uses with port facilities consisting of terminals, wharves, and warehouses serving a wide variety of products. The existing Federal project consists of an approach channel, entrance channel, central basin, and two rubblemound jetties. The Navy has plans to utilize the harbor more extensively for vessel berthing and repair; effectively reducing maneuverability in the harbor. Harbor District would like to use deeper draft wood pulp carrier vessels and possibly tankers.

Local cooperation. Requirements are described in full on page 33-3 of Annual Report for 1976. The Oxnard Harbor District reviewed and agreed to sign the Feasibility Cost Sharing Agreement on January 3, 1996.

Operations during fiscal year. A hydrographic survey of the harbor was conducted. Total O&M, General obligations were $18,436. Project condition is good.

11. PORT OF LONG BEACH (DEEPENING), CA

Location. On the coast of southern California along the Pacific Coast in San Pedro Bay about 20 miles south of downtown Los Angeles.

Existing Project. The recommended plan consists of deepening the approach channel to -76 MLLW, from breakwater seaward, a distance of about 2 miles to accommodate deep draft crude tankers. WRDA 1996 authorized project in accordance with the July 1996 Chief of Engineers Report. Dredging to –76 feet MLLW of the approach channel was completed in December 2000. Prior condition survey indicated that turning basin and navigation channel inside the harbor were not dredged by POLB to –76 feet. Anticipated cost to complete project is within project cost estimate.

The estimated cost of the project (October 1998) is $43,350,000.

Local cooperation. The Port of Long Beach is the local sponsor. The Project Cooperation Agreement was executed in July 1998.

Operation during the fiscal year. Continue design and Plans & Specifications for remaining work in entrance channel. Estimated cost is $5.7 million.

12. REDONDO BEACH HARBOR (KING HARBOR), CA

Location. On the coast of southern California on the southern portion of Santa Monica Bay, about 17 miles southwest of Los Angeles.

Existing project. For details, see page 33-4 of Annual Report for 1981. WRDA of 1986 (H.R. 6) Conference Bill, Title VIII - Project Modification, Section 809 - King Harbor, Redondo Beach, CA, modifies the King Harbor Project in order to carry out maintenance dredging and for breakwater construction, and authorized the Secretary to restore the breakwater to a height of 22 feet and maintain breakwater at such height to provide greater protection from heavy wave action.

Local cooperation. City of Redondo Beach officials are in full support of the study and have indicated desire to construct improvements to reduce continued storm related damages.

Operations during fiscal year. Rockwork inspections were performed under the project "Project Condition Surveys". Project condition is good.

13. SAN DIEGO HARBOR, CA

Location. On the coast of southern California just north of the Mexican border, about 109 miles southeast of Los Angeles and Long Beach Harbors. (See Coast and Geodetic Survey Chart 5107).

Existing project. For details, see pages 33 and 34 of Annual Report for 1980.

Local cooperation. Requirements are described in full on pages 33 and 34 of Annual Report for 1980.

Terminal facilities. Consists of 45,070 feet of wharves, exclusive of Government-owned and 24,000 feet are privately owned. Government-owned wharves at North Island are restricted to military use only.

Operations during fiscal year. A hydrographic survey of the harbor was conducted. Total O&M, General obligations were $116,649. Project condition is good.

14. SAN DIEGO RIVER AND MISSION BAY, CA

Location. The project is located at the mouth of the San Diego River about six miles northwest of the San Diego business district, San Diego County, California.

Existing project. For details, see page 33-3 of Annual Report for 1991. Authorized by the Flood Control Act of 1944, the existing project consists of a levee channel, entrance channel, main channel, altered railroad bridge, anchorage basins (West Anchorage and Quivira) and three jetties. Construction of a 1,200-foot-long weir restored design conveyance capacity at the mouth of the San Diego River. A sand plug in mouth of river reduced flood-carrying capability from 115,000 cfs to 35,000 cfs, equal to a 100-year flood. The temporary timber pile breakwater at Quivira Basin was replaced with a permanent rubble mound breakwater.

Local cooperation. The Project Cooperation Agreement was executed July 1996 with the city of San Diego.

Operations during fiscal year. A hydrographic survey of the harbor was conducted. Engineering and Design efforts for the repair of the Middle Jetty and for dredging the Entrance Channel continued from FY2002. Environmental evaluations were conducted regarding contaminated dredge material. Total O&M, General obligations were $146,850. Project condition is fair.

15. SANTA BARBARA HARBOR, CA

Location. On the coast of southern California, 90 miles northwest of Los Angeles Harbor.

Existing project. For details on original, see page 33-4 Annual Report for 1983. For reevaluation details see WRDA, 1986. The recommended plan includes acquiring a permanent dredge for the city and they will assume the operation and maintenance of the channel.

Local cooperation. See page 1015 of Annual Report for 1969, for items of local cooperation under 1962 authorized modification of existing project. The city reaffirmed its support on January 23, 2002.

Operations during fiscal year. A three-year, six-cycle contract was awarded for FY2002 through FY2004. Annual contract maintenance dredging (two cycle) was performed. Total O&M, General obligations were $1,144,366. Project condition is fair.

16. SANTA MONICA BREAKWATER, CA

Location. Santa Monica Breakwater is located seaward of the Santa Monica Pier, approximately 15 miles west of downtown Los Angeles. Existing breakwater is 2,000 feet long and lies 1,300 feet from the shoreline.

Existing project. The authorized project comprises reconstruction of 900 feet of the southern end of the existing

breakwater to an elevation of +10 feet MLLW for storm damage prevention and constructing an offshore boulder-field for fish habitat. The local sponsor will provide 12 moorings and other boating support facilities to reestablish commercial boating opportunities. WRDA 1996 authorized the project. The estimated cost of the project is $7,200,000 (Federal cost is $4,700,000 which includes $40,000 US Coast Guard; Non-Federal cost is $2,500,000).

Local cooperation. City of Santa Monica, the local sponsor, indicated its support in July 1995 for the authorized project and its willingness and intent to execute the Project Cooperation Agreement.

Operations during fiscal year. None.

17. SURFSIDE, SUNSET AND NEWPORT BEACH, CA

Location. Project extends along Orange County coastline, 17 miles from San Gabriel River mouth downcast to Newport Bay Harbor entrance.

Existing project. Authorization Section 101 of Rivers and Harbors Act 1962. Modified by Chief of Engineers September 1963. Project is a periodic continuing construction project.

Local cooperation. State of California, Orange County, Cities of Newport and Huntington Beach, and Surfside Colony. Funding agreement with the State of California for Stage 11 was executed on August 9, 2001.

Operations during fiscal year. None

18. VENTURA HARBOR, CA

Location. Located 65 miles northwest of Los Angeles and six miles northwest of Channel Islands Harbor.

Existing project. For details, see page 33-5 of the Annual Report for 1981. Reevaluation under WRDA 1990 consists of modification to the existing harbor by constructing a separate South Beach groin, extending the offshore breakwater, adding a spur groin to the north jetty and detached breakwater, and deepening and extending the entrance channel and sand trap.

Local cooperation. Fully complied with.

Operations during fiscal year. Annual contract maintenance dredging was performed. The South Beach Groin was repaired. Total O&M, General obligations were $4,797,828. Project Condition is fair.

18A. NAVIGATION/BEACH EROSION CONTROL WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645.

Federal cost for Section 107 was $84,907 of which $71,424 was used for projects and $13,483 was used for Coordination Account.

Beach erosion control activities pursuant to Section 103, Public Law 87-874 (preauthorization).

Federal cost for Section 103 was $85,987 used for projects.

Flood Control

19. ALAMO DAM, AZ

Location. About 70 miles southeast of Kingman, Arizona on the Bill Williams River, Arizona a tributary of the Colorado River.

Existing project. For details, see page 33-7 of Annual Report 1981.

Local cooperation. Fully complied with.

Operations during fiscal year. Routine operations and maintenance were performed. A Formal Periodic Inspection was completed. Total O&M, General obligations were $1,109,948. Project condition is good.

20. CLIFTON, AZ

Location. Located on San Francisco River approximately 170 miles northeast of Tucson in Greenlee County, AZ.

Existing project. The project consists of both structural and nonstructural elements, including an earthfill levee about 3,000 feet long, with floodgates and floodwalls. Implementation will involve flood proofing of 11 businesses, flood plain evacuation plans, and recreation development. Estimated cost (October 1998) for existing project is $24,100,000 (includes $2,600,000 cash contribution and $5,400,000 other costs). Construction of the levee and floodwall was completed August 1995 and turned over to sponsor December 1996. Completed non-structural relocation in December 1998.

Local cooperation. The State of Arizona, Division of Emergency Services, is the local sponsor. Project Cooperation Agreement executed on July 30, 1993.

Operations during fiscal year. None.

21. HANSEN DAM, LACDA, (RECREATION DEVELOPMENT), CA

Location. In the San Fernando Valley area of the city of Los Angeles about 20 miles northwest of downtown Los Angeles. Recreation lake and facilities lie within flood control basin boundaries.

Existing project. Original project authorized under Flood Control Act 1936, and modified by WRDA 1986, Section 847 Energy and Water Development Act 1992 (PL 102-104). Project consists of two phases. Phase 1 is the excavation of the lake, and rough grading of the roadways and building pad locations. Phase 2 is the construction of a 10.5-acre recreation lake, picnic facilities, access roads, parking lots, and landscaping.

Local cooperation. Project is 50/50 cost shared with the city of Los Angeles.

Operations during fiscal year. In FY2003, the Committee added $3,160 for Recreation Development and Environmental Restoration. Coordination with local interests on exact usages of funds was initiated and engineering and design efforts were begun. Total O&M, General obligations were $155,690. Remaining funds were carried over into FY2004. Project condition is good.

22. HOLBROOK, AZ

Location. Located along the Little Colorado River in the City of Holbrook, AZ, about 150 miles northeast of Phoenix.

Existing project. The completed project will provide 100-year-flood protection to 696 residences and 205 commercial, industrial, and public buildings. Estimated cost (October 1996) for this project is $14,600,000, of which $11,000,000 is Federal and $3,600,000 is non-Federal (includes $1,935 cash contribution and $1,665,000 other costs).

Local cooperation. The City of Holbrook signed the Project Cooperation Agreement, on August 24, 1993.

Operations during fiscal year. Site inspected for safety.

23. LOS ANGELES COUNTY DRAINAGE AREA, CA

Location. Along Los Angeles and San Gabriel Rivers, Rio Hondo, and Compton Creek, CA.

Existing project. Project consists of channel improvement to lower Los Angeles, Rio Hondo Rivers, Compton Creek, and modification/replacement of as many as 27 bridges necessitated by the channel improvements. A map of the rehabilitation plan is in "General Design Memorandum, Los Angeles River Rehabilitation under the Major Rehabilitation Program," dated January 1984 and revised in March 1984. Estimated cost (October 1999) for existing project is $200,000,000 of which $150,000,000 is Federal and $50,000,000 is non-Federal (includes $43,968,000 cash contribution and $6,032,000 other costs).

Local cooperation. In February 1992, the Los Angeles County Department of Public Works, the local sponsor, affirmed its support and willingness to financially participate in the construction of the project at a level consistent with the current cost-sharing policy for construction. The Project Cooperation Agreement was executed August 7, 1995.

Operations during fiscal year. Routine operations and maintenance activities were performed. Engineering and Design efforts were continued for repair of the: 1) San Gabriel River Levee Armor Stone (scouring) at the confluence of San Jose Creek, 2) Los Angeles River Overlay, 3) San Gabriel River Drop Structure. Los Angeles River Vertical Walls Replacement (three panels) and the Compton Creek Channel Wall Repair were completed. Contractual debris removal was conducted at Compton Creek and Hansen Dam. Chemical sprays were used to stop the re-growth of Arundo in the soft-bottom flood control channels at Sepulveda Dam in the Los Angeles River and at Whittier Narrows Dam in the San Gabriel River.
Periodic Inspections at Santa Fe and Whittier Narrows Dams were completed. Total O&M, General obligations were $5,596,147. Project condition of Dams and Channels is good.

24. LOS ANGELES RIVER, SEPULVEDA TO ARROYO SECO, (RECREATION DEVELOPMENT), CA

Location. Upper Los Angeles River from Sepulveda Flood Control Basin (located 25 miles northwest of the city of Los Angeles) to the confluence of the Arroyo Seco channel, a distance of 20 miles.

Existing project. The Upper Los Angeles River consists primarily of a rectangular channel from the Sepulveda Basin to a point approximately four miles above the Arroyo Seco as a trapezoidal channel of the Arroyo Seco.

Local cooperation. Project is 50/50 cost shared with City of Los Angeles Department of Transportation.

Operations during fiscal year. Project close out completed.

25. MOJAVE RIVER DAM, MOJAVE RIVER BASIN, CA

Location. On Mojave River at the Forks site, just downstream from the mouth of Deep Creek and about 14 miles upstream from Victorville, in Mojave River Basin, CA.

Existing project. For details, see page 33-8 of Annual Report for 1983.

Local cooperation. None required.

Operations during fiscal year. Routine operations and maintenance activities were performed. A Periodic Inspection was conducted. Total O&M, General obligations were $246,252. Project condition is good.

26. MURRIETA CREEK, CA

Location. The project is located partly within the city of Flagstaff and entirely within Coconino County, Arizona.

Existing project. The recommended project consists of channel modifications, construction of a detention basin, and construction of berms and floodwalls in the Thrope Parka area.

Local cooperation. The City of Flagstaff and the Corps of Engineers executed the Design Agreement on April 18, 2001.

Operations during fiscal year. Continued preconstruction engineering and design phase.

27. NOGALES WASH, AZ

Location. At the Mexican Border, in extreme southern Arizona in central and northern portions of the city of Nogales, about 60 miles south of Tucson.

Existing project. Current plan includes a flood warning system in Mexico and United States. Estimated cost (October 2000) for existing project is $560,000, $420,000 of which is Federal and $140,000 is non-Federal.

Local cooperation. Project Cooperation Agreement scheduled for execution in the last quarter of Fiscal Year 2002. Negotiating agreement with Mexico through U.S. International Boundary and Water Commission (IBWC).

Operations during fiscal year. Final Limited Reevaluation Report to HQ on Sep 2003. Plans and Specifications approved May 2003.

28. NORCO BLUFFS, SANTA ANA RIVER, CA

Location. Located approximately 40 miles southeast of Los Angeles, in the city of Norco, along a 3.75-mile stretch of the south bank of the Santa Ana River.

Existing Project. The project consists of a structural solution of revetted-buttress fill using existing and imported fill material one reach, a distance of one mile. The bluff stabilization protects a 65-foot-high bluff from further retreat into a residential neighborhood, which results when flood flows occur in the Santa Ana River. Estimated cost (October 2000) is $15,000,000 of which $11,250,000 is Federal and $3,750,000 is non-Federal.

Local cooperation. Local sponsor, Riverside County Flood Control District. Project Cooperation Agreement executed in January 1999.

Operations during fiscal year. Phase II, additional buttress fill completed.

29. PAINTED ROCK DAM (GILA RIVER), AZ

Location. About 20 miles northwest of Gila Bend, and 120 miles southwest of Phoenix, Arizona.

Existing project. For details, see page 33-9 of Annual Report for 1981.

Local cooperation. Requirements are described in full on 33-9 of Annual Report for 1981.

Operations during fiscal year. Routine operations and maintenance activities were performed. A Periodic Inspection was conducted. Total O&M, General obligations were $1,084,968. Project condition is good.

30. PINE AND MATHEWS CANYONS DAMS, COLORADO RIVER BASIN, NV

Location. In Lincoln County, NV, about 100 miles north of Hoover Dam and about 17 and 20 miles, respectively, east of Caliente, NV.

Existing project. For details, see page 33-13 of Annual Report for 1981.

Local cooperation. Fully complied with.

Operations during fiscal year. Routine operations and maintenance activities were performed. Total O&M, General obligations were $177,408. Project condition is good.

31. RILLITO RIVER, AZ

Location. The project is located in Tucson metropolitan area of Pima County, AZ.

Existing project. Plan of improvement includes: 1) an upstream equestrian staging area; 2) an upstream rest area; 3) a downstream rest area; 4) esthetic treatment planting; 5) construction of 16 pedestrian bridges; and 6) pending reauthorization to include extension of authorized project upstream along a portion of Tanque Verde Creek. Estimated cost (October 1998) for existing project is $40,000,000 (includes an allowance for estimated inflation through the construction period), of which $28,600,000 is Federal and $11,400,000 is non-Federal. Flood control portion is $34,215,468 and recreation is $5,784,532.

Local cooperation. Pima County Transportation and Flood Control District submitted letters of assurance on February 24, 1986 and May 6, 1987. Project Cooperation Agreement (PCA) was executed in June 1994. Amendment to PCA for third increment was executed on September 16, 1998.

Operations during fiscal year. None.

32. RIO DE FLAG, FLAGSTAFF, AZ

Location. The project is located partly within the city of Flagstaff and entirely within Coconino County, Arizona.

Existing project. The recommended project consists of channel modifications, construction of a detention basin, and construction of berms and floodwalls in the Thrope Parks area.

Local cooperation. The City of Flagstaff and the Corps of Engineers executed the Design Agreement on April 18,2001.

Operations during fiscal year. Continued the pre-construction engineering and design phase for Clay Avenue Wash Detention Basin. Completed local sponsor review of the Design Document Report April 2003 and Internal Technical Review June 2003.

33. SANTA ANA RIVER MAINSTEM, CA

Location. Along a 75-mile reach of the Santa Ana River in San Bernardino, Riverside, and Orange Counties, emptying into the Pacific Ocean between the cities of Newport Beach and Huntington Harbor, 50 miles south of Los Angeles, and 90 miles north of San Diego.

Existing project. For details, see page 33-9 of the Annual Report for 1987. Plan of improvement: Seven Oaks Dam, management of overflow area - Seven Oaks to Prado; raise Mill Creek Levee; additional storage at Prado; improvements along: Oak Street Drain/Riverside Co., Santiago Creek/Orange Co., San Timoteo Creek/San Bernardino Co., and Lower Santa Ana River; recreation development: mitigation and preservation. The estimated cost (October 2003) for existing project is $1,496,000,000 (includes an allowance for estimated inflation through the construction period), of which $1,023,000,000 is Federal and $473,000,000 is non-Federal (includes $82,187,000 cash contribution and $390,813,000 other cost).

Local cooperation. Counties of San Bernardino, Riverside, and Orange. Local Cooperation Agreement was signed on December 14, 1989.

Operations during fiscal year. Continued engineering and design on Lower Santa Ana River, Santiago Creek, and Prado Dam. Initiated construction on Prado dam Embankment and outlet, LSAR Reach 9, Phase I, and LSAR Reaches 1 and 2 dredging, continued construction on San Timoteo Creek Reach 3B(2) and LSAR Phase IV Landscaping.

34. SANTA ANA RIVER BASIN AND ORANGE COUNTY, CA

Location. On the Santa Ana River and tributaries and on other streams in Orange, Riverside, and San Bernardino Counties, CA.

Existing project. For details on units, see Annual Report for 1968.

Local cooperation. Fully complied with. Orange County Water District advocated an increase in water conservation at Prado Dam up to elevation 505 feet. Prado Basin includes significant riparian wetlands, including nesting areas of the endangered least Bell's vireo. The basin is currently under review as proposed critical habitat for the vireo.

Operations during fiscal year. Routine operations and maintenance activities were performed. Periodic Inspections at Prado and San Antonio Dams was completed. The update to the Prado Dam Master Plan continued. Total O&M General obligations were $2,900,420. Project condition of Dams and Channels is good.

35. SANTA PAULA CREEK, CA

Location. Santa Paula Creek is a tributary of the Santa Clara River in the vicinity of the city of Santa Paula, Ventura County, about 16 miles from the ocean and approximately 60 miles northwest of downtown Los Angeles.

Existing project. Authorized by Flood Control Act of 1970, Public Law 91-611 (HD 443/80/1) and for details see Annual Report Fiscal Year 1991, page 33-10. Estimated cost (October 2000) for existing project is $40,900,000, of which $39,300,000 is Federal and $1,600,000 is non-Federal (includes $0 cash contribution and $1,600, 000 other costs).

Local cooperation. Ventura County Flood Control District.

No authorization is required; therefore, the existing Section 221 Agreement is still binding and was amended in September 1996.

Operations during fiscal year. Initiated environmental monitoring.

36. SAN LUIS REY RIVER, CA

Location. Along the lower 7.2 miles of the San Luis Rey River, in and around the city of Oceanside, San Diego County, about 86 miles south of Los Angeles.

Existing project. A double levee, 5.4 miles long; stone protected channel with a soft bottom; 1,330 feet of parapet walls at the ocean on the north and south levees; six interior drainage ponds; and a five-mile bike trail. The Water Resources Development Act of 1996 reauthorized the project. Estimated cost (October 1998) $81,600,000 of which $61,100,000 is Federal and $20,500,000 is non-Federal (including $4,100,000 cash contribution).

Local cooperation. Final Local Cooperation Agreement signed by city of Oceanside and Secretary of Army May 13, 1988.

Operations during fiscal year. Continued biological assessment for O&M plan.

37. SEPULVEDA DAM, (RECREATION DEVELOPMENT), CA

Location. The project is located between the communities of Encino and Van Nuys and 15 miles northwest of Los Angeles.

Existing project. Flood Control Act 1936 and Public Law 77-387 1941, and 1989-1972. Primary project purpose is flood control. Subsequent Act of Congress authorized a secondary project purpose for park and recreation.

Local cooperation. Recreation project is 50/50 cost shared with the city of Los Angeles. Federal funds will complete Lake Balboa and park with comfort station, trails, fencing, irrigation, childrens play area, revegetation and develop an additional wildlife area. The city will continue reclaimed water distribution and develop several park areas.

Operations during fiscal year. Project construction physically completed January 1999. Total O&M, General obligations in FY2003 were $1,377. Project condition is good.

38. SWEETWATER RIVER, CA

Location. The project empties into San Diego Bay in the city of Chula Vista and National City and unincorporated San Diego County, four miles south of the city of San Diego, and eight miles north of the Mexican Border.

Existing project. Construction of 3.2 miles of channel improvements along the Sweetwater River from Interstate 805 to San Diego Bay, in combination with State Route 54 and Interstate 5 construction; and construction of two railroad bridges and 188 acres of preservation and mitigation land.

Local cooperation. San Diego County signed 221 Agreement in December 1984.

Operations during fiscal year. None.

39. TROPICANA AND FLAMINGO WASHES, NV

Location. The project area is located west of and through urbanized Las Vegas community along both Tropicana and Flamingo Washes in southern Nevada.

Existing project. The recommended plan will provide urban flood reduction, erosion control and wildlife enhancement for portions of Las Vegas and the surrounding areas to the west and southwest, including the rapidly developing alluvial fan immediately west of Las Vegas. The plan recommends construction of three debris basins, three detention basins, modifications to two existing detention basins, 28 miles of channels connecting these project elements, 43 miles of lateral collectors, environmental mitigation, and recreation facilities. The estimated cost (October 2001) for the existing project is $291,000,000 (includes an allowance for estimated inflation), of which $214,800,000 is Federal and $76,200,000 is non-Federal (includes $28,800,000 cash contribution and $47,400,000 other costs).

Local cooperation. The Clark County Regional Flood Control District and the Department of Public Works are the loc-al sponsors for flood control. The Clark County Recreation Department is the potential local sponsor for the recreation feature. The Project Cooperation Agreement (PCA) was executed on February 7, 1995. The Section 211 PCA was executed December 17, 1999. Clark County was reimbursed $1.6 million for Section 211 work.

Operations during fiscal year. Completed construction of the R-4 Detention Basin and channel. Continued the construction of F1/F2 Debris Basins and the Upper Flamingo Diversion Channel. Initiated construction of Upper Blue Diamond Wash and Diversion Channel.

40. TUCSON DIVERSION CHANNEL (RECREATION DEVELOPMENT), AZ

Location. The Tucson Detention Basin and Diversion Channel are located in southeast Arizona. The project area

initiates within the basin and proceeds approximately five miles downstream until it meets Interstate 19.

Existing project. The recreational development consists of a bicycle and hiking trail; four rest areas at the basin's inlet and outlet areas, near the intersection of Park Avenue and Ajo Way, across the street from Wakefield Middle School and near Interstate 19, where the project ends; four channel under crossing areas at Ajo Way (near the basin's outlet), Interstate 10; Kino Parkway; and Benson Highway; a restroom facility and five to seven car parking area located near the end of the project area; lighting at rest areas; benches; pedestrian bridges; and landscaping. The flood control channel maintains a 30-40 foot width, with a average 30-foot right-of-way on each side of the channel. The trail system is primarily located along the north bank of the channel.

Local cooperation. Pima County is the local sponsor.

Operations during fiscal year. None.

41. TUCSON DRAINAGE AREA, AZ

Location. Project is located along Tucson Arroyo/Arroyo Chico watershed, within the Tucson city limits in Arizona.

Existing project. Both the reconnaissance report and the feasibility study identified the Tucson Arroyo/Arroyo Chico watershed area (approximately 11.4 square miles) as the major drainage channel within downtown Tucson. The recommended plan has two main features consisting of two detention basin complexes - one on Arroyo Chico in the headwaters of the drainage area (referred to as Randolph Golf Course Detention Basin Complex), and one on Tucson Arroyo/Arroyo Chico in the approximate center of the watershed (referred to as Park Avenue Detention Basin Complex). The local sponsor completed the Randolph Golf Course Detention Basin Complex in May 1996 using Section 104 credit consideration.

Local cooperation. Pima County Flood Control District and the Corps of Engineers executed the Design Agreement on May 3, 1999.

Operations during fiscal year. Completed Internal Technical Review of intermediate P&S phase II. Completed LEERDS acquisition.

42. WHITLOW RANCH DAM, QUEENS CREEK, AZ

Location. Fifty miles southeast of Phoenix, AZ in Pinal County, on Queen Creek, Arizona a tributary of Gila River, about 10 miles west of Superior, Arizona.

Existing project. For details see page 33-10 of Annual Report 1981. Project element earthfill Dam, circular conduit outlet works and reservoir.

Local cooperation. Fully complied with.

Operations during fiscal year. Routine operations and maintenance activities were performed. A Periodic Inspection was conducted Total O&M, General obligations were $400,618. Project condition is good.

43. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspection of 9 completed local flood control projects consisting of the following: 375 miles of channels, six dams, and appurtenances, and 23 debris basins. See Table 33I. Obligations for: Arizona - $71,996, California - $643,392, and Nevada - $33,977. Total O&M, General obligations were: $749,365.

44. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

In accordance with Section VII, Flood Control Act of 1944, studies of reservoir operations for flood control were conducted; and preparation of regulations for the use of storage allocated for flood control was continued. The flood control structures were Hoover, Twitchell, and Tat Momolikot Dams. Obligations for: Arizona - $21,559, California - $156,591. Total O&M, General obligations were $178,150.

45. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control Activities Pursuant to Section 205 of the 1948 Flood Control Act, Public Law 858, 80th Congress, as Amended:

Federal cost for Section 205 was $729,475 of which $719,659 was used for studies and $9,816 for Coordination Account. See Table 33-J for list of projects.

Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended

Federal cost for Section 14 was $60,745 of which $55,728 was used for studies and $5,017 for Coordination Account.

Snagging and Clearing Navigable Streams and Tributaries in interest of Flood Control, Section 208, 1954

Flood Control Act, Public Law 780, 83d Congress.

Federal cost for Section 208 was $0.

Modifications to Structures and Operations of Constructed Corps Projects to Improve the Quality of the Environment, Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as amended.

Federal cost for Section 1135 was $1,490,803 of which $1,475,947 was for studies and $6,374 for Coordination activities and $8,482 Preliminary Restoration Plan.

Aquatic Ecosystem Restoration Pursuant to Section 206 of Water Resources Development Act of 1986

Federal cost for Section 206 was $829,057 of which $8,368 was Coordination Account and $32,275 was Preliminary Restoration Plans and $788,414 for Studies.

46. EMERGENCY RESPONSE ACTIVITIES - FLOOD CONTROL AND COASTAL EMERGENCIES

Emergency Flood Control Activities - repair, flood fighting, and rescue work (Public Law 99, 84th Cong., and antecedent legislation).

A. Disaster: This program encompasses all the activities associated with preparedness, which includes preparation of plans and policy documents, exercises, training, coordination with outside agencies and governments, maintaining supplies and equipment, and the like.

B. Operational Program Areas: Fiscal Year cost for disaster preparedness was $564,433; emergency operations cost was $2,589; rehabilitation cost $103,080.

C. Emergency Work in Support of Other Federal Agencies.

Support work was performed for Federal Emergency Management Agency (FEMA) following wildfires in Arizona and the typhoon in Guam at a cost of $48,153.

Environmental Improvements

47. CAMBRIA SEAWATER DESALINATION, CA

Location: The project area is located in San Luis Obispo County, California approximately 230 miles north of Los Angeles, CA.

Existing project. The Cambria Community Services District (CCSD) plans to build a desalination plant to ensure adequate water supply. Their current water sources are wells in shallow aquifers and are unable to provide a reliable water source, particularly during dry weather. The proposed work includes design refinement, permitting and Environmental Impact Statement/Environmental Impact Report and construction.

Local Cooperation. Cambria Community Services District.

Operations during fiscal year. The Project Cooperation Agreement, Project Management Plan and the Decision Document Report sent to sponsor for review.

48. CITY OF SANTA CLARITA (PERCHLORATE), CA

Location. The project is located within the Santa Clarita Valley in the northern part of Los Angeles County, CA.

Existing project. The main objective of the study is to evaluate the existing aquifer conditions of the Santa Clarita Valley Saugus area and develop alternatives for long-term solutions to restoring the perchlorate impacted aquifer to drinking water quality. The study will include source identification, defining the nature and extent of contamination, aquifer characterization, evaluation of alternative well sites, groundwater modeling, and evaluation of long-term treatment technology solutions.

Local cooperation. The Federal Cost Sharing Agreement was executed in April 2002 with the Castaic Lake Water Agency.

Operations during fiscal year. The study installed over 8,500 feet of soil borings that were constructed into 4 multi-port monitoring wells and 7 single screened monitoring wells that total 41 sampling locations. The deepest well extended 1,600 feet below ground surface. Groundwater data was collected from each well and each mulit-port sampling location. The data collected provided important insight into the aquifer conditions and localized areas of extreme contaminate impact from perchlorate in the local aquifer.

49. HARBOR-SOUTH BAY WATER RECYCLING, CA

Location. The project area is located in the South Bay area of Los Angeles County, CA encompassing cities of Los Angeles, Compton, Carson, Gardena, Inglewood, Hawthorne, Torrance, Redondo Beach, Palos Verdes, Rolling Hills, and Ranch Verde Estates.

Existing project. The project is part of the West Basin Municipal Water District's recycled water distribution system expansion, which will serve recycled wastewater to numerous local cities. The project will include the design and

construction of over 30 miles of recycled water pipeline and distribution facilities. The project features are classified into 12 laterals and associated distribution/operational facilities to be designed and constructed.

Local cooperation. The local sponsor is the West Basin Municipal Water District.

Operations during fiscal year. Completed construction of Victoria Lateral and CSUDH Lateral (City of Carson) and design for Dye House Area Lateral.

50. NORTH VALLEY REGIONAL WATER INFRASTRUCTURE , CA

Location. The project is located in the city of Lancaster, about 50 miles northeast of Los Angeles, in Los Angeles County.

Existing project. The project will provide critically needed water facilities to the northern sector of the Antelope Valley region. The project will include design and construction of approximately 8.5 miles of 36-inch diameter water main and related facilities to serve this part of the city.

Operations during fiscal year. Initiated preparation of the Project Cooperation Agreement by the Corps and the scope of work by Sponsor.

51. RIO SALADO PHOENIX & TEMPE REACHES, AZ

Location. Phoenix Reach is located along 5 miles of the Salt River, from Interstate 10 Bridge to 19th Avenue in Phoenix, AZ. The project area for Tempe Reach is located along 1.3 miles of Indian Bend Wash, from McKellips Road downstream to confluence with Salt River in Tempe, Arizona.

Existing project. Two sites have been identified with a Federal interest in environmental restoration involving riparian habitat restoration, water quality improvement and recreation that are incidental or complimentary to the primary project purpose. The first site is 1.5 miles of Indian Bend Wash, from McKellips Road downstream to the confluence with the Salt River in Tempe; the second site is located along 5 miles of the Salt River, form the Interstate 10 Bridge to 19th Avenue in Phoenix.

Operations during fiscal year. Phoenix Reach: Completed design for the Water Supply Maintenance Road March 200e and phase 2 June 2003. Tempe Reach: Initiated construction on Indian Bend Wash Aug 2003 and initiated design of phase 2 (downstream Salt River Reach) Sep 2003.

52. RURAL NEVADA, AZ

Location. Rural Nevada project includes Boulder City, Mesquite, and Moapa, Nevada. Boulder City is located approximately 25 miles southeast of the city of Las Vegas, Nevada. Mesquite is located approximately 70 miles northeast of the city of Las Vegas, Nevada. The city of Moapa is located approximately 35 miles northeast of the city of Las Vegas, Nevada.

Existing project. Boulder City project is focused on renovation of three existing pump stations and several miles of force main in Hemanway Valley. This project will protect against accidental discharge of untreated wastewater into the watershed of Lake Mead National Recreation Area and Lake Mead. The Mesquite project is focused on development of a multi-purpose water resource project, to include flood control, retention facilities, water supply, environmental restoration, and sediment control. Phase 1 will include the construction of a wastewater tertiary treatment system to enhance the existing system and include the design work on phases 2 and 3. Phase 2 will include the construction of detention facilities at Pulsipher Wash. Phase 3 will include the construction of retention facilities at Abbott Wash. The Moapa project consists of design and construction of monitoring wells to determine the potential of this area to supplement current water supply. The design and construction of an inter-connect pipeline to the neighboring Coyote Springs Wash Basin is being considered with the total scope of the Project.

Local cooperation. The sponsors for these projects are city of Boulder City, Nevada, the city of Mesquite, Nevada, and the city of Moapa, Nevada.

Operations during fiscal year. Reimbursed sponsor 75% for costs to initiate construction pf Pulsipher water retention and reuse facilities and design of phase 3 Abbott water retention and reuse facilities.

53. SAN GABRIEL BASIN RESTORATION, CA

Location. San Gabriel Groundwater basin lies within the San Gabriel alley at the foot of the San Gabriel Mountains in eastern Los Angeles County, CA. The area covers approximately 200 square miles.

Existing project. The project includes construction of the water treatment facilities to cleanup groundwater contaminations.

Local cooperation. San Gabriel Basin Water Authority is the local sponsor.

Operations during fiscal year. None

54. SOUTH PERRIS, CA

Location. The project is located in Perris, Riverside County, California.

Existing project. The project involves the design and construction of a reverse osmosis desalination plant, wells, pipelines and brine management pipelines required for the phased implementation of the Perris Basins Desalination Program.

Local cooperation. Local Sponsor, Eastern Municipal Water District, EMWD, signed a designed agreement on September 3, 2003. The Project Cooperation Agreement has not yet started.

55. TRES RIOS, AZ

Location. Project is located within the Phoenix metropolitan area of Maricopa County and includes a nine-mile reach of the Salt and Gila Rivers beginning at 83rd Avenue and continuing downstream to the confluence with the Agua Fria River.

Existing project. The feasibility report was completed in May 2000. The recommended plan will address flood control and riparian habitat restoration. The benefits of environmental restoration would be the potential for 1,200 acres of riparian and wetland habitats to be restored.

Local cooperation. A Design Agreement was executed with the city of Phoenix and the Sub-Regional Operating Group in January 2001.

Operations during fiscal year. Continued the design of the flood control levee and initiated engineering and design of the pump station wetlands.

56. UPPER NEWPORT BAY HARBOR, CA

Location. The authorized restoration project is located about 40 miles southeast of Los Angeles and covers the upper bay ecological reserve.

Existing project. The project includes dredging the access channels and two sediment basins toward providing restoration measures to the degraded habitat areas and re-establishing wetland and wildlife habitat areas.

Local cooperation. Orange County State of California Fish and Game.

Operations during fiscal year. Continued design, initiated draft Project Cooperation Agreement.

General Investigations

57. SURVEYS

Total Fiscal Year costs were $11,125,585 of which $926,707 was for navigation studies; $225,332 was for flood damage prevention studies; $1,654,416 was for shoreline protection studies; $8,101,406 was for special studies; $0 for review of completed projects; $128,658 was for Miscellaneous Activities (includes $72,060 for special investigations; $3,704 for FERC licensing activities; $47,024 for Interagency Water Resources Development; $3,762 for National Estuary Studies; $2,108 for North American Waterfowl Management Plan); and $89,066 for Coordination Studies with other Agencies and Non-Federal Interests, ($61,879 was for Planning Assistance to States $5,128 for Arizona, and $56,751 for California).

58. COLLECTION AND STUDY OF BASIC DATA

Fiscal Year costs totaling $208,727 were associated with the following tasks under the Flood Plain Management Services Program, FPMS Unit $32,700; Technical Services $41,678; Quick Responses $6,065; and Special Studies $81,134 and $47,150 for hydrologic studies.

59. PRECONSTRUCTION ENGINEERING AND DESIGN

Fiscal Year expenditures were $1,139,410 of which $51,460 was for projects not yet authorized for construction and $1,087,950 was for fully authorized projects.

59A. SANTA BARBARA STREAMS, LOWER MISSION CREEK, CA

Location. Located in Santa Barbara County about 100 miles northwest of Los Angeles, CA.

Existing project. The feasibility report was completed in Sep 2000.

Local cooperation. The city of Santa Barbara and the Santa Barbara County Flood Control and Water Conservation District, the local sponsors, expressed support for the project in September 2000.

Operations during fiscal year. Executed Design Agreement in April 2003. Initiated PED and conducted engineering scope meeting and prepared scope of work for Design Documentation Report. Awarded HTRW investigation contract, mapping contract and tidewater Goby genetic study contract.

59B. WHITEWATER RIVER BASIN, CA

Location. Project is located in Coachella Valley, and runs along cities of Palm Springs, Rancho Mirage, Palm Desert, Thousand Palms, Desert Hot Springs and other communities.

Existing project. The Feasibility study was completed in Oct 2000. Alternative 6 recommended project consists of constructing four levees to provide protection for the southern portion of the alluvial fan.

Local cooperation. Coachella Valley Water District and the Corps of Engineers executed the Design Agreement on August 14, 2001.

Operations during fiscal year. Completed preliminary hydraulic design and initiated sediment transport study.

1.	Channel Islands, CA	Maint: Approp.	1,060,000	2,886,549	885,000	3,375,450	53,778,184

TABLE 33-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY00	FY 01	FY02	FY 03	Total Cost 30 Sep 03
		Cost	1,064,207	2,884,804	876,954	3,388,509	53,776,282
2.	Imperial Beach, CA	New Work:					
		Approp.	244,000	157,000	431,900	195,000	4,331,808
		Cost	137,434	281,688	460,683	153,903	4,152,806
3.	Los Angeles and Long Beach Harbor, CA	New Work:					
		Approp.	-13,000	1,662,000	0	0	113,064,000 1/
		Cost	405,352	1,716,869	915	0	113,047,522
		Maint:					
		Approp.	620,000	4,991,592	4,747,000	249,820	27,952,254
		Cost	662,713	4,929,691	4,718,891	304,555	27,910,984
	Model Study:	Maint:					
		Approp	160,000	163,634	163,000	156,500	10,192,021
		Cost	158,367	163,409	164,451	156,877	10,191,950
4	Port of Los Angeles Main Channel Deepening, CA	New Work:					
		Approp.	0	672,000	2,894,063	18,097,686	21,752,749
		Cost	0	300,851	2,562,675	18,365,859	21,229,385
5.	Marina del Rey, CA	Maint:					
		Approp.	3,193,000	622,528	33,000	38,000	18,119,335
		Cost	3,254,931	604,022	41,731	40,589	18,111,920
6.	Morro Bay Harbor, CA	New Work:					
		Approp	0	0	-49,000	0	1,475,000
		Cost	0	0	0	0	1,474,261
		Maint:					
		Approp.	3,383,000	2,215,484	3,247,000	1,153,000	34,175,955
		Cost	3,434,179	2,197,729	3,246,773	1,160,560	34,161,085
7.	Newport Bay Harbor, CA	Maint:					
		Approp.	39,000	35,914	329,000	1,240,100	6,167,714
		Cost	39,200	41,790	298,894	1,232,936	6,127,970
8.	Oceanside Harbor, CA	New Work:					
		Approp.	0	0	0	0	3,496,938 2/
		Cost	0	0	0	0	3,496,938
		Maint:					
		Approp.	1,140,000	1,167,624	1,143,000	1,172,300	18,207,711
		Cost	1,155,433	1,140,911	1,163,868	1,173,434	18,200,677
9.	Oceanside Harbor Sand By-Pass, CA	Maint:					
		Approp.	134,000	0	0	0	23,490,900
		Cost	203,139	176	0	0	23,490,900
10.	Port Hueneme, CA	Maint:					
		Approp.	1,422,000	0	13,000	18,610	3,087,710
		Cost	1,410,006	12,807	12,989	18,436	3,087,345
11.	Port of Long Beach, CA	New Work:					
		Approp	-1,047,000	2,200,000	-38,000	69,400	14,386,400 3/
		Cost	5,858,648	2,083,333	103,010	75,171	14,342,322

TABLE 33-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY02	FY 03	Total Cost 30 Sep 03
12.	Redondo Beach (King Harbor)	Maint:					
		Approp.	-4,000	0	0	0	6,668,647
		Cost	6,111	0	0	0	6,668,647
13.	San Diego Harbor, CA	Maint:					
		Approp.	0	0	95,000	115,800	5,712,991
		Cost	2,355	0	94,233	116,649	5,712,973
14.	San Diego River and Mission Bay, CA	New Work:					
		Approp.	0	0	-3,000	0	7,881,345
		Cost	424	246	0	0	7,878,151
		Maint:					
		Approp.	33,000	20,000	90,000	139,800	6,114,042
		Cost	36,142	20,000	77,615	146,850	6,108,707
15.	Santa Barbara Harbor, CA	Maint:					
		Approp.	1,083,000	1,071,527	1,938,000	1,135,800	28,752,068
		Cost	1,087,088	1,068,163	1,933,627	1,144,366	28,751,017
		New Work:					
		Approp,	10,000	0	5,000	0	415,000
		Cost	4,766	4,968	5,188	0	414,269
16.	Santa Monica Breakwater, CA	New Work:					
		Approp.	-135,000	7,000	0	0	407,000 9/
		Cost	21,536	7,113	0	4,388	368,329
17.	Surfside, Sunset and Newport Beach, CA	New Work:					
		Approp.	292,000	1,385,000	3,640,900	(46,000)	26,681,000
		Cost	242,918	277,671	4,763,672	63,492	26,677,464
18.	Ventura Harbor (Ventura Marina), CA	New Work:					
		Approp.	0	0	0	0	5,286,213
		Cost	0	0	0	0	5,286,213
		Maint:					
		Approp.	2,471,000	3,759,603	3,662,000	4,781,800	56,892,735
		Cost	2,488,326	3,759,886	3,628,395	4,797,828	56,873,386
19.	Alamo Dam, AZ	Maint:					
		Approp.	958,000	991,493	956,150	1,109,200	21,662,702
		Cost	990,791	1,007,139	960,361	1,109,949	21,657.510
20.	Clifton, AZ	New Work:					
		Approp.	370,000	285,000	1,502,000	0	16,112,000 4/
		Cost	593,506	309,565	1,499,188	23,492	16,087,673
21.	Hansen Dam, LACDA, CA (Recreation)	Maint:					
		Approp.	0	25,000	2,972,000	3,214,000	9,217,192
		Cost	121,150	50,047	2,924,391	155,690	6,154,192
22.	Holbrook, AZ	New Work:					
		Approp	0	0	(37,000)	8,000	10,812,787
		Cost	1,362	0	1,042	8,349	10,797,832
23.	Los Angeles County Drainage	New Work:					
		Approp	35,475,300	14,422,000	4,340,800	551,000	152,089,900 5/

TABLE 33-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY00	FY 01	FY02	FY 03	Total Cost 30 Sep 03
	Area, CA	Cost	33,273,990	14,248,683	7,264,589	1,051,533	151,865,059
		Maint:					
		Approp.	6,176,000	7,973,493	5,331,633	5,586,847	122,088,496
		Cost	6,277,137	7,944,274	5,444,538	5,596,147	122,044,895
24.	Los Angeles River, Sepulveda to Arroyo Seco, CA (Recreation)	Maint					
		Approp.	0	0	0	0	400,000
		Cost	4,674	0	0	0	400,000
25.	Mojave River Dam, Mojave River Basin, CA	Maint:					
		Approp.	213,000	142,460	144,000	245,100	6,730,096
		Cost	221,164	144,542	145,525	246,252	6,729,529
26.	Murrieta Creek, CA	New Work:					
		Approp	0	748,000	0	1,059,000	1,807,000
		Cost	0	463,090	271,987	1,088,378	1,823,455
27.	Nogales Wash, AZ	New Work:					
		Approp.	0	25,000	287,000	193,000	1,097,200 6/
		Cost	15,142	65,207	215,508	241,455	1,069,606
28.	Norco Bluffs, CA	New Work:					
		Approp.	2,404,000	-312,000	67,100	1,298,000	9,037,100
		Cost	4,826,561	338,102	188,827	1,129,317	8,829,344
29.	Painted Rock, AZ (Gila River)	Maint:					
		Approp.	749,000	830,450	722,000	1,081,600	30,625,233
		Cost	835,873	835,697	725,681	1,084,968	30,619,870
30.	Pine & Mathews Canyons Dam, Colorado River	Maint:					
		Approp.	169,000	55,585	128,000	171,400	3,263,314
		Cost	178,607	51,051	128,015	177,408	3,262,191
31.	Rillito River, AZ	New Work:					
		Approp.	2,090,000	300,000	119,200	(3,700)	28,062,500 7/
		Cost	3,261,442	316,316	178,046	27,178	28,061,699
32	Rio de Flag, Flagstaff, AZ	New Work:					
		Approp	0	471,000	0	801,000	1,272,000
		Cost	0	306,175	73,081	832,006	1,211,262
33.	Santa Ana River Mainstem, CA	New Work:					
		Approp.	37,787,700	18,293,000	17,145,200	16,994,000	718,089,900
		Cost	40,442,313	18,936,338	12,371,330	24,474,554	705,480,568
34.	Santa Ana River Basin OC, CA	Maint:					
		Approp.	2,795,000	4,280,363	3,588,000	2,915,000	64,608,857
		Cost	2,890,071	4,302,566	3,595,862	2,900,420	64,578,277
35.	Santa Paula Creek, CA	New Work:					
		Approp.	7,745,000	3,515,000	3,566,000	144,000	39,575,020
		Cost	9,938,532	2,932,653	5,400,610	153,754	39,560,389
36.	San Luis Rey River, CA	New Work:					
		Approp.	1,850,000	210,000	404,000	925,000	60,680,000
		Cost	2,000,129	421,054	373,978	1,074,003	60,587,797
37.	Sepulveda Dam, CA, (Recreation)	Maint:					
		Approp.	40,000	15,000	0	0	16,815,940

TABLE 33-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY02	FY 03	Total Cost 30 Sep 03
		Cost	267,035	97,225	7,303	1,377	16,814,162
38.	Sweetwater River Basin, CA	New Work:					
		Approp.	0	0	0	0	37,082,503
		Cost	0	908	0	0	37,082,491
39.	Tropicana and Flamingo Washes, NV	New Work:					
		Approp.	28,110,000	19,502,000	28,842,000	34,151,000	173,403,000 11/
		Cost	30,756,251	20,147,135	29,607,702	34,150,311	138,783,617
40.	Tucson Diversion Channel, AZ (Recreation)	Maint:					
		Approp.	0	0	0	(56,000)	2,994,000
		Cost	5,199	2,230	0	72,601	3,122,522
41.	Tucson drainage Area, CA	New Work:					
		Approp	319,000	700,000	0	1,099,000	2,298,000
		Cost	415,312	648,530	78,020	949,605	2,143,321
42.	Whitlow Ranch Dam, Queen Creek, AZ	Maint:					
		Approp.	128,000	120,639	128,000	400,000	2,800,489
		Cost	129,412	121,734	127,538	400,618	2,800,166
47.	Cambria Seawater Desalination, CA	New Work:					
		Approp.	0	0	41,500	9,000	50,500
		Cost	0	0	41,165	8,054	49,219
48.	City of Santa Clarita (Perchlorate), CA	New Work					
		Approp.	0	0	406,000	2,329,204	2,735,204
		Cost	0	0	325,002	2,334,055	2,659,057
49.	Harbor-South Bay Water Recycling, CA	New Work:					
		Approp.	0	1,676,000	1,740,000	2,875,000	6,291,000
		Cost	0	101,090	652,057	4,691,956	5,445,103
50.	North Valley Regional Water Infrastructure, CA	New Work:					
		Approp	0	0	0	20,000	20,000
		Cost	0	0	0	19,584	19,584
51.	Rio Salado, Phoenix & Tempe Reach, AZ	New Work:					
		Approp.	1,628,000	1,996,000	10,456,100	8,053,500	20,505,600
		Cost	1,864,560	564,664	6,594,304	12,259,645	19,313,010
52.	Rural Nevada, NV	Maint:					
		Approp.	0	28,000	645,000	1,170,000	2,383,000
	Cost	0	27,047	610,062	1,744,298	2,381,407	
53.	San Gabriel Basin Restoration, CA	Maint:					
		Approp.	0	1,951,000	0	(1,493,204)	(820,204)
		Cost	0	64,791	293,546	94,332	731,441
54.	South Perris, CA	New Work:					
		Approp	0	0	0	214,000	214,000
		Cost	0	0	0	48,594	48,594
55.	Tres Rios, AZ	New Work:					
		Approp	43,000	500,000	945,000	815,000	2,303,000

TABLE 33-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY00	FY 01	FY02	FY 03	Total Cost 30 Sep 03
		Cost	42,238	471,492	839,252	743,706	2,096,688
56.	Upper Newport Bay Harbor, CA	New Work:					
		Approp	0	50,000	670,000	447,000	1,167,000
		Cost	0	35,187	521,264	435,829	992,280

PRECONSTRUCTION ENGINEERING AND DESIGN

59A.	Santa Barbara Streams Lower Mission Creek, CA	New Work:					
		Aprop.	0	0	36,000	460,000	496,000
		Cost	0	0	15,476	367,644	383,120
59B.	Whitewater River Basin, CA	New Work:					
		Approp.	0	135,000	288,905	348,000	771,905
		Cost	0	0	59,304	312,813	372,117

FOOTNOTES:

1/ Excludes non-Federal funds and costs; includes PED appropriation of $4,090,000 and cost of $3,833,223.
2/ Excludes non-Federal sponsors funds $1,913,000 and cost of $1,685,758; includes PED Work Allowance of $647,000 and cost of $647,000.
3/ Excludes non-Federal funds and costs; includes PED appropriation of $750,000 and costs of $739,000.
4/ Excludes non-Federal funds $376,000 and cost of $367,712; includes PED appropriation $1,600,000 and cost of $1,600,000.
5/ Includes PED Work Allowance of $9,650,000 and cost of $9,648,146. Excludes non-Federal Work Allowance of $6,191,000 and cost of $4,299,586.
6/ Excludes non-Federal funds and costs. Excludes PED appropriation and cost due to portions of the project reclassified to "Deferred" and inactive" categories.
7/ Excludes non-Federal funds and costs; includes PED appropriation $3,825,000 and cost of $3,825,000
8/ Excludes non-Federal funds and costs; includes PED appropriation $25,643,000 and costs of $25,643,000.
9/ Excludes non-Federal funds and costs; includes PED appropriation $225,000 and costs of $224,756.
10/ Excludes non-Federal funds and costs; includes PED appropriation $180,000 and costs of $78,176.
11/ Excludes non-Federal funds and costs; includes PED appropriation of $ 7,174,000 and costs of $7,174,000

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
1.		**CHANNEL ISLANDS HARBOR, CA**	
	Sep 3,1954	Harbor for light-draft vessels and shore protection works.	H.Doc.362, 83d Cong., 2d sess.
2.		**IMPERIAL BEACH, CA**	
	Jul 3, 1958	Beach erosion control.	River and Harbor Act, Sec 101; PL 85-500 IAW H.Doc.399, 84th Cong., 2d sess.
3.		**LOS ANGELES AND LONG BEACH HARBORS, CA**	
	June 3, 1988	A breakwater 8,500 feet long, east of Point Fermin.	S.Doc.18, 55th Cong., 1st sess.
	June 25,1896	Extend said breakwater to shore, making a total length of 11,152 feet from Point Fermin.	H.Doc. 969, 60th Cong., 1st sess.
	July 25, 1912	Dredge Los Angeles outer harbor west of entrance channel.	Rivers and Harbors Committee Doc.8, 62d Cong., 2d sess.
	Aug. 8, 1917	For silt-diversion works.	Rivers and Harbors Committee Doc.9, 64th Cong.,2d sess.
	Sep. 22, 1922	Triangular area approach to Los Angeles inner harbor entrance channel.	H.Doc. 1013, 66th Cong.,3d sess.
	Mar 3, 1925	Dredge Los Angeles Harbor main channel and entrance 35 feet deep and 1,000 feet wide; dredge inner harbor turning basin 35 feet deep; and reclamation of Reservation Point.	H. Doc.349, 68th Cong., 1st sess.
	July 3, 1930	A detached breakwater 12,500 feet long in prolongation of existing breakwater (authorized by act of 1896).	Rivers and Harbors Committee Doc.33, 71st Cong., 2d sess.
		Widen fairway on east side of entrance to Los Angeles inner harbor; dredge a channel 35 feet deep and 400 feet wide in Cerritos channel from U.S. station 406 to Long Beach turning basin; entrance channel to Long Beach Harbor 35 feet deep and 500 feet wide; and maintenance of the Long Beach breakwater south of outer end pier A. This act provides that in no case shall dredging be done within 50 feet of established pierhead lines of existing piers and wharves.	S.Doc.130, 71st Con.,2d sess.
	Aug 30, 1935	Dredge 1,000-foot wide entrance channel to Los Angeles outer harbor to 40-foot depth and a turning basin 3,500 feet long and 1,500 feet wide to same depth; and enlarge entrance to inner harbor by dredging to 35-foot depth a triangular area at its junction with turning basin.	S.Committee print, 74th Cong., 1st sess.
	Oct 17, 1940	Dredge to a depth of 40 feet area A and B adjacent to 40-foot-depth entrance channel; construct and maintain a rubble mound breakwater of composite type 21,000 feet long in eastward therefrom to Belmont pier; maintenance dredging of A and B, and at mouth of Los Angeles River diversion channel; all subject to such modifications as in discretion of the Chief of Engineers may be advisable to meet requirements of the Navy.	H.Doc.843, 76th Cong., 3d sess

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Sep 3, 1954	Dredge to a depth of 35 feet in West Basin as a modification of existing project. This act provides that the Secretary of the Army is authorized to reimburse local interests for work they have done upon this project prior to July 1, 1953, at actual cost to local interests so far as same shall be approved by Chief of Engineers and found to have been done in accordance with the project hereby adopted and that such reimbursement shall be subject to appropriations applicable thereto or funds available therefore and shall not take precedence over other pending projects of higher priority for harbor improvements; and that such payments shall not exceed $500,000.	H. Doc. 161, 83d Cong., 1st Sess
	July 14, 1960	Dredge to a depth of 35 feet in West Basin as a modification of existing project.	H.Doc.401,86th Cong., 2d sess.
	Oct 22, 1976	Dredge Los Angeles Harbor entrance channel 45 feet deep, 1,000 feet wide, and about 5,500 feet long; Los Angeles channel 45 feet deep, 750 feet wide, and about 12,500 feet long; inner harbor turning basin 45 feet deep, 1,350 feet wide, and about 1,650 feet long; East Basin channel 45 feet deep, 400 feet wide, and about 6,000 feet long; West Basin 45 feet deep, from 350 to 1,350 feet wide, and about 3,800 feet long; and East Basin 45 feet deep, from 400 to 950 feet wide, and about 2,000 feet long. This act provides that no dredging shall be done within 125 feet of established pier head lines, wharves, or other structures.	H.Doc.401,86th Cong., 2d sess.
	Oct 17, 1986	Deepen the entry channel to the Los Angeles Harbor and Long Beach Harbor to 70 feet and 76 feet respectively, including the creation of 800 acres of land from the project.	WRDA 86, Sec 201.
	Nov 17, 1988	If non-Federal interest carry out any work associated with such project which is later recommended by the Chief of Engineers and approved by the Secretary, the Secretary may credit such non-Federal interest an amount equal to the Federal share of the cost of such work, without interest.	WRDA 88, Sec 4
	Nov 28, 1990	Section 4(d) of WRDA 1988 (102 Stat. 4015) is amended by inserting after "approved by the Secretary" in the first sentence the following: "or which is carried out after approval of the final report by the Secretary and which is determined by the Secretary to be compatible with the project".	WRDA 90, Sec 102
	Sep 25, 1996	The sewer outfall relocated by the Port of Los Angeles at a cost of approximately $12,000,000 shall be considered to be a relocation. The cost of such relocation shall be credited as a payment provided by the non-Federal interest.	WRDA 96 Sec 307

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct 31, 2000	The project for navigation, Los Angeles Harbor, California, at a total cost of $153,313,000, with an estimated Federal cost of $43,735,000 and an estimated non-Federal cost of $109,578,000.	WRDA 2000, Sec 101(b)(5)
4.		**PORT OF LOS ANGELES MAIN CHANNEL DEEPENING, CA**	
	Oct 17, 1986	Deepen the entry channel to the Los Angeles Harbor.	WRDA 1986, Sec 201(b)
	Oct 31, 2000	Deepen the main channel from the current 45ft to 53ft.	WRDA 2000, Sec 101(b)(5)
5.		**MARINA DEL REY, LOS ANGELES COUNTY, CA**	
	Sep 3, 1954	Harbor for light-draft vessels.	H.Doc.389, 83d Cong., 2d sess.
	Sep 28, 1994	Determine advisable modifications in interest of navigation, hurricane and storm damage reduction, environmental restoration and disposal of contaminated sediments from the entrance channel at Marina Del Rey Harbor	Sec 216, Flood Control Act of 1970, supp. by House Resolution Sep. 28, 1994.
6.		**MORRO BAY HARBOR, CA**	
	Mar 2, 1945	Adoption and improvement of existing entrance channel to bay, a breakwater extending south by west from Morro Rock, and bay channels and basins at locations and of dimensions substantially as shown on the Navy Department map on file in the Office of the Chief of Engineers.	H.Doc.283, 77th Cong., 1st sess.
7.		**NEWPORT BAY HARBOR (& REVIEW), CA**	
	May 22, 1991	Maintenance and improvement of main and inner channels.	Doc.PL99-662 (WRDA 1986, Sec841). R&H Acts 1937 & 1945 S. Doc. 138 78th Cong.
		Initiate feasibility phase studies re-environmental preservation benefits associated with modification of existing Federal project to extend channels into the Upper Newport Bay.	WRDA 1986, Sec. 841 (PL-9962)
8.		**OCEANSIDE HARBOR, CA**	
	Oct 27, 1965	Maintenance of general navigation features of Del Mar Boat Basin and of Oceanside Harbor.	H.Doc.76, 89th Cong., 1st sess.
	Oct 27, 1990	Navigation and storm damage reduction, repair, operate, and maintain the extension of south jetty.	PL 101-640 (WRDA 1990) WRDA 1992. PL 102-580
9.		**OCEANSIDE HARBOR SAND BY-PASS SYSTEM, CA**	
	May 22, 1991	Maintenance of general navigation features of Del Mar boat Basin and of Oceanside Harbor.	EWDA Act 1992
10.		**PORT HUENEME, CA**	
	Aug 13, 1968	Adoption and maintenance of existing harbor for deep-draft vessels; dredged central basin to 35 feet deep, and extend southern-most interior channel.	H.Doc.362, 90th Cong., 2d sess.
11.		**PORT OF LONG BEACH, CA**	
	Sep 25, 1996	Navigation project. The project for navigation, Port of Long Beach (Deepening), CA; Report of the chief of Engineers, dated July 26, 1996, at a total cost of $37,288,000 with an estimated Federal cost of $14,318,000 and an estimated non-Federal cost of $22,970,000.	WRDA 1996, Sec 101(d)(4)

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
12.		**REDONDO BEACH HARBOR (KING HARBOR), CA**	
	Mar 21, 1950	Maintain harbor dredging and breakwaters.	R&H Act 1950 (H.Doc 303 81st Cong.) PL99-662 (WRDA 86, Sec 809), Amended in WRDA 1988.
	Oct 17, 1986 Oct 1988	Construct and maintain breakwater to height of 22 feet.	Authorized by Chief of Engineers.
13.		**SAN DIEGO HARBOR, CA**	
	Mar 3, 1875	Diversion dike.	Annual Report. 1873; p.1-142
	Sep 19, 1890	Jetty on Zuniga Shoal.	H.Ex.Doc.177, 50th Cong., 1st sess. (Annual Report, 1888; p.2114).
	Jun 25, 1910	Dredge channel through outer bar 30 feet deep and 600 feet wide, and a channel through middle ground to 30 feet deep.	H.Doc.961, 60th Cong., 1st session.
	Mar 4, 1913	Dredge channel through outer bar 570 feet wide and 35 feet deep, and a channel through middle ground 32 feet deep.	H.Doc.1309, 62d Cong., 3d sess.
	Jul 27, 1916	Widen approach (area B) to San Diego municipal pier by dredging area C (north of area B).	H.Doc.648, 64th Cong., 1st sess.
	Aug 8, 1917	Dredging area A (south of area B).	Rivers and Harbors Committee Doc.8, 64th Cong., 2d sess.
	Aug 8, 1917	Dredge 35-foot channel through middle ground.	H.Doc.140, 65th Cong., 1st sess.
	Sep 22, 1922	Dredging areas D and E.	H.Doc.1000, 66th Cong., 3d sess.
	Mar 3, 1925	Widen approach (area C) to San Diego municipal pier 1 by dredging an portion of area F (north of area C).	River and Harbors Committee Doc.2, 68th Cong., 1st sess.
	Jul 3, 1930	Deepen to 40 feet channel through outer bar; along south and north banks, main channel; dredge turning basin, widen area H, and dredge a channel to National City and Chula Vista.	S.Doc.81, 71st Cong., 2d sess.
	Aug 30, 1935	Widen bay channel to 2,200 feet with depth of 35 feet from the vicinity of Whalers Bight in lower bay to Naval Air Station opposite turning basin.	H.Doc.223, 73d Cong., 2d sess.
	Aug 26, 1937	Dredging areas Q.Q-1, M, N, and O.	Rivers and Harbors Committee Doc.89, 74th Cong., 2d sess.
	Oct 17, 1940	Dredge a seaplane basin (area S.) of about 3,000 acres, 10 feet deep, and fill an area of about 110 acres adjacent to southern end of basin.	H.Doc.844, 76th Cong., 3d sess.
	Mar 2, 1945	Dredge triangular approaches to 26-and 35-foot anchorages, area M.	H.Doc.390, 77th Cong., 1st sess.
	Aug 13, 1968	Deepen and extend existing navigation channels, delete uncompleted parts, and extend maintenance.	H.Doc.365, 90th Cong., 2d sess.

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
14.		**SAN DIEGO RIVER AND MISSION BAY, CA**	
	Jul 24, 1946	Modification of existing flood control project for San Diego River, CA, to include a multiple-purpose project for flood control on San Diego River and small-boat navigation on Mission Bay.	H.Doc.760, 79th Cong., 2d sess.
15.		**SANTA BARBARA HARBOR, CA**	
	Aug 30, 1935	Maintenance dredging present depths into harbor formed by breakwater constructed by local interests.	S.Committee Print, 73d Cong., 2d sess.
	Mar 2, 1945	Permits maintenance by means of a fixed sand-intercepting plant to be provided and operated by and at expense of local interests. United States to contribute to operating expense an amount not to exceed $30,000 annually, whenever funds are allotted therefore; funds thus contributed to be reduced by actual cost of harbor maintenance if and when intercepting plant has been installed.	H.Doc.348, 77th Cong., 1st sess.
		Project for navigation; report of the Chief of Engineers, dated April 26, 1994	
	Oct 23, 1962	Modification of existing project.	H.Doc.518, 87th Cong., 2d sess.
	Dec 31, 1970	Dredging and maintenance by United States.	None.
	Sep 25, 1996	Complete plans and specifications.	Sec 101, H Doc 1160, Water Resources Project Authorization.
16.		**SANTA MONICA BREAKWATER, CA**	
	Sep 25, 1996	Hurricane and storm damage reduction act.	WRDA 1996, Sec 101(d) 7.
		The project for hurricane and storm damage reduction, Santa Monica Breakwater, Santa Monica, CA; Report of the chief of Engineers, dated June 7, 1996, at a total cost of $6,440,000, with an estimated Federal cost of $4,220,000 and an estimated non-Federal cost of $2,220,000.	
17.		**SURFSIDE, SUNSET & NEWPORT BEACH, CA**	
	Oct 23, 1962	Beach erosion.	Sec 101 of R&H Act 1992.
		Protective measures that comprise a protective and feeder beach at Surfside, and on offshore breakwater at Newport Beach to provide and impounding area from which sand would be dredged and returned periodically to the feeder beach, all substantially in accordance with the plan of the DE.	
18.		**VENTURA HARBOR (VENTURA MARINA), CA**	
	Aug 13, 1968	Adoption and maintenance of existing general navigation features of harbor, excluding interior basins; construction of an offshore breakwater; dredging a sand trap in lieu of breakwater; repairing existing north and middle jetties; and construction of recreational fishing facilities on jetty crests.	H.Doc.356, 90th Cong., 2d sess.
	Nov 17, 1988	The Harbor commonly known as Ventura Marina, located in Ventura County, CA, and adopted and authorized by section 101 of Public Law 90-483, shall hereafter be known and designated as "Ventura Harbor".	Public Law 100-676.

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TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
19.		**ALAMO LAKE, BILL WILLIAMS RIVER, AZ**	
	Dec 22, 1944	Multiple-purpose dam and reservoir.	H.Doc.625, 78th Cong., 2d sess.
20.		**CLIFTON, AZ**	
	Jan 3, 1996	Reauthorized the flood control project at a total cost of $21,100,000.	WRDA 1996 Sec 301.
	Sep 25, 1990	Flood control.	WRDA 1990, Sec 101(3a) modified WRDA 1986.
21.			
	Oct 2, 1992	**HANSEN DAM, CA**	PL 102-377 Energy & Water Appropriations Act, FY 1993.
		Develop water conservation on existing spreading grounds.	
22			
	May 22, 1991	**HOLBROOK, AZ**	WRDA 1986, PL 99-662,
		Flood prevention and protection.	Sec 401.
23.			
	Jun 22, 1936		
		LOS ANGELES COUNTY DRAINAGE AREA, CA	None
	May 15, 1992	Reservoirs and flood channels for flood control and related purposes at an estimated construction cost not to exceed $70 million.	
	Jun 28, 1936		None
		Added flood channels on Ballona Creek and tributaries to project.	H. Doc. 838, 76th Cong., 3d Sess.
		Provision of lands, easements, and rights-of-way and relocations by Federal Government instead of by local interests. (Resultant Additional cost to the United States, $12,541,000).	
	Aug 18, 1937		None
		Project extended to include additional flood control reservoirs, flood control channels, and debris basins for flood control and related purposes. Also authorized to be appropriated $25 million for further accomplishment of plan.	

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Dec 22, 1944	Authorized to be appropriated an additional $25 million for prosecution of comprehensive plan approved in Flood Control Act of Aug. 18, 1941.	None
	Jul 24, 1946	Authorized to be appropriated an additional $25 million for further prosecution of comprehensive plan.	None
	May 17, 1950	Rio Hondo channel improvement, Whittier Narrows Reservoir to Los Angeles River (in lieu of enlarging channel and bridges on San Gabriel River Downstream from reservoir). Also authorized to be appropriated an additional $40 million for further prosecution of comprehensive plan.	None
	Sep 3, 1954	Authorized to be appropriated an additional $12,500,000 for further prosecution of comprehensive plan.	None
	Jul 3, 1958	Authorized to be appropriated an additional $44 million for further prosecution of comprehensive plan.	None
	Jul 14, 1960	Authorized to be appropriated an additional $32 million for further prosecution of comprehensive plan.	None
	Oct 23, 1962	Authorized to be appropriated an additional $3,700,000 For further prosecution of comprehensive plan.	None
	Dec 30, 1963	Authorized to be appropriated an additional $30 million for further prosecution of comprehensive plan.	None

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Nov 17, 1986	Authorized modifications of Hansen Dam by removing and selling dredged material to facilitate flood control, recreation, and water conservation.	None
	Nov 17, 1988	The Secretary may convey to the city of South El Monte, CA, approximately 7.778 acres of real property, together with improvements thereon, located within the Whittier Narrows Flood Control Basin.	None
	Oct 30, 1990	The project for flood control, Los Angeles County Drainage Area, California, at a total cost of $327,000,000, with an estimated first Federal cost of $163,500,000, with an estimated first Federal cost of $163,500,000, is authorized to be prosecuted by the Secretary in accordance with a final report of the Chief of Engineers and with such modifications as are recommended by the Secretary. No construction on the project may be initiated until such a report of the Chief of Engineers is issued and approved by the Secretary.	WRDA 1990, Sec 101(b)(PL 101-640), Project Subject to Favorable Report of the chief of Engineers.
	Nov 28, 1990	Authorized project for flood control. Authorized by Chief of Engineers Report.	PL 101-640, WRDA 1990
24.		**LOS ANGELES RIVER (SEPULVEDA DAM TO ARROYO SECO), CA**	
	Jul 14, 1960	Recreation development for bicycle/hiking trails along the upper Los Angeles River	Flood Control Act 1936, PL 77387 1941, PL 103-126
25.		**MOJAVE RIVER DAM, MOJAVE RIVER BASIN, CA**	
	May 17, 1950	Dam and reservoir, and an earthfill dike.	H.Doc.164, 86th Cong., 1st sess.
		Evaluate opportunities for water conservation, environmental restoration, and enhanced flood control, along the Mojave River and Tributaries downstream of the dam.	HR 2479, Mar. 7, 1996
26.		**MURRIETA CREEK, CA**.	
	Oct 31, 2000	The project is watershed management to include flood control, Environmental restoration, storm water retention, water conservation And supply and recreation.	WRDA 2000, Sec 101 (b) (6)
27.			
	Jun 20, 1989	**NOGALES WASH, AZ** Flood Control Protection and Flood Warning System.	Energy and Water Development Appropriation bill 1990, H.Doc2696, 101st Cong, 1st session
	Oct 27, 1990	Flood warning gauges in Mexico	WRDA 1990, Sec 101 (a)(4)
	Oct 12, 1996	Modifies Section 101(a)(4) of WRDA 1990 to direct the Secretary to permit the non-Federal contribution for the project to be determined in accordance with section 103 of WRDA 1986 and direct the Secretary to enter into negotiations with non-Federal interests pursuant to 103(l) of such Act concerning the timing of the initial payment of the non-Federal contributions.	WRDA 1996, Sec 303; Public Law 104-303
		Conduct a study of the relationship of flooding in Nogales and floodflows emanating in Mexico. Transmit a report, which includes a recommendation of the appropriate level of non-Federal participation in the authorized flood control project.	WRDA 1996, Sec 404; Public Law 104-303
	Oct 31, 2000	Modified to provide that the Federal share of the cost associated with addressing flood control problems in Nogales, Arizona, arising from floodwater flows originating in Mexico shall be 100 percent.	WRDA 2000,Sec 302

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
28.	Sep 25, 1996	**NORCO BLUFFS, CA** The project for bluff stabilization, Norco Bluffs, Riverside county, California, at a total cost of $8,600,000, with an estimated Federal cost of $6,450,000 and an estimated non-Federal cost of $2,150,000.	WRDA 96, Sec 101(b)
29.	July 6, 1949	**PAINTED ROCK DAM (GILA RIVER), GILA RIVER BASIN, AZ** Dam and flood control basin.	H.Doc.331, 81st Cong., 1st sess.
30.	May 17,1950	**PINE AND MATHEWS CANYONS DAMS, COLORADO RIVER BASIN, NV** Dams and flood control basins.	H.Doc.530, 81st Cong., 2d sess.
31.	Oct 17,1986	**RILLITO RIVER, AZ** Flood damage protection.	WRDA 1986, PL 99-662, Section 601(a)
	June 20, 1989	Bank erosions control and flood protection.	Energy and Water Development Appropriations Act 1990
32.	Oct 31,2000	**RIO DE FLAG, FLAGSTAFF, AZ** The project is for flood damage reduction. Total cost is $24,100,000, with an estimated Federal cost of $15,665,000 and an estimated non-Federal cost of $8,435,000.	WRDA 2000, Sec 101 (b) (3).
33.	May 20.1991	**SANTA ANA RIVER MAINSTEM, CA** Flood control along 75 miles reach of Santa Ana River, recreation development, and mitigation and preservation.	WRDA 19862 PL99-662, Energy and Water Development Act 1988, and WRDA 1988.
	Nov 28,1990	The project for flood control, Santa Ana Mainstem, including Santiago Creek, CA, is modified to authorize the Secretary to develop recreational trails and facilities on lands between Seven Oaks Dam and Prado Dam, including flood plain management areas.	H.Doc 94-594,94th Cong., 2d sess.
34	Jun 22,1936	**SANTA ANA RIVER BASIN (AND ORANGE COUNTY), CA** Reservoirs and flood channels for flood control and related purposes for protection of metropolitan area of Orange County, at an estimated construction cost not to exceed $13 million.	H. Doc. 688, 75th cong., 3d sess.
35.	Oct 22,1976	**SANTA PAULA CREEK, CA** Flood control improvements and prevention. Authorize for flood control.	1948 Flood Control Act, H.Doc.443,80th Cong.,1st sess
36.	Dec 17,1970	**SAN LUIS REY RIVER, SAN LUIS REY RIVER BASIN, CA** Channel and levee, and beautification features.	S.Doc.91-106, 91st Cong., 2d sess
37.	Oct 22,1976	The project for flood control of the San Luis Rey river, CA, authorized pursuant to section 201 of Flood Control Act of 1965 (42 U.S.C. 1962d-5; 79 stat 1073-1074) is modified to authorize the secretary to construct the project substantially in accordance with the report of the corps of Engineers dated may 23, 1996 at a total cost of $81,600,000 (Fed $61,100,000, non-Fed $20,500,000)	FC Act 1936 (Amended 1937) 1941, 1950 and Fed Water

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		SEPULVEDA DAM, CA RECREATION FACILITIES	1941, 1950 and Fed Water Project Recreation Act of 1965.
38.	Jun 11,1964		FC Act 1965,H.Doc. 240 and 309, 88th Cong., 2d sess
39.		**SWEETWATER RIVER BASIN, CA** Channel improvement, as part of a combined flood control and highway project.	
	Oct 31, 1992		WRDA 1992, Sec 101 (13)
	Sep 25,1996	**TROPICANA AND FLAMINGO WASHES, NV** Flood reduction, erosion control, and wildlife enhancement.	WRDA 1996, Sec 211 (f)(5), Public Law 104-303
	Aug 17,1999	Authorizes project to demonstrate the potential advantages and effectiveness of non-Federal implementation of flood control projects, and provides that the Secretary shall enter into an agreement, pursuant to Section 211 of WRDA 96, with the non-Federal interests for development of that project. Proposed agreement would allow the non-Federal sponsor to construct any discrete segment of the authorized project as approved by the Army corps of Engineers. An Federal costs associated with the project, incurred by the non-Federal interest to accelerate for modify construction of the project, in cooperation with the Corps of Engineers, shall be eligible to reimbursement by the Secretary.	WRDA 1999, Sec 370; Public Law 106-53
40.	Oct 22, 1976		
41.	Aug 17,1999	**TUCSON DIVERSION CHANNEL (RECREATION DEVELOPMENT, AZ** This project for recreational development along the Tucson Diversion Channel.	FC Act 1936, (Amended 1937, 1941, 1950) and Fed Water Project Recreation Act of 1965
42.	Jul 24,1946	**TUCSON DRAINAGE AREA, AZ** Report of the Chief of Engineers Report dated May 20,1998, at a total cost of $30,000,000, with an estimated Federal cost of $19,400,000 and an estimated non-Federal cost of $10,600,000.	WRDA 1999, PL106-53 Sec 101 (a) (5). H.Doc.220,80th Cong.,1st sess.
47.	Aug 17, 1999	**WHITLOW RANCH DAM, QUEEN CREEK, GILA RIVER BASIN, AZ** Dam and flood control basins.	WRDA 1992, Sec219; WRDA 1999, Sec 502(b); Consolidated Approp Act, 2001, Sec 108(f)(48)
48.	Dec 21, 2000	**CAMBRIA SEAWATER DESALINATION, CA** This is an environmental infrastructure project and a desalination plant will be constructed to ensure adequate water supply	Consolidated Approp Act of 2001, HR 5666, Sec 110 & 111.
49.	Aug 17,1999	**CITY OF SANTA CLARITA (PERCHLORATE), CA** This is an environmental infrastructure project and the study will evaluate the existing conditions of the Santa Clarita Valley Saugus area and develop alternatives for long-term solutions to restoring aquifer to drinking water quality.	WRDA 1999, Sec 502(b)(43) as amended by Con Appn Act of

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Jun 28,1938		2001 Sec 108(c)(6).
50.	Oct 31,1992	**HARBOR-SOUTH BAY WATER RECYCLING, CA** This is an environmental infrastructure project to design and construct over 30 miles of recycled water pipeline and distribution facilities. **NORTH VALLEY REGIONAL WATER INFRASTRUCTURE (CITY OF LANCASTER), CA** The project will include design and construction of approximately 8.5 miles of 36-inch diameter water main and related facilities to serve the city of Lancaster, CA.	WRDA 1992 Sec 219(f), as amended by WRDA 1999, Sec 502(b) and amended by Consolidated Appropriations Act, 2001, Sec 108(d) (50)
51.	Aug 17, 1999		Flood Control Act of1938, Sec 6 (Gila & Tribs, AZ & NM) , WRDA 1999, Sec 101 (a)(4).
52.	Aug 17,1999	**RIO SALADO PHOENIX REACH, AZ** This is an ecosystem restoration project that consists of the establishment of riparian and Sonoran Dessert habitat restoration.	WRDA 1999, Section 595.
53.	Dec 21, 2000	**RURAL NEVADA, NV** This is focused on environmental restoration in Mesquite, NV, Boulder City, NV, and Moapa, NV.	Consolidated Appn Act of 2001, HR 5666, Sec 110 & 111.
54.	Oct 31, 1992	**SAN GABRIEL BASIN RESTORATION, CA** This an environmental infrastructure project and will establish restoration fund account and initiate construction of water quality treatment projects and facilities.	WRDA 1992, Sec 219 (f) as amended by WRDA 1999, and amended by the Consolidated Appropriations Act, 2001 Sec 108 (d) (52).
55.	Oct 31, 2000	**SOUTH PERRIS, CA** The project will design and construct a reverse osmosis desalination plan, wells, pipelines and brine management pipelines required for the phased implementation of the Perris Basins desalination Program.	WRDA 2000, Sec 101 (b) (4).
56.	Dec 11, 2000	**TRES RIOS, AZ** The project for ecosystem restoration, Tres Rios, AZ at a total cost of $99,320,000, with an estimated Federal cost of $62,755,000 and an estimated non-Federal cost of $36,565,000.	PL 99-662 (WRDA 86, Sec 841). WRDA 2000, Sec 101 (b) (9).
59A.	Oct 31, 2000	**UPPER NEWPORT BAY HARBOR, CA** The authorized project includes dredging the access channels and two sediment basins to provide restoration measures to the degraded habitat areas and re-establishing wetland and wildlife habitat areas.	WRDA 2000, Sec 101 (b) (8).
		SANTA BARBARA STREAMS, LOWER MISISON CREEK, CA The project for flood damage reduction, Santa Barbara Streams, Lower Mission Creek, CA, at a total cost of $18,300,000, with an estimated Federal cost of $9,200,000 and an estimated non-Federal cost of $9,100,000.	

TABLE 33-B **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
59B.	Oct 31, 2000	**WHITEWATER RIVER BASIN, CA** The project is for flood damage reduction, Whitewater River Basin, CA, at a total cost of $28,900,000, with an estimated Federal cost of $18,800,000 and an estimated non-Federal cost of $10,100,000.	WRDA 2000 Sec101 (b) (10).

1. Contains latest published map.
2. Date approved by Chief of Engineers under provisions of section 205. Public Law 80-858, as amended.
3. Final date of approval by House of Senate Public Works Committees resolution under provisions of Section 201, Public Law 89-298.

TABLE 33-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to 30 Sep 2002 Construction	Cost to 30 Sep 2002 Operation and Maintenance
Dana Point, Harbor, CA	Completed	1984	$ 4,737,550[1]	555,147[1]
Harbor office at Morro Bay, CA[3]				
Los Angeles and Long Beach Harbors, San Pedro Bay, CA[3]	Active		53,627,729	13,147,957
Newport Bay Harbor, CA[3]	Inactive and Active (mod)	1982	796,897	2,696,245[5]
Port San Luis, CA	Completed and Active (mod)	1984	1,426,050[6]	1,042,352[7]
Redondo Beach Harbor (King Harbor), CA[8] Active (mod)	Completed and	1984	4,766,898[9]	5,237,313[10]
Sunset Harbor (Bolsa Chica Bay), CA[3]				

1. Excludes $4,777,000 required contributed funds and Coast Guard costs.
2. Includes $45,147 for reconnaissance and condition surveys.
3. Authorized by Water Resources Development Act of 1986, Public Law 99-662, November 17, 1986, subject to favorable report.
4. Public Works Administration funds. Excludes $796,897 required contributed funds and $1,100 preauthorization costs.
5. Includes $137,622 for reconnaissance and condition survey costs since Fiscal Year 1958. Excludes $7,000 other contributed funds.
6. Includes $568,417 for new work prior to modification by 1965 River and Harbor Act. Excludes Coast Guard costs. Includes $104,031 expended in Fiscal Year 1987.
7. Includes $54,715 for maintenance for project prior to modification by 1965, River and Harbor Act, and $18,958 for reconnaissance and condition surveys. Includes $90,130 expended in Fiscal Year 1987.
8. Authorized by Water Resources Development Act of 1986, Public Law 99-662, November 17, 1986.
9. Excludes Coast Guard costs.
10. Includes $20,517 for reconnaissance and condition survey costs since Fiscal Year 1958. Includes $293,167 expended in Fiscal Year 1987.

TABLE 33-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to 30 Sep 2002	
			Construction	Operation and Maintenance
Anaheim Bay Harbor Orange County, CA[1]	Completed	1967	$ 89,119	
Bird Rock Area, La Jolla San Diego County, CA[2]	Completed	1967	25,881[3]	
Coast of California, Point Mugu, to San Pedro Breakwater, CA	Completed	1972	1,253,594[4]	
Doheny Beach State Park (Doheny State Beach), CA	Completed	1968	578,717[5]	
Imperial Beach, CA	Active	1986	2,875,472[6]	
Las Tunas Beach, San Diego County, CA	Active	1976	107,484	
Ocean Beach, San Diego County, CA[7]	Completed	1960	7,912	
Oceanside, San Diego County, CA	Completed	1982	4,367,442[8]	
San Diego (Sunset Cliffs), CA	Active	1979	365,000[9]	
San Gabriel River to Newport Bay (Surfside-Sunset and Newport Beach), Orange County, CA	Active	1985	9,722,100[10]	
Surfside-Sunset-Newport, CA (Stage 11)	Active	1997	292,000	
Ventura-Pierpont area, CA	Completed (part) and Deferred (part)	1969	715,819[11]	

1. The project authorized by the Act of Congress of October 23, 1962, H.Doc.602, 87th Cong., 2d sess., in lieu of part of the original Anaheim Bay Harbor project is covered under San Gabriel River to Newport Bay (Surfside-Sunset and Newport Beach), Orange County, CA
2. Authorized by Chief of Engineers under authority of Section 103, Public Law 87-874.
3. Excludes 475,614 required contributed funds.
4. Excludes $1,238,418 required contributed funds.
5. Excludes $431,260 required contributed funds.
6. Excludes $919,437 required contributed funds; $66,124 other contributed funds; and Coast Guard costs.
7. Plant in service.
8. Excludes $604,817 other contributed funds.
9. Excludes $180,438 required contributed funds.
10. Excludes $4,626,638 for required contributed funds. Includes $10,772 expended in Fiscal Year 1987.
11. Excludes $1,117,406 other contributed funds for beach-nourishment betterments and $618,949 required contributed funds.

TABLE 33-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to 30 Sep 2003 Construction	Cost to 30 Sep 2003 Operation and Maintenance
Allenville, AZ[1]	Completed	1984	$ 3,000,000[2]	
City Creek levee, San Bernardino County, CA[1]	Completed		400,000[2]	
Clifton, San Francisco River, AZ	Active	1988	12,510,000	
Coyote and Berryessa Creeks CA	Active	1989	56,300,000	
Gila River Basin, AZ:	Deferred	1963		
Camelsback Dam (Gila River)				
Gila and Salt Rivers levee and channel improvements	Active (part) and Deferred (part)	1966	73,201[4]	
Indian Bend Wash	Completed	1985	31,809,294[5]	
Lower Gila River levee and channel improvements (Gila River and tributaries downstream from Painted Rock Dam)	Inactive	1975	2,413,051	
Middle Gila River channel improvements, upper end of Safford Valley to Buttes dam site (Camelsback damsite to Salt River)	Active	1970	402,867	
Pinal Creek channel improvements (Globe)	Deferred	1968	121,509[4]	
Santa Rosa Wash (Tat Momolikot Dam and Lake St. Clair)	Completed	1982	10,218,900	
Tucson Diversion Channel	Completed	1986	6,922,633[6]	
Goleta, CA, and Vicinity	Active	1982	500,000	
Hansen Dam, Los Angeles County [7] Drainage Area, CA (mod)				
Holbrook levee Little Colorado River, Colorado River Basin, AZ	Completed	1950	335,000	
Little Colorado River at Holbrook [7]	Completed	1996		
Needles, San Bernardino Co.	Completed	1973	1,000,000[8]	
Nogales Wash and Tributaries, AZ	Active	1989	11,100,000	
Oceanside Harbor, CA	Completed	1989	5,100,000	
Oro Grande Wash channel improvements, Mojave River Basin, CA[1]	Completed	1970	1,000,000[9]	
Phoenix, AZ and Vicinity (Gila River)	Completed			
Quail Wash levee, Joshua Tree, San Bernardino Co. CA	Completed		212,745	
Ridgecrest, Kern County, CA[1]	Terminated	1973	195,194	
Rose Creek channel improvements, San Diego, CA[1]	Completed	1972	982,432[10]	
San Diego River Basin, CA				
Santa Ana River Basin, CA:				
Devil, East Twin, and Warm Creeks channel improvements and Lytle Creek levee	Completed	1962	7,753,937[11]	
Mill Creek levees	Completed	1961	617,890[12]	
Riverside levees	Completed	1959	2,104,478	
San Jacinto River levee and Bautista Creek channel	Completed	1985	9,258,207[13]	
Santa Clara River levee improvement, Santa Clara River Basin, CA	Completed	1961	2,126,672	
Santa Maria Valley levees, Santa Maria River Basin, CA	Completed	1984	10,079,927[14]	
Santa Paula Creek channel and debris basins (including Mud	Active	1983	4,790,173[15]	

TABLE 33-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Creek), Santa Clara River Basin, CA			
Sespe Creek at Fillmore, Ventura County, CA[1]	Completed	1984	4,000,000[16]
South Fork of the Santa Clara River, Santa Clarita Valley, CA[1]	Active	1985	632,158
Telegraph Canyon Creek, Chula Vista, CA[1]	Completed	1985	844,732[17]
Tijuana River Basin, CA	Completed	1979	1,703,031[18]
Ventura Harbor, CA	Active	1990	6,455,000
Ventura River Basin, CA:			
Stewart Canyon debris basin and channel	Completed	1964	939,908[19]
Ventura River levee	Completed	1950	1,349,638[20]
Whitewater River, CA:			
Banning Levee-San Gorgonio River, Riverside County[1]	Completed	1966	97,868
Chino Canyon improvements, Palm Springs[1]	Completed	1973	819,878[21]
Tahchevah Creek detention basin and channel improvements	Completed	1967	1,420,552[22]
Tahquitz Creek	Inactive	1974	1,063,600
Winslow (tributaries of Little Colorado River), Little Colorado River Basin, AZ	Completed (part) and Deferred (part)	1973	1,831,300

1. Authorized by Chief of Engineers under authority of Section 205, Public Law 80-858, as amended.
2. Excludes $187,965 required contributed funds.
3. Excludes $371,058 other contributed funds.
4. Advance planning only.
5. Excludes $304,720 required contributed funds and $3,130,762 other contributed funds. Includes $31,071 expanded
6. Includes $1,158,006 Code 710 funds since Fiscal Year 1977. Excludes $749,058 required contributed funds and $394,364 funds.
7. Authorized by Water Resources Development Act of 1986, Public Law 99-662, November 17, 1986.
8. Excludes $619,912 required contributed funds and $91,160 other contributed funds.
9. Excludes $514,806 required contributed funds and $176,295 other contributed funds.
10. Excludes $251,000 required contributed funds and $154,733 other contributed funds.
11. Excludes $200,000 required contributed funds and $1,641,668 other contributed funds.
12. Excludes $35,830 other contributed funds.
13. Excludes $712,000 other contributed funds.
14. Excludes $106,364 other contributed funds. Includes $74 expended in Fiscal Year 1987.
15. Excludes non-Federal costs of $295,000 for local cooperation items for required and $49,458
16. Excludes $559,525 required contributed other funds.
17. Includes $3,846 expended in Fiscal Year 1987. Excludes $104,941 other contributed funds.
18. International Boundary & Water Commission funds
19. Excludes $179,148 other contributed funds.
20. Includes $6,000 Code 710 funds since Fiscal Year 1977. Excludes $17,006 other contributed funds.
21. Excludes $8,718 required contributed funds; $53,470 other contributed funds.
22. Excludes $74,718 required contributed funds.

TABLE 33-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Hodges Dam, San Dieguito River Basin, CA	1958	1978 Sec. 12, Public Law 93-251		
Las Vegas Wash Tributaries, Colorado River Basin, NV	1964	1977 Sec. 12, Public Law 93,251	295,191	
Santa Ana River Basin (and Orange County), CA:				
Aliso Creek Dam, CA		1986 Sec. 1002 Public Law 99-662		
San Juan Dam, CA	1950	1986 Sec. 1002, Public Law 99-662	67,361	
Trabuco Dam, CA		1986 Sec. 1002, Public Law 99-662		
Villa Park Dam, CA		1978 Sec. 12, Public Law 93-251		
Sierra Madre Wash Channel Los Angeles County Drainage Area, CA	1986	1986 Sec. 1002, Public Law 99-662		
Lower Mission Creek Santa Barbara, CA	1988	1988 Sec. 1001(A), Public Law 99-662	1,641,144	
San Diego River Mission Valley, CA	1978	1978 Sec 1001 (B) (2), Public Law 99-662	1,708,437	
University Wash and Spring Brook, Riverside, CA	1975	1986 Sec. 1002, Public Law 99-662	213,313	

TABLE 33-H RECONNAISSANCE AND CONDITION SURVEYS

Project	Date
Channel Islands Harbor	Dec 2002
Dana Point Harbor	Aug 2003
Los Angeles Long Beach Harbors, CA	
Reach 1) LA River Estuary (Queens Way Bay)	Sep 2001
Reach 2) Port of Los Angeles	Mar 2001
Reach 3) Port of Long Beach	Apr 2000
Marina Del Rey, CA	Jun 2003
Morro Bay Harbor, CA	Sep 2003
Newport Bay Harbor, CA	Oct 2003
Oceanside Harbor, CA	Apr 2003
Port Hueneme, CA	Jun 2003
San Diego Harbor, CA	Aug 2003
San Diego River-Mission Bay, CA	Jul 2003
Santa Barbara Harbor, CA	Mar 2003
Ventura Harbor, CA	Feb 2003

TABLE 33-I INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(See Section 43 of Text)

Project	Date
Los Angeles County Drainage Area, CA (250 miles of channels and 21 Debris Basins)	Oct 2002 – Sep 2003
Santa Ana River Basin and Orange County, CA (48 miles of channels)	Oct 2002 – Sep 2003
Lytle and Cajon Creeks, CA	Jul 2003
Banning Levee, CA	Dec 2002
Oro Grande Wash, CA	Apr 2003
Santa Rosa Wash, AZ	Mar 2003
Indian Bend Wash, AZ	Mar 2003
Cave Buttes Dam, AZ	May 2003
Ventura River Levee, CA	Jun 2003
Cucamonga Creek, CA	Aug 2003

TABLE 33-J FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205, PUBLIC LAW 80-858, AS AMENDED (PREAUTHORIZATION)

(See Section 45 of Text)

Study	Stage	Fiscal Year Cost (Federal)
Anaverde Creek, Palmdale, CA	Feasibility	$ 15,090
Arizona State Flood Warning, AZ	Construction	5,062
Arroyo Simi Study Moorepark, CA	Feasibility	9,904
City of Laguna Beach, CA	Plans & Specs	19,554
City of Norwalk	Feasibility	19,344
City of Twentynine Palms, CA	Feasibility	86,645
City of Whittier	Feasibility	57,271
Desert Hot Springs, CA	Feasibility	58,499
Ephriam Canyon Wash, Nogales	Feasibility	697
Fillmore Wastewater Treatment Plant, CA	Plans & specs	58,417
Forest Falls San Bernardino County, CA	Feasibility	125
Fox Field Corridor, Lancaster, CA	Feasibility	783
Huntington Beach, CA	Feasibility	80,637
Hunts Canyon, City of Palmdale, CA	Feasibility	62,644
Little Tijuana River, San Diego County, CA	Plans & Specs	141,608
Nye County, Pahrump, NV	Feasibility	86,033
Thacher Creek, Ventura, CA	Feasibility	17,346
Section 205 Coordination Account		9,816
		$729,475

SAN FRANCISCO, CA, DISTRICT

This district comprises the Klamath River Basin in southern Oregon and portions of northern and western California consisting of drainage basins tributary to the Pacific Ocean from the Oregon-California State line on the north to Cape San Martin, CA, on the south except for basins tributary to the San Francisco Bay system which lie east of the Benecia-Martinez Bridge.

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Navigation

1. CRESCENT CITY HARBOR, CA

Location. The project is located in Crescent City, Del Norte County approximately 350 miles north of San Francisco and 17 miles south of the Oregon border.

Existing project. There are three existing Federally maintained navigation channels at Crescent City Harbor. The Entrance Channel begins at the outer breakwater and is -20 feet MLLW (Mean Lower Low Water), 2,600 feet long, and 320 to 200 feet wide. The Entrance Channel connects to the Inner Harbor Basin, which is 1,500 feet long and extends from the Entrance Channel along the lee side of the inner breakwater. The Inner Harbor Basin is authorized to -20 feet MLLW, but since 1993 has been maintained at -15 feet MLLW due to economic justification.

The new access channel extends 1,200 feet from the Inner Harbor Basin to the entrance of the Small Boat Basin,

and varies in width from 140 feet to 210 feet with a channel depth of -14 feet MLLW.

Local cooperation. The local sponsor is the Crescent City Harbor District. The Project Cooperation Agreement was signed in June 2000 and satisfied the requirements of the Water Resources Development Act of 1986, as amended, PL 99-662. The agreement includes the following requirements: 1) provide lands, easements, rights-of-way, and dredged material disposal areas; 2) pay 10 percent of the costs of new construction; and 3) pay an additional 10 percent plus interest of the project costs allocated to general navigation features within a period of 30 years following completion of construction.

Terminal facilities. The Harbor contains a commercial small boat basin with 240 permanent berths and temporary moorings for approximately 20 vessels, a 250 slip recreational mooring facility, two fish processing plants with docks, a main dock, a marine repair facility, a U.S. Coast Guard dock, and other auxiliary commercial and recreational facilities.

Operations during fiscal year. New Work: Construction completed in November 2000. Maintenance: Operations and maintenance includes engineering and design for fall dredging on a 5 year dredging cycle.

2. HUMBOLDT HARBOR, CA

Location. The project is located in Humboldt Bay, about 280 miles north of San Francisco.

Existing project. Adopted by Acts of March 3, 1881, July 5, 1884, August 5, 1886, July 3, 1892, March 3, 1889, June 25, 1910, July 3, 1930, August 30, 1935, August 26, 1937, July 16, 1952, and August 1968. The project consists of: 1) a Bar and Entrance Channel -48 feet deep, tapering from a width of 1,600 feet at seaward mile 0.9 to 500 feet at seaward mile 0.2 and then 500 feet wide to mile 0.8; 2) a North Bay Channel -38 feet deep and 400 feet wide between mile 0.75 and mile 4.29; 3) an Outer Eureka Channel 35 feet deep and 400 feet wide between mile 4.29 and mile 5.0; 4) an Inner Eureka Channel between mile 5.0 and mile 6.30 which is 26 feet deep and 400 feet wide; 5) a Samoa Channel -38 feet deep and 400 feet wide between mile 4.29 and mile 5.84; 6) a Turning Basin beyond mile 5.84 at the upper end of the Samoa Channel which is -38 feet deep and 1,000 feet wide by 1,000 feet long; 7) an Anchorage Area 35 feet and 1,200 feet wide by 1,200 feet long in the North Bay between the Entrance Channel and Gunther Island (the anchorage area is not maintained); 8) a Fields Landing Channel 26 feet deep and 300 feet wide and a turning basin at mile 3.16 which is 600 feet wide and 800 feet long; and 9) Arcata Channel located in the extreme North Bay (18 feet deep and 150 feet wide) is no longer used for commercial navigation and has not been maintained since 1931.

The Water Resources Development Act of 1996 authorized deepening the Bar and Entrance Channel to a depth of -48 MLLW; deepening the North Bay Channel, Samoa Channel, and Samoa Turning Basin to a depth of -38 feet MLLW; widening the north side of the Entrance Channel an additional 200 to 275 feet; moving the southern edge of the Entrance Channel away from the South Jetty and to the north by 100 feet; and widening and realigning the entrance to the Samoa Turning Basin. Project cost is $16,689,000 of which $12,099,000 is Federal cost (includes $200,000 Coast Guard cost) and $4,590,000 is non-Federal cost (includes $1,680,000 non-Federal reimbursements).

Local cooperation. The local sponsor is the Humboldt Bay Harbor, Recreation and Conservation District. The Project Cooperation Agreement was signed in March 1999 and satisfied the requirements of the Water Resources Development Act of 1986, as amended, PL 99-662. The agreement includes the following requirements: 1) provide lands, easements, rights-of-way, and dredged material disposal areas; 2) pay 25 percent of the costs of construction; and 3) pay an additional 10 percent plus interest of the project costs allocated to deep draft navigation within a period of 30 years following completion of construction.

Terminal facilities. The harbor serves six deep water breakbulk terminals with storage space for 120,000,000 FBM of logs/lumber and 100,000 MT of woodchips and warehouse space for 1,000,000 FBM of lumber and 51,000 MT of woodpulp and particle board.

Operations during fiscal year. New Work: Construction completed in April 2000. Maintenance: Normal O&M dredging was performed with the Essayons and Yaquina. A combined total of 1,794,555 cubic yards were removed at a cost of $5,073,920. All dredged material was deposited in the permanently designated, Government-furnished, Humboldt Open Ocean Disposal Site (HOODS).

3. OAKLAND HARBOR, CA

Location. Oakland Harbor is located in the City of Oakland, California, on the eastern shore of central San Francisco Bay immediately south of San Francisco-Oakland Bay Bridge.

Existing project. Adopted by Acts of June 23, 1874, June 25, 1910, September 22, 1922, January 21, 1927, April 28, 1928, July 3, 1930, March 2, 1945 and October 23, 1962. The project was completed February 1975, except for deepening the tidal canal to -35 feet from Fortman Basin to Park Street, and to -25 feet above Park Street which was deauthorized November 1977. Reconstruction of the Fruitvale Avenue Highway Bridge was completed in December 1973 and turned over to local interests for operation and maintenance. Project consists of entrance channel to Oakland Outer Harbor, -42 feet deep, accessed from San Francisco Bay and 800 feet wide across the shoal southeast of Yerba Buena Island, narrowing to 600 feet at Oakland Mole; thence, a channel and turning basin -42 feet deep and from 600 to 950 feet wide in outer harbor to the Army Base. Project also provides entrance channel to Oakland Inner Harbor, -42 feet deep and 600 feet wide to Howard Terminal and 35 feet deep to west end of Government Island, with additional widening to within 75 feet of the pierhead line in front of Grove and Market Street (formerly municipal) piers and along the south side of the channel from Harrison Street eastward to harbor line point 119 in Brooklyn Basin; a channel 35 feet deep and 500 feet wide through Brooklyn Basin; for a triangular area 35 feet deep about 2,700 feet long and maximum width of 300 feet at western end of Brooklyn Basin; a channel along north side of Brooklyn Basin which is 35 feet deep and 300 feet wide for 1,300 feet, thence 25 feet deep and 300 feet wide for 3,700 feet to a turning basin at east end of Brooklyn Basin which is 35 feet deep, 500 feet wide, and 1,200 feet long; a channel in the tidal canal 35 feet deep and 275 feet wide from Brooklyn Basin to Park Street, thence 18 feet deep to San Leandro Bay; a total channel length of 8-1/2 miles from San Francisco Bay to San Leandro Bay. Project also includes parallel rubblemound jetties at entrance to inner harbor, north jetty 9,500 feet long and south jetty 12,000 feet long; three highway bridges across the tidal canal, two of which (at Park Street and High Street) have been replaced by local interests and the Fruitvale Avenue Bridge constructed by Federal Government has been transferred to Alameda County. The railroad bridge has been transferred to the County for operation and maintenance. The Federal Government will reimburse the County for the cost of operating and maintaining the railroad bridge.

Oakland Harbor is the 2nd largest port on the West Coast and the fifth largest container port in the nation. Traffic is primarily containers ships. Ports around the world are increasing channel depths and expanding throughput capacity to compete for the next generation of deep-draft container ships. The Port is proposing to deepen the federal channels of the Oakland Harbor and Port-maintained berths to depths of 50' below MLLW. In constructing this project, the Port expects to dredge up to 12.9 million cubic yards of sediment, which will require reuse and disposal. If the Port does not get down to –50', shipping companies will bypass the Port of Oakland. This will hurt not just the Port of Oakland, but the overall Bay Area economy as well. The recommended/ Locally Preferred Plan has a benefit-cost-ratio greater than 6.4 to 1. The estimated construction cost is $252.3 million, including $38 million of local service facilities (LSF) (berth rehabilitation & deepening). Disposal options for dredged material include the San Francisco Deep Ocean Disposal Site (SF-DODS), Middle Harbor or the Fleet and Industrial Supply, Oakland (FISCO), Hamilton Airfield, Montezuma wetland restoration project, together with upland disposal/reuse at Mare Island and Alameda Point. Water Resources Development Act (WRDA) of 1999 authorized this project for $252.3 million.

Local cooperation. A draft Project Cooperation Agreement satisfying the requirements of the Water Resources Development Act of 1986, PL 99-662 was sent to Corps Headquarters for review and approval in early Feb 2001. Final PCA was executed on the 24 May 2001. The agreement includes the following requirements: (1) provide lands, easements, rights-of-way, and dredged material disposal areas; (2) pay 25 percent of the costs allocated to deep draft navigation during construction to a depth in excess of 20 feet but not in excess of 45'; (3) pay 50% of the costs allocated to deep draft navigation during construction in excess of 45';and (4) pay additional 10 percent plus interests of the costs allocated to deep draft navigation within a period of 30 years following completion of construction. Deepening to 42' MLLW was completed in July 1998. The Port of Oakland completed a feasibility study to deepen Oakland Harbor to -50' MLLW at 100% Port cost under the authority of Section 203 of WRDA 86. The estimated project cost is $284 million with an average annual navigation benefit of $178 million. Project was authorized in WRDA 99. Construction began in October 2001 with a demolition contract for the Inner Harbor Turning Basin.

Terminal facilities. The port occupies 19 miles on the mainland shore of San Francisco Bay. There are 550 acres of marine terminal facilities, 28 deepwater berths and 25 container cranes, including 5 of the post Panamax type. On-dock covered storage space exceeds 600,000 square feet. Three major railroads, Santa Fe, Southern Pacific and Union Pacific serve the port.

Operations during fiscal year. New Work: Construction to a depth in excess of 20 feet but not in excess of 45'. The first phase of the Inner Harbor Turning Basin was completed in September 2003. Maintenance: Operations and maintenance of Fruitvale Avenue R.R.

Bridge including engineering and design by hired labor, cost $185,253; operations and maintenance of Miller-Sweeney Highway Bridge, cost $73,805; and Operations and Maintenance of Oakland Harbor 286,978 cubic yards removed at a cost of $3,983,996. San Francisco Deep Ocean Disposal Site (SF-DODS) was utilized for material disposal. The FY 04 Operation and Maintenance work is scheduled in August 2004.

4. RICHMOND HARBOR, CA

Location. Richmond Harbor is located in central San Francisco Bay, in Contra Costa County in the City of Richmond.

Existing project. The existing navigation channel extends from deep water in San Francisco Bay into the Port of Richmond. The Southampton Shoal Channel and Long Wharf Maneuvering Area, at the entrance to the harbor channels are maintained to -45 feet MLLW. The Entrance Channel, Potrero Reach Channel, Potrero Sharp Turn, Inner Harbor and about half of the Santa Fe Channel, to -38 feet and the remainder of the Santa Fe Channel from the Lauritzen Channel confluence to -30 feet. The width of the navigation channel is 600 feet for most of its length to Point Richmond with one maneuvering area: in front of the Long Wharf. At Potrero Reach, the 500 foot width flares to about 600 feet at Point Potrero with a turn at the point, 1,200 feet wide and 38 feet deep. Thence, the channel continues into the Inner Harbor at a width of 850 feet in a northerly direction to the entrance of the Santa Fe Channel. The Santa Fe Channel extends northwesterly at a width of 200 feet into the upper basin terminus. A turning basin is provided at Point Richmond, and a rubble-mound training wall extending 10,000 feet westerly from Brooks Island is also provided in the Potrero Reach. For details, see page 1977 of Annual Report for 1915 and page 1646 of Annual Report for 1938.

Improvements consisted of a construction plan involving four and one-half miles of channel between Richmond Long Wharf and the Santa Fe Channel. The project deepened the existing -35-foot channels to -38 feet, and provided a turning basin of 1,200 feet near Point Potrero. Approximately 2,200,000 cubic yards of sediment were dredged and transported to aquatic and upland disposal sites. Construction was completed in August 1998.

The project cost was $40,000,000 of which $28,300,000 was Federal cost (includes $130,000 Coast Guard costs) and $11,700,000 is non-Federal cost (includes $1,310,000 non-Federal reimbursements).

The existing project was authorized on October 27, 1965. Previous projects were authorized by Acts adopted in 1917, 1930, 1935, 1938, 1945 and 1954. The proposed improvements are authorized by the Water Resources Development Act of 1986, PL 99-662.

Local cooperation. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the local sponsor complied with the following requirements: (1) pay 10 percent of the costs to 20 feet below mean lower low water and 25 percent of costs between 20 and 45 feet below mean lower low water and (2) reimburse an additional 10 percent with interest of the costs allocated to general navigation facility of the project within a period of 30 years following completion of construction; and (3) provide all lands, easements, rights-of-way, relocation and dredged material disposal areas necessary for the projects. The value of lands, easements, rights-of-way and dredge disposal areas can be credited toward the payment required under item (2) above.

Terminal activities. The Port of Richmond encompasses nine privately-owned terminals and seven terminals owned by the Port.

Operations during fiscal year. New Work: Construction project completed in May 1998. Maintenance: Operations and Maintenance dredging of Richmond Outer Harbor was performed by the U.S. Hopper dredge "Essayons." The Essayons removed 155,740 cubic yards of shoal material from the Outer Harbor, cost $783,000. The Inner Harbor portion, 470,659 cubic yards were removed at a cost of $8,323,177. The FY 03 Operations and Maintenance dredging completed in August 2003. The FY 04 Operations and Maintenance dredging is scheduled in early July 2004.

5. SACRAMENTO RIVER DEEP WATER SHIP CHANNEL, CA

Location. The project is located on the Sacramento River, between Collinsville and the Port of Sacramento, a distance of approximately 43 miles, in the counties of Sacramento, Contract Costa, Solano and Yolo, CA.

Existing project. Existing waterways are inadequate to efficiently accommodate vessels currently using the channel. Because of the depth restriction, only 20% of the world's fleet can currently load to full design depth. Once deepened, the Port of Sacramento will be able to accommodate 70% of the world's fleet at full design draft. The project plan is to deepen the existing 30 feet

Sacramento River Deep Water Ship Channel from N.Y. Slough to the Port of Sacramento, a distance of about 43 miles, to 35 feet, and widen the channel as necessary. The project provides for establishment of wetland habitat and upland habitat to mitigate for such losses. Current project estimate is $56,480,000 and is comprised of Federal cost (Corps) of $27,980,000; Federal cost (Coast Guard-for navigation aids) of $300,000 and non-Federal cost of $28,200,000.

Local cooperation. A Local Cooperation Agreement (LCA) was signed with the local sponsor, the Port of Sacramento, in June 1986. A modification to the LCA, necessitated by the Water Resources Development Act of 1986, was executed in December 1988. The local sponsor will provide lands, easements, rights of way and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project; and pay 25 percent of the costs allocated to deep draft navigation during construction.

Terminal facilities. All main wharves at Sacramento have rail connections. Three facilities are owned by the City of Sacramento and the rest are privately owned; all are privately operated. For full description, see "Port and Terminal Facilities at the Ports of Sacramento, Stockton, Pittsburg and Antioch, Calif., 1986". Deepwater terminal facilities are comprised of wharves, piers, administration and storage buildings and belt railroad facilities. The majority of these facilities are owned and operated by the Sacramento-Yolo Port District and the rest are privately owned and operated. The facilities are considered adequate for existing commerce.

Historical summary. Funds to initiate pre-construction planning were appropriated in fiscal year 1982. Project construction was authorized by the Supplemental Appropriations Act of 1985 and modified by the WRDA 1986. The General Design Memorandum was approved and the Record of Decision was signed in May 1987. The modified LCA was executed in December 1988. The first construction contract for deepening was awarded in February 1989 and completed in July 1990. A second construction contract was awarded in September 1990 and completed in August 1991. Construction from River Mile 43 to River Mile 35 has been completed. In fiscal year 1992, the sponsor requested indefinite suspension of the project due to their inability to meet their cost share requirements. Based on Congressional direction in Conference Report 105-749, dated September 25, 1998, the Corps developed a study plan outlining the scope, schedule and costs to prepare a Limited Reevaluation Report (LRR). This reevaluation will serve as the basis for requesting construction Federal funding. Section 305 of WRDA 2000 "authorized credit toward the non-Federal share of the cost of the project the dredged material from the project that is purchased by public agencies or nonprofit entities..." In June 2002, the project was transferred from Sacramento District to San Francisco District.

Operations during fiscal year. Continue Re-evaluation report. Final Limited Re-evaluation Report/Supplemental Environmental Impact Report/Statement is scheduled for September 2005.

6. SAN FRANCISCO BAY TO STOCKTON, CA (JOHN F. BALDWIN AND STOCKTON SHIP CHANNELS)

Location. The project consists of the navigational channel system, initiating at the San Francisco Bay, and extending over 50 miles to the Port of Stockton.

Existing project. The existing project was adopted by 1965 River and Harbor Act (H. Doc. 208, 89th Cong., 1st sess., contains latest published map). The project consists of deepening the San Francisco Bar to 55 feet; constructing a new channel in upper San Francisco Bay through Richmond to 45 feet; deepening the Pinole Shoal Channel in San Pablo Bay to 45 feet (currently 35 feet); deepen the Suisun Bay Channel to 45 feet to Chipps Island (currently 35 feet); and deepen the Stockton Deep Water Ship Channel to 35 feet to the Port of Stockton. Several attempts have been made since the initial construction to deepen portions of the channel system, however, environmental opposition to potential impact to water quality as a result of the deeper channel has halted any attempt to construct the authorized project.

Local cooperation. The Port of Stockton and Contra Costa County Water Agency are the non-Federal sponsors in support of deepening the entire project. A resolution by the Committee on Public Works and Transportation of the United States House of Representatives, September 24, 1992, requested a review of the report of the Chief of Engineers to determine whether modifications of the recommendations are advisable at the present time for navigation and other purposes from Carquinez Strait to Stockton. The Energy and Water Development Appropriation Act of 1998 included an appropriation of $100,000 for the Corps of Engineers to initiate a reconnaissance study of deepening the Port of Stockton's main ship channel to 40'. The Sacramento District (SPK)

prepared the reconnaissance report in September 1998, which indicated a Federal interest in deepening the project. In June 2002, the project was transferred from Sacramento District to San Francisco District, and a General Reevaluation Report (GRR) was initiated in July 2002, under the existing 1965 construction authority.

Based on request to improve the navigational safety at the oil terminals at Avon by the San Francisco Bar Pilots and the shipping industries, the Contra Costa County Water Agency requested funding to allow for the Corps of Engineers reevaluation of the turning basin at Avon, as a congressional add in the Federal FY 01 budget. As part of the 2001 Energy and Water Development Appropriation Bill, the House Committee on Appropriation directed the Corps to complete the General Reevaluation Report. The local sponsor, Contra Costa County, supports the project, however, must obtain the non-federal cost share for the study from the primary beneficiaries of the project – specifically the oil companies operating at Avon Terminal. The County has been in lengthy negotiations with the oil companies to obtain the funding and to initiate the study.

Terminal facilities. See Port Series No. 30, revised 1991, No. 31, revised 1991, and No. 32, revised 1986, titled respectively: "The Ports of San Francisco, Redwood City, and Humboldt Bay, Calif."; "The Ports of Oakland, Alameda, Richmond, and the Ports on Carquinez Strait, Calif."; and "The Ports of Sacramento, Stockton, Pittsburg, and Antioch, Calif." Facilities are considered adequate for existing commerce and will be adequate for future commerce upon completion of new terminal facilities.

Operations during fiscal year. A General Reevaluation Study was initiated in July 2002 to investigate the deepening of the entire navigational channel system from the San Francisco Bay to the Port of Stockton. Because the channel system has already been constructed to the authorized channel depth of 35 feet, the existing Federal project is being reevaluated to determine to what extent changes in the channel depth are justified. The 1st phase of the GRR focused on evaluating the project economics and the potential salinity intrusion, issues that prevented the deepening of the channel in the past. The results of this initial effort supported Federal involvement toward deepening the channel, as well as found only negligible impact to water quality as a result of the deeper channel. The balance of the GRR is currently being prepared.

7. SONOMA BAYLANDS WETLANDS DEMONSTRATION PROJECT, CA

Location. The Sonoma Baylands site is located in Sonoma County, CA, approximately 25 miles north of San Francisco near the mouth of the Petaluma River, on the northern shoreline of San Pablo Bay.

Existing project. Authorized by Water Resources Development Act of 1992. The project includes restoration of tidal wetlands on 348 acres of diked lands, including construction of 11,645 feet of replacement levee around the landward periphery of the site, fifteen internal peninsulas for wave protection, three weirs for the discharge of dredged material supernatant, and modification of three existing high voltage electrical towers. Project included placement of 207,000 cubic yards of maintenance-dredged material from the Petaluma River navigation channel in a pilot project area and placement of 1.7 million cubic yards of suitable dredged material from the Oakland Harbor deepening projects on the remainder of the site. Placement of material was completed on November 6, 1995.

The project cost is $8,900,000, of which $6,675,000 is Federal cost and $2,225,000 is non-Federal cost. Oakland deepening to -42' MLLW was completed in July 1998.

Local cooperation. The California State Coastal Conservancy signed a Project Cooperation Agreement on May 6, 1994 satisfying the requirements of the Water Resources Development Act of 1992, PL 102-580 and signed an amendment on December 9, 1994 to include the placement of Oakland Harbor dredged material. The local sponsor must comply with the following requirements: (1) provide lands, easement, and right of ways; (2) modify or relocate utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project; (pay 25 percent of the total project cost in accordance with Section 106 of the Water Resources Development Act of 1992. The local sponsor has also agreed to make all required payments concurrently with project construction.

Terminal facilities. N/A

Operations during fiscal year. The project was restored to tidal action on October 25, 1996. Monitoring of the project is continuing. Project was turned over to California Coastal Conservancy in August 1998 for operation, maintenance, repair, replacement, and rehabilitation of the functional portion of the project.

8. SAN FRANCISCO BAY-DELTA MODEL STRUCTURE, CA

Location. The model, including a Class A regional visitor center, is located in Sausalito, CA, adjacent to San Francisco Bay about two miles north of the Golden Gate Bridge.

Existing project. The San Francisco Bay/Delta Model, which covers 17 miles of the Pacific Ocean beyond the Golden Gate, all of San Francisco Bay proper, San Pablo Bay, Suisun Bay, and all of the Sacramento-San Joaquin Delta east of Suisun Bay to the cities of Sacramento on the northeast and Stockton and Tracy on the south, was constructed in a rehabilitated warehouse at Sausalito, CA, as a part of the San Francisco Bay and Tributaries, CA, Study authorized by the River and Harbor Act of May 17, 1950 (PL 81- 516, Section 110). The model was authorized as an operation and maintenance project in the Water Resources Development Act of 1974 (PL 93-251, Section 8). The model successfully reproduces to the proper scale the rise and fall of the tide, flow and currents of water, salinity intrusion, and trends in disposition of sediments. It is a useful tool to examine forces existing in the bay and estuarine system and to predict results of proposed changes.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Operations and maintenance of the model continues.

Historical summary. Original model construction was initiated 1956 and completed 1957. The addition of the Sacramento-San Joaquin Delta to the original model was initiated 1966 and completed 1969. Annual visitation to the model averages between 140,000 to 150,000 people. The central exhibits were completed in December 1981. Extensive exhibit upgrade for the Visitor Center and development of Cooperative Association completed September 30, 1989. The Cooperative Association provides support to the visitor center and their programs. An active volunteer program exists at the Visitor Center providing approximately 300 hours of effort monthly. The hydraulic engineering department closed 4 January 2000. The Visitor Center operations continues to offer public information-educational services via programs, exhibits, and special events. The Visitor Center is currently developing new interpretive and exhibit plans.

Total cost of regional visitor exhibits and model as of September 30, 2003, was $41,824,405 of which $18,917,878 was for the regional visitor center, $1,383,324 for exhibits, and $21,523,203 for maintenance.

9. SAN FRANCISCO BAY LONG TERM MANAGEMENT STRATEGY (LTMS), CA

Location. The San Francisco Bay Long-Term Management Strategy (LTMS) for dredged material disposal covers deep and shallow draft navigation channels of the San Francisco Bay region including Central San Francisco Bay, South Bay, San Pablo Bay and Suisun Bay environs.

Existing project. The San Francisco Bay region has an annual disposal requirement of approximately 2.4 million cubic yards (mcy) to maintain navigation channels. The Bay also has a new civil works requirement of approximately 19 mcy. In January 1990, the Army Corps of Engineers, the Environmental Protection Agency, Region IX, the San Francisco Bay Water Quality Control Board and the San Francisco Bay Conservation and Development Commission convened with approximately thirty interested agencies and organizations with concerns regarding dredged material disposal in San Francisco Bay. These four agencies have the responsibility for regulation of the waters of the US and California for disposal of dredged material.

The four agencies and the concerned navigation interests formed the LTMS to develop technically feasible, economically prudent, and environmentally acceptable long range solutions to the dredging and disposal needs for the San Francisco Bay region over the next fifty years. In determining acceptable dredged material disposal locations, the LTMS is evaluating a broad array of potential ocean, in-Bay and non-aquatic beneficial uses disposal alternatives.

Local cooperation. Pursuant to their regulatory responsibilities, the Division Commander of the South Pacific Division, Corps of Engineers; the Regional Administrator of the Environmental Protection Agency, Region IX; the Chair of the San Francisco Bay Regional Water Quality Board and the Chair of the San Francisco Bay Conservation and Development Commission agreed to jointly undertake the development and implementation of a Long Term Management Strategy (LTMS) for dredging and disposal of dredged materials from the region. Based on the outputs from the LTMS, the Regional Water Quality Control Board (RWQCB) and the Bay Conservation and Development Commission (BCDC) will consider modifications to the dredging elements of their respective Basin and Bay Plans for San Francisco Bay.

Regulatory Streamlining: Besides identifying implementable disposal options, the LTMS will: (1) develop coordinated regional disposal policies between federal and state agencies; (2) provide a required

decision-making framework for dredging and disposal projects; (3) streamline existing permit and testing procedures; and (4) provide a long term site monitoring apparatus and feedback mechanism.

Operations during fiscal year. In 1994, the Environmental Protection Agency (EPA) designated a deep ocean disposal site. In 1996, the Corps, EPA, and the State of California implemented a joint agency Dredged Material Management Office (DMMO) for dredging permit processing.

The Final LTMS EIS was finalized in October 1998 and the Record of Decision was signed in July 1999. The EIS identified Alternative 3 as the preferred alternative which would limit future dredged material disposal to 20% in the San Francisco Bay, 40% in the ocean, and 40% for upland beneficial reuse. ROD initiated implementation for Federal agencies.

In December 2001, the South Pacific Division Commander, EPA's Region IX Administrator, Chairmen of the San Francisco Bay Regional Water Quality Control Board, Chairwoman of the San Francisco Bay Conservation and Development Commission and the Executive Committee of the State Water Resources Control Board, as the members of the LTMS Executive Committee, approved the final LTMS Management Plan, directing implementation of the program. Adoption of the management plan will require amending the Bay and Basin Plans. BCDC amended the San Francisco Bay Plan in December 2000 and the RWQCB amended the San Francisco Basin Plan in June 2001.

In general, the first phase of implementation will focus on the completion of the Corps Regional Dredge Material Management Plan for San Francisco Bay, with a future project-by-project analysis for "practicability" in terms of fiscal and environmental impacts, that would then be assembled as a regional composite EIS. This effort was initiated in October 2001. Activities in FY 03 consisted of: initiating the Methyl Mercury Phase 2 effort to delineate means and formation; completing the RDMMP "roadmap" and contract scope of services; conducting a study on the spatial characterization of suspended sediment plumes during dredging operations through acoustic monitoring; and development of a detailed work plan to assess science data needs for all sensitive fish species for which there are environmental windows in San Francisco Bay.

10. RECONNAISSANCE AND CONDITION SURVEYS

Reconnaissance and condition surveys of channels to be dredged in years other than Fiscal Year 2003 and jetty structures were conducted on the following projects: Berkeley Breakwater; Bodega Bay; Crescent City Harbor; Fisherman's Wharf Breakwater; Larkspur Ferry; Mare Island Strait; Napa River; Noyo River; Petaluma River; Pillar Point; Pinole Shoal; Redwood City; Richmond Harbor; San Francisco Marina; San Leandro Marina; San Rafael; and Suisun Channel; all in California. Fiscal year costs were $894,851.

11. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization).

Fiscal Year total costs were $99,015 of which $9,991 was for Section 107 Coordination Account; $5,160 for Pillar Point Harbor, CA.; and $83,864 for Oyster Point Harbor, CA.

Mitigation of shore damages activities pursuant to Section 111, Public Law 90-483 (preauthorization).

None.

12. BEACH EROSION CONTROL WORK UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103, Public Law 87-874 (preauthorization).

Fiscal year total costs were $344,499 of which $254,525 was for East Cliff Drive, Santa Cruz, CA.; $29,877 for Pacific Grove Shoreline Protection, CA.; $47,731 for Pacifica State Beach, CA.; $11,532 for Cliff Drive, Capitola, CA; and $834 for Hook Area Bluff Stabilization, CA.

Flood Control

13. CORTE MADERA CREEK, CA

Location. Creek and tributaries drain an area of 28 square miles in Marin County, CA, and flow into west side of San Francisco Bay about 9 miles north of Golden Gate.

Existing Project. Provided for about 11 miles of channel improvements, including realignment, enlargement, levees, riprap, rectangular concrete sections, interior drainage facilities, bridge relocations, and debris removal on Corte Madera Creek and lower reaches of its tributaries, and a continuous channel rights-of-way to deep water in San Francisco Bay reserved to assure channel outlet in the event of future tideland reclamation. Water Resources Development Act of 1986 modified existing project to direct construction of Unit 4 from Lagunitas Road Bridge to Sir Francis Drake Boulevard, and to include construction of - flood proofing measures as necessary to individual properties and other necessary structural measures in vicinity of Lagunitas Road Bridge to ensure proper functioning of completed portions of authorized project. Portion of project upstream of Sir Francis Drake Boulevard previously classified inactive was modified on November 17, 1986 to eliminate any channel modification. Current project has 3 miles of channel enlargement and levees, about 1.8 miles of rectangular concrete channel improvements, and 450,000 cubic yards of redredging on lower Corte Madera Creek.

Local Cooperation. Local interests must provide lands and rights-of-way, including suitable areas for disposal of waste material, modify or relocate all bridges and utilities necessary for construction and maintenance; hold and save the United States free from damages due to the construction works; maintain and operate the project after completion in accordance with the regulations prescribed by the Secretary of the Army, and prevent encroachment on flood channels that would result in decreasing the effectiveness of project for flood control; adjust all claims regarding water rights that might be affected by the project; and contribute in cash 1.5 percent of Federal construction cost of Ross Valley units 1-4 and tidal areas. Marin County Flood Control and Water Conservation District previously furnished resolution of local assurances dated March 29, 1966, March 28, 1967, August 15, 1967, and July 8, 1969, and Marin County Board of Supervisors reaffirmed by letter dated September 28, 1978. Project was authorized by the State of California by 1965 Statute, Chapter 1388. Board of Supervisors of Marin County Flood Control and Water Conservation District furnished assurances of willingness and ability to meet requirements for portion of project below Sir Francis Drake Boulevard.

On December 13, 1983, Marin County Board of Supervisors reconfirmed assurances of local cooperation because a Superior Court judgment ordered that county to take all steps required by law to complete channel downstream of Sir Francis Drake Boulevard (Unit 4) and maintain entire project as agreed. A Local Cooperation Agreement for redredging the lower reach of Corte Madera Creek was executed on June 29, 1985. Marin County also provided support for Ross Valley Unit 4 by resolution on March 24, 1987 and by the resolution on September 13, 1988.

The General Reevaluation Report (GRR) was initiated in February 1999. As long as the originally authorized project remains the recommended project, the 1966 authorized cost sharing and financing requirements will be applicable. A community-based Design Advisory Committee has been created with representatives from Ross, Kentfield, Corte Madera, and Larkspur to provide community input on the conceptual plan. The conceptual plan is based on the Marin County Board of Supervisors' Design Guidelines for a consensus plan which was approved in 1996.

The GRR will be developed in two phases. Phase I will develop alternatives based on the design guidelines and determine if the project benefits exceed the costs. Phase II will complete the GRR and environmental documentation. Design and construction of Unit 4 and attendant features in the downstream units will be determined by the GRR. The communities of Corte Madera, Larkspur, Kentfield, and Ross reviewed the alternatives screening conference report summarizing Phase I during 2000. The non-Federal sponsor, Marin County Flood Control District 9, collected community resolutions passed in 2000 and 2001, and in April 2001made a consolidated recommendation on the locally prepared plan.

Operations during fiscal year. New Work: The flood control project has been built in separate units. The current project focuses on the design and construction of unit 4 with modification s to units 2 and 3. Unit 4 includes a natural flood control channel and a sedimentation basin located at the town of Ross.

Work on GRR Phase II began based on the locally preferred plan. Early activities assured that the plan could be implemented without damaging a historic bridge, but also noted the bridge's vulnerability to seismic activity. A related study sketched the impacts to traffic circulation from construction of a bypass culvert. As a result of the studies, local authorities and the sponsor may amend the design criteria for the project. Further work on GRR Phase II is on hold pending official notification of design criteria changes. Work could return to GRR Phase I to screen alternatives in accordance with any amended design criteria. The GRR schedule will be adjusted once the official notice of changes is made.

Historical summary. Project responsibility was transferred to Sacramento District on April 1, 1982 and back to the San Francisco District on October 1, 1996. Resolution 96-26 was passed on February 1, 1996 by the Marin County Board of Supervisors in support of a 40-year project.

Project is about 77 percent complete considering the portion being held in abeyance upstream of Sir Francis Drake Boulevard. Work remaining: Design construction of the remaining 3,000 feet of channel downstream of Sir Francis Drake Boulevard and Ross Creek. The portion of Corte Madera Creek upstream of intersection of Sir Francis Drake Boulevard and Corte Madera Creek in Ross, near the city of San Anselmo, was classified as "inactive" on July 11, 1984, due to lack of local support.

A Local Cooperation Agreement for redredging lower reach of Corte Madera Creek was executed June 29, 1985. Construction on Lower Corte Madera Creek Channel was completed and transferred to Marin County Flood Control and Water Conservation District by letter of May 28, 1987, San Francisco District monitors maintenance and operation of the project. The project was transferred from Sacramento District in October 1996. Design process began in the San Francisco District to complete Unit 4.

14. PETALUMA RIVER, CA

Location. The Petaluma River Basin is situated in the Sonoma and Marin Counties, California, on the northwestern shore of San Pablo Bay. The project site extends upstream approximately 500 feet from Lynch Creek to the spur line Railroad Bridge located approximately 600 feet downstream of the Lakeville Street Bridge.

Existing project. The project was re-authorized under Section 112 of the Water Resources Development Act of 2000. The scope of the project consists of constructing the U-shaped channel, an earthen trapezoidal channel including the channel excavation and widening, the two hundred (200) feet concrete constriction weir, an approximately one – mile – long sheet pile flood / retaining wall along both sides of the main channel, two (2) storm drain pump stations, twelve (12) storm drain outlet structures in various locations of the channel, two (2) large mitigation areas including planting in the embankment slope throughout the project site, two hundred (200) feet long transition channel work, replacing two (2) vehicular bridges and two (2) railroad bridges, and demolishing the existing railroad wood trestle.

Present estimated cost of the project is $39,660,000 of which $24,992,000 is Federal cost and $14,668,000 is non-Federal cost.

Local cooperation. The project was executed based on the original Petaluma River Project Cooperation Agreement in July 1996 under the continuing Authorities Program, Section 205 – Small Flood Control Projects. The project costs have exceeded the Continuing Authorities Program cost limits and was specifically authorized in WRDA 2000, Section 112. Further, Congressional direction in the House Report 106-693 accompanying the Energy and Water Development Appropriations Bill 2001 provides guidance to the Corps to utilize the available federal funds to continue project construction.

Operations during fiscal year. New work: The construction of Contract #1 for the U-shaped channel portion was completed in December 1998. The construction of the Payran Bridge and Lackville Bridge was completed under the local sponsor's contract in 1996 and 1998, respectively. The construction contract #2 for the trapezoidal channel was awarded in May 1999. The features of work in contract #2 completed in September 2000 included the floodwall\retaining wall in both sides of the channel, the channel widening and excavation, the constriction weir, the flood control features including the two (2) Storm Pump Stations and the storm drain outlets and the mitigation planting throughout the project site. Contract #2 was completed in May 2001. The remainder of the work to be completed including the correction of the mitigation areas in the Homlberg site to be included in Contract #3. The mainline Railroad Bridge, one of the two railroad bridges under construction by the local sponsor's contract, was completed early April 2001. Contract #3 for the Channel Transition completed in April 2002, Contract #4 for the mainline railroad approach, including the demolition of the existing railroad wood trestle is scheduled for completion in Nov 04. Contract 5A, channel excavation under the Payran and Lakeville bridges and installation of emergency generator at the Payran Pump Station was completed in May 03. Contract 5B, slide repair to trapezoidal channel was completed in September 2003. Contract #6 for installing the Industry track to replace the downstream trestle scheduled for award in June 2004. Channel excavation in the U-shaped channel area scheduled to complete in September 2005. Maintenance: Operations and maintenance of Petaluma River Channel including engineering and design. Condition survey was performed in February 2002. Operations and maintenance dredging of the Petaluma River Channel was completed in October 2003.

15. RUSSIAN RIVER BASIN, CA

Location. Russian River rises in Coast Range in northwestern California, flows southerly for 87 miles, and then turns westerly to flow for 23 miles to Pacific Ocean at Jenner, 60 miles northwest of San Francisco, CA. (For general location see Geological Survey map for California.)

Existing project. Active authorized project provides for construction of a dam on East Fork of Russian River at Coyote Valley to a height of 160 feet; a dam on Dry Creek at Warm Springs to a height of 319 feet; and channel stabilization works on Russian River between mouth and mile 98, on lower reaches of several tributaries, and on Dry Creek downstream from dam. Project also provides for expansion of fish hatchery capacity at Dry Creek, Warm Springs, to compensate for fish losses on Russian River attributed to operation of Coyote Dam component of project. Coyote Valley Dam (Lake Mendocino), completed in 1959, and Warm Springs Dam (Lake Sonoma), completed in 1983, are operated and maintained by the California Department of Fish and Game. (See tables 34-I and 34-J for latest approved estimated costs).

Local cooperation. Fully complied with for Coyote Valley Dam and channel improvements accomplished to date. For the Dry Creek portion, local interests are required by the authorizing act to comply with the usual a., b., c. requirements for channel improvements and, in addition, prevent any encroachment in the channel of Dry Creek which would interfere with proper functioning of the channel improvement works; adjust all claims concerning water rights arising from the construction and operation of the improvements, including acquisition of water rights needed for preservation of fish and wildlife resources affected by the project; and reimburse the United States in accordance with the Water Supply Act of 1958, as amended, for that part of the joint-use construction cost, (30.2 percent currently estimated at $103,760,000) and an ultimate 32.5 percent of the annual operation, maintenance, and replacement joint-use costs allocated to municipal and industrial water supply. The estimated annual cost to local interests for maintenance of channel improvement works is $80,000. Sonoma County Water Agency (formerly Sonoma County Flood Control and Water Conservation District) provided assurances of willingness and ability to meet requirements by Resolutions No. DR 00793-1, September 25, 1961, No. DR 4770-1, December 17, 1962 and No. DR 45759, August 5, 1974, for Dry Creek (Warm Springs) Lake and Channel. By letter dated March 7, 1967, Sonoma County Flood Control and Water Conservation District further indicated their interest in optimization of the Dry Creek (Warm Springs) damsite to provide additional water supply storage. Reimbursement to the United States for Dry Creek (Warm Springs) Lake and Channel costs allocated to 212,000 acre-feet of water supply storage is specified in a water supply contract with the local sponsor approved in October 1982. Local interests have expended approximately $1,000,000 to provide partial flood protection in project area and have constructed facilities at an approximate cost of $20,000,000 to distribute water from the completed Coyote Valley reservoir.

Operations and results during fiscal year. New work: Coyote Valley Dam: Replaced SST toilets with new vault toilets and ordered two more CXT prefabricated restrooms for FY 04. Other work included modifying existing sewer system to reduce the number of confined space entry areas, completed wooden water tanks with steel at Kyen & Bushay campgrounds and Overlook day-use area; repaving roads at Overlook, Mendocino Drive Road, and Southboat Ramp Parking lot; and repaired the emergency slide gate in the control tower. New playground equipment was installed in the Cha-Ka-Ka Campground. Dry Creek (Warm Springs) Lake and Channel: Engineering activities continued. Major work includes repairing the Liberty Glen Campground Entrance Road using ERFO funds and the stabilization of the Control Tower Access Road. Maintenance: Coyote Valley Dam: Operation and maintenance continued. Structures were maintained in serviceable condition. Runoff of East Fork Russian River at Coyote Dam was dry for the year. Maximum storage of 92,109 acre-feet occurred on May 1, 2003. Maximum hourly inflow to reservoir was 6,847 cubic feet per second on December 16, 2002. Maximum release of 2,034 cubic feet per second occurred on January 14, 2003. During the year, 101,743 acre-feet were released for flood control, and 127,513 acre-feet were released for irrigation and other purposes. Dry Creek (Warm Springs) Lake and Channel: Operation and maintenance continued. Structures were maintained in serviceable condition. Runoff of Dry Creek at Warm Springs Dam was dry for the year. Maximum storage of 265,877 acre-feet occurred December 31, 2002. Maximum hourly inflow to reservoir was 23,229 cubic feet per second on December 16, 2002. Maximum release of 3,023 cubic feet per second occurred December 31, 2002. During the year, 79,475 acre-feet were released for irrigation and other purposes. Releases for flood control amounted to 138,544 acre-feet.

Historical summary. Entire project, exclusive of recreation facilities at completed project (Lake Mendocino), is about 99 percent complete. Coyote Valley Dam, initiated November 1958, was completed April 1959 (cost $17,550,000, of which $11,952,000 was Federal; and $5,598,000 contributed). Work, including removal of slides resulting from storms in 1958, was completed April 1959. Bank stabilization work on Russian River near Geyserville

was completed in 1957 and channel improvements in remaining reaches on Russian River and East Fork of Russian River were completed in 1974 (cost $2,483,900). In April 1982, responsibility was transferred to the Sacramento District. Responsibility for civil works operations & maintenance functions for the two projects was transferred back to San Francisco District October 1, 1996.

Warm Spring construction completion include fish hatchery in December 1980, project overlook in May 1981, reservoir clearing in July 1981, downstream stabilization sills in October 1981, dam closure in October 1982, spillway repair at Warm Springs Dam in September 1985, boat launching facilities, Phase I, in September 1985, Rockpile Road Upgrade, Yorty Creek Beach, and remedial work at Liberty Glen camping area in September 1990, fish hatchery expansion in September 1992, final control tower grouting, dam access road repair, spillway stabilization, fish hatchery emergency water supply in September 1993, and Liberty Glen wastewater system and contaminated soil remediation. Initial filing of Warm Springs reservoir was commenced on November 1, 1984. Responsibility for construction was transferred to Sacramento District in August 1983. Dam safety assurance studies were initiated at Coyote Valley Dam in fiscal year 1984. Responsibility for civil works operations and maintenance functions for the two projects was transferred back to San Francisco District October 1, 1996.

16. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Section 3, Flood Control Act of June 22, 1936, as amended and supplemented, included a requirement that local interests maintain and operate completed flood control works in accordance with regulations prescribed by the Secretary of War. Inspections made throughout the year to determine effectiveness of operation and maintenance by local interests of completed local protection projects and works constructed under emergency and special authorities of Sections 205 and 208 of the 1948 Flood Control Act, Section 14 of the 1946 Flood Control Act, and Public Law 99, 84th Congress. In addition, encroachments to Federal Projects such as new bridges, etc. must be reviewed and approved prior to construction by the local sponsor, as well as in compliance with the Clean Water Act permit and endangered species concerns regarding their operations and maintenance activities. Fiscal year cost was $199,667. Total cost to September 30, 2003 was $3,888,850. See Table 34-H for inspections made this fiscal year.

17. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization).

Fiscal year costs were $551,440 for preauthorization studies of which $29,703 were for Alhambra Valley Estates, CA; $286,481 for San Pedro Creek, Pacifica, CA; $138,205 for White Slough, Solano County, CA; $2,012 for Novato Creek Tributary, Novato, CA; $12,794 for Coyote Creek at Rock Springs, CA; $9,986 for Section 205 Coordination Account; $4,074 for Bay Front Canal, CA; and $444 for Mare Island, CA; $9,753 for Santa Venetia Pumping Plant, CA; $29,127 for San Pablo Creek, CA; $25,322 for Las Gallinas Creek; $2,270 for San Francisquito Creek, CA; and $1,269 for Howell Mountain Flood Protection, CA.

Emergency flood control activities-repair, flood fighting and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Fiscal year cost incurred for emergency flood control activities were $532,492 of which $480,816 were for Disaster Preparedness; $5,000 for Emergency Operations and $46,676 for Rehabilitation.

Emergency bank protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Congress).

Fiscal year total costs were $8,460 of which ($400) was for Indian Island, Humboldt County, CA; and $8,860 for Section 14 Coordination Account.

18. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

In accordance with sec. 7, Flood Control Act of 1944, summaries of monthly reservoir operations at Del Valle, CA were prepared. No water control manual revisions were completed due to environmental issues. Corps personnel provided advice as requested during flood control operations at the reservoir. Fiscal year cost was $53,079.

19. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

Project Modification for Improvement of Environment (Section 1135, PL 99-662).

Fiscal year total costs were $390,083 of which $9,999 was for Coordination Account; and $230,068 for Wildcat Creek Restoration, CA.; $67,070 for Alameda Creek, CA.;

$43,240 for Pinole Creek Restoration, CA; $33,624 for Warm Springs Dam Hatchery Modification, CA; $6,086 for McNear Peninsula Habitat Restoration, CA; and ($4) for Preliminary Restoration Plan, CA.

Aquatic Ecosystem Restoration (Section 206, PL 104-303).

Fiscal year total costs were $669,852 of which $10,487 was Coordination Account funds; $87,226 for American Canyon Creek, CA; $98,021 for Pavon Creek Restoration, CA.; $487 for Novato Creek Antenna Field Restoration; $4,010 for Santa Clara Valley Aquatic Restoration, CA; $35,346 for San Pedro Creek, Aquatic Restoration, CA; $24,411 for Salt River Restoration, CA; $288,621 for Upper York Creed Dam Removal, CA; $5,488 for Larson Park, CA; $77,274 for McInnis Park Restoration, CA; $25,145 for Sulphur Creek Restoration, CA; $9,251 for Simmons Slough, CA; and $4,085 for St. Helen-Napa River Restoration, CA.

Environmental Improvement

20. HAMILTON AIRFIELD WETLANDS RESTORATION, CA

Location. The Hamilton Wetland Restoration project is located at the former Hamilton Army Airfield south of the city of Novato, California.

Existing project. The project calls for restoration of approximately 1,000 acres of habitat that includes coastal salt marsh, seasonal wetlands, tidal channels and intertidal habitats. The project will provide habitat for endangered species such as Chinook salmon, California clapper rail, brown pelican, California black rail and salt marsh harvest mouse. The wetlands will also support shorebirds and waterfowl migrating along the Pacific Flyway. The wetlands and associated habitats that will be restored are especially valuable due to the scarcity and declining amount of this habitat type in California and the dependence of listed threatened and endangered species on this unique resource.

More than 10 million cubic yards of dredged material is needed for the project. About 2.5 million cubic yards of material will come from the Port of Oakland's –50-foot harbor deepening project. The remaining eight million cubic yards of material will come, primarily, from other local and federal operation and maintenance projects around San Francisco Bay. Dredged material will be tested to ensure that it is suitable for wetlands construction.

Use of the material for wetlands restoration also avoids the necessity of disposing of it elsewhere in the bay or in the ocean, consequently wasting a resource that can be better used for habitat restoration. This concept is part of the Long Term Management Strategy for the disposal of material dredged from San Francisco Bay. This strategy was created in partnership with federal and state agencies, navigation interests, fishermen, environmental organizations and the general public in 1990, to develop long-term solutions and policies for dredged material disposal that favor reuse. The project will be built using a phased approach that coincides with the availability of real estate parcels and dredged material. Initial geotechnical investigations to characterize soil properties began in late October 2001, as part of the Pre-construction Engineering and Design Phase of the project. In January, construction was completed on the first 1,700 feet of pipeline that will eventually stretch some 34,000 feet and carry the dredged material to various locations at the wetlands restoration site.

The next phase of the wetlands project will include removal of derelict buildings and preparation of the site to receive dredged material. The marsh-crossing pipeline will then be extended far into the deep water of San Pablo Bay where a hydraulic off-loader will be constructed. The off-loader will be used to pump dredged material, which will arrive on barges from bay dredging projects, to the restoration site. Internal berms and levees will be constructed on the airfield parcel to contain the slurried sediment. Once all the sediment has been placed on the site and the residual water drained from the site, the bayward levee will be breached and the waters of San Francisco Bay will be allowed once again to flow across the land.

The project cost is $63,900,000 of which $47,900,000 is Federal cost and $16,000,000 is non-Federal cost (includes $5,200,000 Port of Oakland costs according to Oakland Project Cooperation Agreement).

The existing project was authorized in the Water Resources Development Act of 1999. Public Law 106-53 authorizes the Secretary of the Army to implement an ecosystem and wetland restoration project at the Hamilton Army Airfield and adjacent properties, City of Novato, Marin County, California.

Local cooperation. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the local sponsor must comply with the following requirements: (1) pay 25 percent of the total project cost and (2) provide all lands and easements, rights-of-way, and relocations necessary for the project. The value of lands, easements, rights-of-way, and relocations can be credited toward the payment required

under item (1) above.

Operations during fiscal year. The Port of Oakland has completed initial construction of 1700 feet of the off loader pipeline, which will be extend another 30,000 feet onto the project site. Site preparation and construction of the off loader facility began in September 2003 after the transfer of the Army BRAC parcel to the State of California has been completed. Project is expected to receive first dredge material in June of 2005.

21. SAN RAMON VALLEY RECYCLED WATER, CA

Location. The project is located in the San Ramon Valley, Contra Costa and Alameda Counties, approximately 25 miles east of San Francisco, California.

Existing project. The project runs from Danville south to Dublin. The project will include design and construction of 8 pump stations, 8 storage reservoirs, and 135 miles of pipeline. The total project cost is $150,000,000 of which $15,000,000 is Federal cost and $135,000,000 is non-Federal cost. The district is currently involved in the design of one pump station and 2 miles of pipeline. The current project estimate for this design is $560,000 and is comprised of Federal cost (Corps) of $420,000 and non-Federal cost of $140,000. The existing project was authorized in the Water Resources Development Act of 1999, Section 502, b (42).

Local cooperation. A Design Agreement was signed with the local sponsor, East Bay Municipal Utilities District, in November 2002.

Operations during fiscal year. Investigations were conducted in FY 2003 to identify property that could be purchased by the sponsor as a site for the pump station. A contract was awarded in August 2003 for the preliminary design of the pump station. Completion of final design is anticipated in FY 2004.

General Investigations

22. SURVEYS

Fiscal year costs for surveys were $2,461,579 of which $172,461 were for navigation studies; $553,100 for flood damage prevention; $52,169 for shoreline protection studies; $1,629,237 for special studies; $30,388 for miscellaneous activities; and $24,224 for coordination studies with other agencies.

23. COLLECTION AND STUDY OF BASIC DATA

Fiscal year total costs of $35,711 were incurred, of which $35,292 was for Flood Plain Management Service Program and, $419 for Hydrologic Studies.

24. PRECONSTRUCTION ENGINEERING AND DESIGN

LLAGAS CREEK, CA

The Llagas Creek Flood Control Project is located in southern Santa Clara County, California, in the vicinity of the communities of Morgan Hill, San Martin, and Gilroy. Llagas Creek is a conduit to the Pajaro River and the Monterey Bay for a 104-square mile watershed around Morgan Hill and Gilroy. The creek system is especially prone to flooding, having recorded floods in 1937, 1955, 1962, 1963, 1969, 1982, and in 1997. Primarily, the project consists of channel improvements and a diversion channel providing a 100-year level of protection to urban areas and 10-year protection to agricultural areas.

The Llagas Creek Flood Control Project is separated into 14 reaches. Of these, the Natural Resources Conservation Service (NRCS) completed Reaches 1, 2,3, 9, 10, 11, 12 and 13 and prepared preliminary designs for the remaining reaches (1967). The Water Resources and Development Act (WRDA) of 1999 authorized the Corps of Engineers to complete the remaining reaches of the project "substantially in accordance with the NRCS plans". A re-evaluation of these designs was necessary due to the changes in the environmental habitat within these reaches, overall watershed use, and Federal and State law. Preliminary designs of the unconstructed reached have been prepared and the supplemental EIS/R has been initiated. Construction of the remaining reaches is forecast to begin in FY 06.

NOYO RIVER AND HARBOR, CA

Noyo River rises in the Coast Range, flows westerly, and empties into Noyo Harbor. Noyo Harbor is a cove on the California Coast about 87 miles south of Humboldt Bay and 135 miles northwest of San Francisco. The 1962 Rivers and Harbors Act, modified by the 1976 Water Resources Development Act, authorized up to two breakwaters as necessary to provide protection. The 1976 Water Resources Development Act, as modified by the Water Resources

Development Act of 1986, authorized construction of additional channel improvements. Recommended plans of improvement for the breakwater and channel improvement were previously considered as a single project. Due to significant differences in the time required for planning and construction, each part is now reported separately.

The plan of improvement for Noyo River and Harbor (Breakwater), CA provides for one detached offshore 400-foot breakwater aligned in a north-south direction along the southern portion of Noyo Cove, west of the entrance channel in Noyo Harbor. The plan also provides for a 60-foot wide channel, 7 feet deep, for a distance of about 3,000 feet upstream from the end of the existing Federal project to the Dolphin Isle Marina. The June 1995 draft GDM estimated the breakwater cost at $23,312,000 of which $18,712,000 is Federal cost and $4,600,000 is non-Federal cost. Subsequent to the draft GDM, the Conference Report on H.R. 1905, Energy and Water Development Appropriation Act of 1996 directs the Corps to investigate the viability of a pre-fabricated steel structure in lieu of a rubble mound breakwater, including modeling. A special report, which documented this evaluation, was completed in January 1997. A meeting with the Local Sponsor, PG&E and the City of Fort Bragg was held 5 February 1997 to discuss the Corps' findings. Integrating wave power generation to the breakwater does not decrease the Sponsor's annualized cost because the Sponsor is required to pay all costs associated with power generation. Two letters from the Noyo Harbor District, dated 26 February 1997, requested the Corps finalize the GDM and discontinue study of integrating wave power generation into the breakwater. Due to sponsor's inability to fulfill its cost-sharing requirements, preparation of a final GDM was terminated.

This project has been put in an inactive category at the request of the sponsor.

PAJARO RIVER AT WATSONVILLE, CA

The Pajaro River is the dividing line between Santa Cruz and Monterey County located approximately 100 miles south of San Francisco on Monterey Bay. Flooding in the city of Watsonville, the town of Pajaro, and surrounding agricultural lands prompted a re-examination of flood damage prevention in the Pajaro basin.

The project provides for modification of the existing levee system built by the Corps in 1949 and includes 2.5 miles of flood control levees and/or floodwalls on Salsipuedes Creek and Corralitos Creek, tributaries of the Pajaro River, as well as pump systems located outside of existing levees on the Pajaro River. The tributaries are located 6 miles from the river mouth. Since the only alternative with Federal interest was within the existing 1966 Rivers and Harbor Act construction authority, the reconnaissance study was certified in August 1994 with the recommendation to proceed directly to a General Re-evaluation Report (GRR) on raising levees along a portion of Corralitos and Salsipuedes Creeks. Flooding along the main stem of the Pajaro River in January and March 1995 caused in excess of $65,000,000 in damages. Additional damages were incurred during the floods of January 1997 and February 1998. The main-stem was, therefore, incorporated into the ongoing GRR for the creeks.

The Corps has identified NED plans for both the main-stem and the creeks. The non-Federal sponsors, the counties of Santa Cruz and Monterey, have carried out a public consensus building process to develop locally preferred plan (LPP) which is acceptable to both agricultural and environmental interest. The Corps of Engineers supports this process by providing technical expertise and, when the process concludes, will incorporate the LPP with the NED as the recommended plan that will go forward into detailed design in the GRR. Contingent on funding, the GRR would be completed in FY 05 and construction could begin by early FY 06.

SAN RAFAEL CANAL, CA

San Rafael Canal, also known as San Rafael Creek, is located on the northwestern shoreline of San Francisco Bay in the city of San Rafael, about 17 miles north of the city of San Francisco. The Canal is a shallow-draft, mainly light commercial and recreational, channel consisting of two distinct sections, the Inner Canal channel and the Across-the-Flats channel. San Rafael's central business district and dense residential areas surround the Inner Canal section while the Across-the-Flats portion traverses San Francisco Bay to reach deepwater.

A study was authorized by a resolution adopted by the Committee on Public Works and Transportation of the United States House of Representatives on August 8, 1984, Section 142 of the Water Resources Development Act (WRDA) of 1976 (Public Law 94-587), as subsequently amended in Section 705 of WRDA of 1986 (Public Law 99-662) to examine alternatives to prevent damage caused by storm and tidal flooding in the central San Rafael area. The project was authorized for construction in Section 101 of WRDA of 1996.

The Feasibility Study recommended the South Floodwall Plan. This plan consists of approximately 9,500 linear feet of floodwall constructed along the south bank of the canal and 1,600 feet of sheet-pile floodwall along the crest of the Bayfront levee on the east side of the canal ways tract. The South Floodwall Plan has a benefit-to-cost ratio of 2.0 to 1. The estimated project cost is $32,200,000 of which $20,930,000 is Federal cost and $11,270,000 is non-Federal cost. Preconstruction Engineering and Design was initiated in October 1992. The Corps proposed a continuous floodwall design to replace the South Floodwall Plan, which was estimated to save between $11.6 to $14.1 million compared to the South Floodwall Plan, as recommended in the Feasibility Study. A letter was sent to the City of San Rafael in December 1996 requested Sponsor's agreement with the Corps proposal to finalize the project design based on the continuous floodwall concept. A District Engineer letter to the Mayor, City of San Rafael, dated 25 September 1997, informed the City that the project has been placed in a suspended status.

Operations during fiscal year. The operations and maintenance schedule provides for a 4-year maintenance dredging cycle for the Inner Canal channel and a 7-year cycle for the Across-the-Flats channel. Depths are –6 feet Mean Lower Low Water (MLLW) and –8 feet MLLW respectively. Maintenance dredging of the Inner Canal portion had been scheduled for FY 02 but was delayed to October 2002 because the dredge material was discovered to be unsuitable for aquatic disposal. An upland site, Winter Island, was later identified near Antioch, California. Cost sharing is in accordance with the Water Resources Development Act of 1996. Dredging of the Inner Canal was completed in April 2003. Quantities removed during this latest cycle were 78,000 cy; of which 44,500 cy was disposed in-by while 33,500 cy was disposed upland at Winter Island.

UPPER GUADALUPE RIVER, CA

The Upper Guadalupe River Feasibility Study area is located in the City of San Jose, Santa Clara County, California. The reach of the river proposed for improvement begins at interstate Highway 280 at the edge of downtown San Jose and extends south for about 5.5 miles.

The feasibility study evaluated a variety of non-structural and structural plans of improvement for flood protection in the Upper Guadalupe basin. The final feasibility study report and Environmental Impact Statement/Report was submitted to South Pacific Division on January 30, 1998. This report recommended Federal participation in a project providing a 50-year level of flood protection. The locally preferred plan, presently requiring additional sponsor (Santa Clara Valley Water District (SCVWD)) funding, would provide a 100-year level of protection. The Division Engineer's Public Notice was issued on February 27, 1998 and a Chief of Engineer's Report was signed August 19, 1998. The project has been authorized for construction in the 1999 Water Resources Development Act.

The Design Agreement for the follow-on Pre-construction Engineering and Design (PED) phase was signed on February 25, 1999. PED was initiated in April 1999. PED is scheduled to complete by the end of November 2004.

A letter addressed to the ASA (CW) from the Deputy Director of Civil Works dated 12 October 2000 recommended that additional studies be conducted during the PED phase to confirm the actual NED plan. The letter stated that there was potential for the Locally Preferred Plan (LPP) plan to be the NED plan "based on all economic and environmental benefits, and impacts on endangered species." A Limited Re-evaluation Report (LRR) summarizing the additional studies will be submitted to HQUSACE in March 2004. The report still identifies a NED plan that provides 50-years level of protection but is fully mitigated for environmental impacts and endangered species. The LRR will recommend the implementation of the LPP as the authorized plan and recommend an exemption by the ASA (CW) for full Federal participation. A total project cost is being finalized but is approximately $212 million. SCVWD is requesting a Section 215 Agreement for construction of Reach 10 B. This reach has environmental mitigation, which should be completed before construction of other reaches to help ensure that mitigation commitments are met, including mitigation of thermal impacts on a threatened fish species. The Section 215 agreement will allow the Corps to begin major construction of the project one year earlier thus reducing the project costs and fully complying with environmental and endangered species regulations.

Operations during fiscal year. Completion of 65% design of the NED plans, completion of the studies to support modification of the LPP and NED plans, initiation of the LRR, and participation in the Guadalupe Watershed Integration Working Group (GWIWG). Water Certification under the CWA issued for the LPP plan.

TABLE 34-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
	Bodega Bay, CA	New Work						
		Approp.	-	-	-	-	1,226,765	1 2 40
		Cost	-	-	-	-	1,226,765	1 3 40
		Maint.						
		Approp.	95,044	248,803	319,761	758,413	2,696,227	4 40
		Cost	93,344	227,682	257,284	842,843	2,695,359	4 40
		Major rehab.						
		Approp.	-	-	-	-	397,779	5
		Cost	-	-	-	-	397,779	5
13.	Corte Madera Creek, CA	New Work						
	(Federal Funds)	Approp.	329,000	305,000	393,000	104,000	14,547,725	62
		Cost	348,755	317,721	428,930	97,895	14,524,904	62
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	190,355	63
		Cost	-	-	-	-	190,213	63
	(Contrib. Funds, Other)	New Work.						
		Contrib.	-	-	-	-	804,761	64
		Cost	-	-	-	-	804,761	64
1.	Crescent City Harbor, CA	New Work						
		Approp.	744,000	(135,000)	-	(395)	11,289,577	6 40
		Cost	526,892	311,953	-	-	11,289,577	6 40
	(Contrib. Funds, Other)	New Work.						
		Contrib.	249,290	(27,073)	-	-	222,217	
		Cost	-	222,216		-	-	
222,217								
		Maint.						
		Approp.	460,298	172,112	218,033	89,588	26,688,530	7 40
		Cost	242,621	371,311	205,034	121,064	26,688,518	7 40
		Major rehab.						
		Approp.	-	-	-	-	525,000	8
		Cost	-	-	-	-	525,000	8
	Fisherman's Wharf Areas, San Francisco	New Work						
		Approp.	-	-	-	-	9,199,000	41 48 50
		Cost	-	-	-	-	9,199,000	41 49 50
		Maint.						
		Approp.	11,882	3	15,233	2,152	417,758	51
		Cost	11,882	3	15,233	2,152	417,758	51
20.	Hamilton Airfield Wetland Restoration, CA	New Work						
		Approp.	538,000	2,176,000	2,778,800	2,110,000	7,677,800	
		Cost	467,633	1,072,184	3,829,546	2,098,838	7,535,194	
	(Contrib. Funds)	New Work.						
		Contrib.	302,000	316,680	-	408,924	1,027,604	
		Cost	202,608	118,705	259,712	369,813	950,838	
2.	Humboldt Harbor and Bay, CA	New Work						
		Approp.	1,056,000	(1,284,298)	605,500	(788)	20,122,713	9 40
		Cost	3,353,115	(1,221,064)	616,900	(1,003)	20,121,674	9 40
	(Contrib. Funds)	New Work.						
		Contrib.	1,405,000	-	-	-	3,700,000	
		Cost	691,087	610,111	191,435	-	3,392,632	
		Maint.						
		Approp.	3,956,700	3,509,772	4,552,164	5,423,000	106,327,713	10 40
		Cost	3,963,217	3,491,137	4,404,007	5,591,927	106,327,713	10 40
	Klamath River, Klamath Glen Levee, CA	New Work						
		Approp.	-	-	(100)	-	557,900	65
		Cost	-	-	-	-	557,818	65
	Larkspur Ferry Channel, CA	Maint.						
		Approp.	3,240,000	(395,000)	1,245,000	118,380	4,208,380	
		Cost	131,396	2,660,792	7,914	1,391,817	4,191,919	
	Llagas Creek, CA	New Work						
		Approp.	465,000	825,000	488,300	543,000	2,321,300	
		Cost	203,610	1,002,001	549,830	536,210	2,291,651	

TABLE 34-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
	Moss Landing Harbor, CA	New Work						
		Approp.	-	-	-	-	338,215	11 40
		Cost	-	-	-	-	338,215	11 40
		Maint.						
		Approp.	525,347	90,127	1,615,721	1,084,500	12,748,421	12 40
		Cost	548,684	82,299	657,529	1,941,403	12,630,188	12 40
	Napa River, CA	New Work						
		Approp.	-	-	-	-	1,021,274	13 40
		Cost	-	-	-	-	1,021,274	13 40
		Maint.						
		Approp.	5,000	(52,184)	-	33,299	7,745,878	13 14 40
		Cost	53,423	(52,809)	2,258	37,528	7,745,878	13 14 40
	Noyo River and Harbor, CA	New Work						
		Approp.	-	(400)	-	-	4,120,600	15 16 40
		Cost	-	-	-	-	4,120,596	15 17 40
		Maint.						
		Approp.	857,713	126,608	49,199	3,639	10,457,294	18 19 40
		Cost	462,231	522,087	49,199	3,642	10,457,294	18 19 40
		Minor rehab.						
		Approp.	-	-	-	-	222,810	20 40
		Cost	-	-	-	-	222,810	20 40
3.	Oakland Harbor, CA	New Work						
		Approp.	(100,000)	(131,000)	-	(4,209)	93,167,475	21
		Cost	186,363	(189,288)	93,707	(32,631)	93,138,028	21
	(Federal Funds)	Maint.						
		Approp.	10,310,940	4,793,792	5,854,295	4,746,378	82,455,979	22
		Cost	10,410,524	4,726,744	4,358,050	6,192,355	82,338,627	22
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	23,446,184	
		Cost	-	2,379	72,330	664	22,509,137	
	Oakland Harbor 50', CA	New Work						
	(Federal Funds)	Approp.	2,438,000	1,737,000	7,560,300	12,014,100	24,501,400	
		Cost	2,427,815	1,711,369	7,675,758	11,980,458	24,446,980	
	(Contrib. Funds)	New Work						
		Contrib.	365,189	6,100,000	-	5,250,000	12,539,529	
		Cost	627,415	99,129	4,496,560	2,550,386	8,232,225	
	Pajaro River at Watsonville, CA	New Work						
		Approp.	615,000	840,000	947,000	647,000	5,135,100	
		Cost	507,590	832,166	1,030,757	678,767	5,130,369	
14.	Petaluma River, CA	New Work						
		Approp.	-	2,990,000	7,051,000	1,571,000	16,824,082	23 40
		Cost	11,895	689,582	8,676,468	2,224,705	16,799,685	66 40
		Maint.						
		Approp.	175,966	88,663	2,132,815	1,326,952	20,403,934	24 40
		Cost	174,413	90,215	355,159	3,044,490	20,343,815	24 40
	(Contributed Funds)	New Work						
		Contrib.	4,535,000	-	(1,500,000)	-	9,154,300	
		Cost	4,843,203	1,856,425	(1,485,255)	(1,440)	9,134,796	
	Pillar Point Harbor, CA	New Work						
		Approp.	-	-	-	-	6,697,396	43 44
		Cost	-	-	-	-	6,697,396	43 44
		Maint.						
		Approp.	41,004	5,737	171,395	166,204	2,737,470	44 45
		Cost	41,004	5,737	143,913	193,645	2,737,429	44 45
	Redwood City Harbor, CA	New Work						
		Approp.	-	-	-	-	1,672,722	25 40
		Cost	-	-	-	-	1,672,722	25 40
		Maint.						
		Approp.	130,108	892,508	2,020,295	428,489	24,618,810	26 40
		Cost	129,394	843,957	1,936,048	562,003	24,618,810	26 40

TABLE 34-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
	Removal of Sunken Vessels	Maint. Approp.	-	-	-	-	283,068	
		Cost	-	-	-	-	283,068	
4.	Richmond Harbor, CA (Federal Funds)	New Work Approp.	(150,000)	269,183	(2,000)	-	30,427,610	27 28
		Cost	369,847	294,415	-	-	30,427,410	27 28
		Maint. Approp.	2,557,179	5,124,901	3,865,605	8,389,036	70,569,840	29 40
		Cost	2,563,937	5,067,960	2,112,380	10,203,573	70,569,625	29 40
		Minor rehab. Approp.	-	-	-	-	164,689	
		Cost	-	-	-	-	164,689	
	(Contributed Funds)	New Work Contrib.	5,000	(567,604)	-	-	7,356,596	
		Cost	-	(379,589)	-	-	7,356,596	
5.	Sacramento River Deep Water Ship	New Work Approp.	-	-	119,000	388,000	8,323,474	67
		Cost	7,298	2,349	127,135	379,079	8,290,868	68
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	120,000	2,730,000	
		Cost	2,177	7,574	-	-	2,599,223	
	(Contrib. Funds, Other)	Maint. Contrib.	-	-	-	-	15,000	
		Cost	-	-	-	-	14,578	
15.	Russian River Basin, CA, Coyote Valley Dam (Lake Mendocino) and Channel Improvements (Fed Funds)	New Work Approp.	-	-	-	-	14,435,869	54
		Cost	-	-	-	-	14,435,869	54
		Maint. Approp.	3,761,000	3,139,682	3,341,973	3,434,000	67,432,557	55
		Cost	4,071,397	3,096,632	2,821,200	3,785,703	67,172,920	55
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	589,911	56
		Cost	-	-	-	-	570,774	57
	Dry Creek (Warm Springs) Lake and Channel Improvements, CA (Federal Funds)	New Work Approp.	-	-	-	-	333,108,645	58
		Cost	-	-	-	-	333,081,773	58
		Maint. Approp.	4,144,000	4,840,921	6,128,189	6,206,000	68,451,044	59
		Cost	4,159,938	4,811,131	4,391,192	6,319,151	65,441,454	59
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	230,574	60 62
		Cost	-	-	-	-	228,732	61 63
	San Clemente Creek, CA	Maint. Approp.	-	-	-	-	-	
		Cost	-	-	-	-	-	
6.	San Francisco Bay to Stockton, CA (John F. Baldwin and Stockton Ship Channels)	New Work Approp.	-	(25,000)	160,000	162,028	39,134,228	42
		Cost	(37,422)	26,302	142,368	182,693	39,129,700	42
	(Contributed Funds)	New Work Approp.	-	-	53,515	48,053	189,884	
		Cost	-	-	-	56,048	59,985	
8.	San Francisco Bay and Delta Model, CA	New Work Approp.	-	-	-	-	-	
		Cost	-	-	-	-	-	
		Maint. Approp.	2,254,300	1,847,878	1,607,000	1,284,000	41,972,095	
		Cost	2,228,816	1,880,785	1,110,511	1,831,737	41,824,407	
9.	San Francisco Bay Long Term Management Strategy (LTMS), CA	Maint. Approp.	-	192,570	192,000	946,100	13,281,670	
		Cost	-	192,139	(1)	1,138,518	13,281,656	

TABLE 34-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
	San Francisco Harbor, CA	New Work Approp.	-	-	-	-	2,689,356	28 30 40
		Cost	-	-	-	-	2,689,356	28 30 40
		Maint. Approp.	1,892,650	879,467	1,014,000	1,438,000	46,848,796	31 40
		Cost	1,893,895	879,090	907,971	1,544,419	46,848,793	31 40
	San Francisco Harbor and Bay, CA (Removal of Drift)	New Work Approp.	-	-	-	-	-	
		Cost	-	-	-	-	-	
		Maint. Approp.	2,039,700	1,925,699	1,895,000	2,125,000	51,413,979	40
		Cost	2,351,227	1,964,551	1,755,604	2,277,832	51,410,670	40
	San Leandro Marina, CA	New Work Approp.	-	-	-	-	-	
		Cost	-	-	-	-	-	
		Maint. Approp.	-	1,999,774	145,325	57,521	6,862,059	32
		Cost	-	1,999,726	139,031	68,863	6,862,059	32
	San Pablo Bay and Mare Island Strait, CA	New Work Approp.	-	-	-	-	1,369,372	28 33 40
		Cost	-	-	-	-	1,369,372	28 33 40
		Maint. Approp.	67,280	1,155,139	64,174	819,830	49,395,814	34 40
		Cost	67,282	1,155,139	64,174	819,830	49,395,814	34 40
	San Rafael Canal, CA	New Work Approp	(800)	-	-	-	2,179,200	
		Cost	-	-	-	-	2,179,197	
	San Rafael Creek, CA	New Work Approp.	-	-	-	-	32,359	40 47
		Cost	-	-	-	-	32,359	40 47
		Maint. Approp.	48,694	37,275	3,276,000	467,325	10,666,336	40 46
		Cost	46,619	35,350	334,849	3,408,474	10,666,334	40 46
21.	San Ramon Valley Recycled Water, CA (Contrib. Funds)	New Work Approp.	-	-	59,500	172,000	231,500	
		Cost	-	-	54,124	166,727	220,851	
		New Work. Contrib.	-	-	-	140,000	140,000	
		Cost	-	-	-	-	-	
	Santa Cruz Harbor, CA (Federal Funds)	New Work Approp.	-	-	-	-	4,126,808	52
		Cost	-	-	-	-	4,126,808	52
	(Contrib. Funds)	New Work Contrib.	-	-	-	-	160,000	35
		Cost	-	-	-	-	160,000	35
		Maint. Aprop.	29,419	65,041	21,500	-	9,948,177	40 53
		Cost	29,419	60,900	25,583	57	9,948,176	40 53
7.	Sonoma Baylands Wetlands Demo Project, CA	New Work Approp.	-	-	(8,000)	(35)	6,320,065	
		Cost	-	-	-	-	6,312,064	
	(Contrib. Funds)	New Work Contrib.	5,000	-	-	-	906,560	
		Cost	-	-	-	-	796,980	
	Suisun Bay Channel, CA Approp.	New Work Approp	-	-	-	-	200,928	36
		Cost	-	-	-	-	200,928	36
		Maint. Approp.	2,640,365	1,945,116	1,430,033	3,005,436	23,051,446	37
		Cost	2,653,929	1,926,198	1,368,749	3,085,021	23,050,791	37
	Suisun Channel, CA	New Work Approp.	-	-	-	-	217,677	38
		Cost	-	-	-	-	217,677	38

TABLE 34-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003
		Maint.					
		Approp.	11,231	-	-	-	3,002,462 [39]
		Cost	11,231	-	-	-	3,002,462 [39]
	Upper Guadalupe	New Work					
	River, CA	Approp.	1,008,000	397,000	108,700	274,000	2,070,700
		Cost	1,019,028	322,314	188,990	198,344	1,994,063
	(Contrib. Funds)	New Work					
		Contrib.	1,320,000	1,320,000	360,000	-	3,385,000
		Cost	101,902	674,745	562,345	1,058,347	2,681,427

1. Includes $641,800 for jetties, bulkheads, main Bodega Bay Channel and turning basin completed in 1943.
2. Includes $585,000 for Preconstruction Planning ($456,000 Construction, General funds and $129,000 General Investigation funds).
3. Includes $585,000 Preconstruction Planning costs ($456,000 Construction General costs and $129,000 General Investigation costs).
4. Includes $982,714 for reconnaissance and condition surveys, FY 1956-2003. Excludes contributed funds of $385,134.
5. Excludes contribution funds of $2,000.
6. Excludes contributed funds of $271,116 and $2,138 surplus material from Corps military activities.
7. Excludes contributed funds of $44,340. Includes $1,031,900 for reconnaissance and condition surveys, FY 1956-2003.
8. Excludes $2,000 contributed funds in lieu of royalty-free rock.
9. Includes $2,261,371 for previous project. Excludes $95,000 contributed funds for existing project.
10. Includes $98,206 for previous project and $85,603 for reconnaissance and condition surveys, FY 1956-2003.
11. Excludes $5,337 previous project costs.
12. Excludes $8,539 surplus material from Corps' military activities. Includes $343,307 for reconnaissance and condition surveys, FY 1956-2003. Excludes contributed funds of $290,653.
13. Excludes previous project costs.
14. Includes $976,802 for reconnaissance and condition surveys, FY 1956-2003. Excludes $496,307 contributed funds.
15. Includes $11,985 for previous project. Excludes $7,180 contributed funds for previous project.
16. Includes $4,120,600 for Pre-construction Planning ($3,540,600 for Breakwater of which $500,000 allocated under Construction, General and $3,040,600 under General Investigations); ($580,000 for Channel Extension of which $165,000 allocated under Construction, General and $415,000 under General Investigations).
17. Includes $4,120,596 Preconstruction cost ($3,540,596 for Breakwater of which $500,000 was under Construction, General and $3,040,596 under General Investigations); ($580,000 for Channel Extension of which $165,000 was under Construction, General and $415,000 under General Investigations).
18. Includes $37,810 for previous project and $396,725 for reconnaissance and condition surveys, FY 1956-2003. Excludes contributed funds of $820 for previous project.
19. Excludes contributed funds of $4,000 in lieu of providing dike disposal areas on existing project.
20. Excludes contributed funds of $1,700.
21. Includes $2,899,232 for previous projects. Excludes $397,266 contributed funds on previous projects.
22. Includes $684,028 for previous projects and $226,556 for reconnaissance and condition surveys, FY 1956-2003. Excludes contributed funds of $45,853.
23. Includes $212,083 for previous project and $4,929,999 under Section 205 and $11,682,000 under Construction, General. Excludes contributed funds of $15,559 for previous project.
24. Includes $314,692 for previous project and $774,420 for reconnaissance and condition surveys, FY 1956-2003. Excludes contributed funds of $192,424.
25. Includes previous project costs $31,443. Excludes $119,572 contributed funds for existing project.
26. Includes $1,096,156 for reconnaissance and condition surveys, FY 1956-2003.
27. Excludes contributed funds of $524,778. Includes $105,000 Public Works Administration funds.
28. Excludes modification authorized October 27, 1965, under project "San Francisco Bay to Stockton, CA (John F. Baldwin and Stockton Ship Channels)."
29. Excludes $115,536 contributed funds. Includes $455,783 for reconnaissance and condition surveys, FY 1956-2003.
30. Includes $1,030,399 for previous projects. Excludes $134,591 contributed funds for existing project. Includes $193,000 Public Works Administration funds.
31. Includes $475,321 for previous projects and $813,611 for reconnaissance and condition surveys, FY 1956-2003.
32. Authorized by FC Act of 1965 (Sec. 201); Maintenance R&H Act of 1970 (Sec. 103). Includes $424,334 for reconnaissance and condition surveys FY 1979-2003. See FY 1977 Annual Report for last full report. Excludes contributed funds of $885,712.
33. Includes $1,086,703 for previous projects.
34. Includes $1,359,380 for previous projects and $375,659 for reconnaissance and condition surveys, FY 1956-2003.
35. Excludes $810,046 contributed funds on previous project.
36. See Sacramento District FY 1974 Annual Report for detail.
37. Project maintenance responsibility to Point Edith was transferred to San Francisco District January 1, 1974. Excludes Sacramento District's portion. Includes $166,023 for reconnaissance and project condition surveys, FY 1976-2003.

38. Project maintenance assigned to San Francisco District from Sacramento District January 1, 1974. See Sacramento District 1972 Annual Report for full report.
39. Includes $746,637 for reconnaissance and condition surveys, FY 1978-2003. Includes $727,510 for previous project. Excludes $121,386 contributed funds.
40. See FY 1981 Annual Report for last full report.
41. Excludes Contributed Funds of $709,624.
42. See Sacramento District FY 1985 Annual Report for full report. Includes $39,170,200 under San Francisco District's Construction, General. Excludes Sacramento District's funding of $27,766,800.
43. Excludes $100,000 contributed funds and $105,000 contributed in lieu of royalty-free rock.
44. See FY 1979 Annual Report for last full report.
45. Includes $329,070 for reconnaissance and condition surveys, FY 1970-2003.
46. Includes $655,425 for reconnaissance and condition surveys, FY 1970-2003. Excludes $93,500 contributed funds.
47. Excludes $41,094 contributed funds.
48. Includes $9,199,000 funds of which $8,499,000 was under Construction, General and $700,000 under General Investigations.
49. Includes $9,199,000 costs of which $8,499,000 was under Construction, General and $700,000 under General Investigations.
50. See FY 1987 Annual Report for last full report.
51. Includes $94,728 for reconnaissance and condition surveys, FY 1989-2003.
52. See FY 1988 Annual Report for last full report.
53. Includes $245,835 for reconnaissance and condition surveys, FY 1993-2003.
54. Excludes $5,598,000 contributed funds: $400,000 for recreation facilities at completed projects funded under Public Works Acceleration Program; and $1,628,411 for recreation facilities at completed projects funded under Code 711 at Coyote Valley Dam, Lake Mendocino.
55. Includes $94,459 special recreation use fees and costs (FY 1982-1983), but excludes prior special recreation fees and cost for Coyote Valley Dam, Lake Mendocino.
56. Includes $251,911 contributed funds, other from City of Ukiah for Coyote Valley Dam, Lake Mendocino, hydropower studies; and $338,000 from California Department of Boating and Waterways for launching facility at Lake Mendocino.
57. Includes $250,117 contributed funds, other costs for Coyote Valley Dam, Lake Mendocino, hydropower studies; and $320,657 for California Department of Boating and Waterways for launching facility at Lake Mendocino.
58. Includes $253,421,793 previous San Francisco construction funds and costs through August 1983 for Dry Creek, Warm Springs Dam.
59. Includes $964,114 previous San Francisco maintenance funds and costs through April 1982 for Dry Creek, Warm Springs Dam.
60. Includes $208,074 contributed funds, other, from Sonoma County for Dry Creek, Warm Springs, hydropower studies; and $22,500 from City of Ukiah for hatchery pump design at Lake Mendocino.
61. Includes $208,074 contributed funds, other, costs for Dry Creek, Warm Springs hydropower studies; and $20,658 costs for hatchery pump design.
62. Includes $7,303,725 San Francisco District construction funds and costs for Corte Madera Creek.
63. $8,695 contributed funds transferred to Sacramento District in FY 1983. Includes $97,400 San Francisco District required contributed funds and costs.
64. Contributed funds, other, and costs, from Marin County including $536,921 for miscellaneous bridge and road relocations and $267,840 for additional expenses for disposal sites at Corte Madera Creek.
65. See FY 1998 Annual Report for last full report.
66. Includes $212,083 for previous project and $4,929,823 under Section 205 and $11,657,779 under Construction, General.
67. Includes unobligated carryover for continuation of planning and engineering (CP&E) funds as of September 30, 1985 ($33,474) for Sacramento River Deep Water Ship Channel to be included in project cost (for cost sharing) per TWX of September 9, 1985. Includes Sacramento District's FY 02 approp of $2,000 and San Francisco District's FY 02 approp of 117,000.
68. Includes Sacramento District's FY 02 cost of $27,983 and San Francisco District's FY 02 cost of 99,152.

TABLE 34-B AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
1.		**CRESCENT CITY HARBOR, CA**	
	Jul. 18, 1918	A breakwater bearing S. 26-1/4 E. from Battery Point to Fauntleroy Rock and breakwater from the shore to Whaler Island.	H. Doc. 434, 64th Cong., 1st sess.
	Sep. 22, 1922	Modified condition of local cooperation which required that local interests construct a railroad from Grants Pass, Oregon to Crescent City so that a State Highway to Grants Pass would be an acceptable alternate.	Rivers & Harbors Committee Doc. 4, 67th Congress, 2nd sess.
	Jan. 21, 1927	Extension of the breakwater to a length of 3,000 feet and a reduced cash contribution required of local interests.	H. Doc. 595, 69th Cong., 2nd sess.
	Aug. 30, 1935	Maintaining by dredging of an outer harbor basin, 1,800 feet long, 1,400 feet wide and 20 feet deep, except in rock.	Rivers & Harbors Committee Doc. 40, 74th Cong.
	Aug. 26, 1937	Construction of a sand barrier from Whaler Island to the mainland and for maintenance dredging in the vicinity of the seaward end of the sand barrier.	Senate Committee Print, 75th Cong., 1st sess.
	Mar. 2, 1945	Extension of existing breakwater 2,700 feet to Round Rock (modified by Chief of Engineers, 1952).	H. Doc. 688, 76th Cong., 3rd sess.
	Mar. 2, 1945	Construction of inner breakwater and removal of pinnacle rock and other material from the harbor to a depth of 12 feet and a harbor basin with a project depth of 10 feet.	Report on file in office, Chief of Engineers.
	Oct. 27, 1965	Extension of inner breakwater and dredging of T-shaped harbor basin to depth of 20 feet.	H. Doc. 264, 89th Cong., 1st sess.
2.		**HUMBOLDT HARBOR, CA**	
	Mar. 3, 1881	Channel 10 feet deep by 350 feet wide to be dredged along Eureka waterfront, thence 8 feet deep by 200 feet wide west to natural channel; dredging Mad River Shoal to 8 feet deep.	H. Doc. 59 Cong., 3rd sess.
	Jul. 5, 1884	Construct South Jetty and continue channel improvements.	River & Harbor Approp Act of 1884
	Aug. 5, 1886	$75,000 continued improvement of Harbor with provision for title to 12 acres of land to be conveyed to the U.S.	River & Harbor Approp Act of 1886
	Jul. 3, 1892	Map and cost estimates for continuing Harbor improvements with provision for two parallel jetties.	Chief of Engrs Annual Report (p.3120) Annual River & Harbor, Approp Acts 1892-1899
	Mar. 3, 1899	Continuing Harbor improvements with provision for two parallel jetties.	H. Doc. 528, 55th Cong., 2nd sess.
	Jun. 25, 1910	Rebuilding the jetties and channel improvements to Arcata and Hookton.	H. Doc. 950, 60th Cong., 1st sess., H. Doc. 204, 61st, Cong., 2nd sess., H. Doc. 326, 61st Cong., 2nd sess.
	Jul. 3, 1930	Eureka Channel 20 feet deep and 300 feet wide; Samoa Channel 20 feet deep and 250 feet wide; Arcata Channel 18 feet deep and 150 feet wide; Fields Landing Channel 20 feet deep and 250 feet wide.	H. Doc. 755, 69th Cong., 2nd sess.
	Aug. 30, 1935	Entrance Channel 30 feet deep and 500 feet wide.	Rivers and Harbors Committee Doc. 14 74th Cong.,1st sess
	Aug. 26, 1937	Eureka Channel 26 feet deep and 400 feet wide; Samoa Channel 26 feet deep and 300 feet wide;	Rivers & Harbors Committee, Doc.

TABLE 34-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
		Fields Landing Channel 26 feet deep and 300 feet wide; Turning Basin (off Fields Landing wharf) channel 26 feet deep, 600 feet wide and 800 feet long.	11, 75th Cong., 1st sess.
	Jul. 16, 1952	Bar & Entrance Channel 40 feet deep, tapered from 1,600 feet to 500 feet wide; North Bay Channel 30 feet deep and 400 feet wide; Eureka Channel 30 feet deep to mile 5.0; Samoa Channel 30 feet deep.	Rivers & Harbors Committee, Doc. 143, 82nd Cong., 1st sess.
	August 1968	North Bay Channel 35 feet deep; Samoa Channel 35 feet deep; widen turns at mile 0.75 and 2.6; provide a 1,200 by 1,200 foot anchorage in North Bay.	H. Doc. 330, 90th Cong., 2nd sess.
	Oct. 12, 1996	Bar and Entrance Channel 48 feet deep; North Bay Channel, Samoa Channel and Samoa Turning Basin 38 feet deep; widen the north side of the Entrance Channel an additional 200 to 275 feet; relocate the southern edge of the Entrance Channel away from the South Jetty and to the north by 100 feet; and widen and realign the entrance to the Samoa Turning Basin.	Section 10, Public Law 104-303, 1996 WRDA
3.		**OAKLAND HARBOR, CA**	
	June 23, 1874	Jetties.	Annual Report, Part II, 1874, P. 378.
	June 25, 1910	North channel in Brooklyn Basin, 25 feet deep, and tidal canal to 18 feet.	H. Doc. 647, 61st Cong., 2d sess.
	Sep. 22, 1922	Channel across shoal southeast of Yerba Buena Island and thence to Webster St.; South channel in Brooklyn Basin; Turning Basin at east end of Brooklyn Basin; and channel in Tidal Canal from Brooklyn Basin to Park St., 30 feet deep.	H. Doc. 144, 67th Cong., 2d sess.
	Jan. 21, 1927 [2]	Channel from Webster St. to Brooklyn Basin, maintain area to within 75 feet of pierhead line south of channel from Harrison St. to Harbor Line Point 119 in Brooklyn Basin; dredge a triangular strip about 2,700 feet long and maximum width of 300 feet at western end of Brooklyn Basin, 30 feet deep.	H. Doc. 407, 69th Cong., 1st sess. [1]
	Apr. 28, 1928	Local cooperation requirements modified to provide alteration or replacement of bridges by local interests shall apply only to that feature of project covering deepening tidal canal to 25 feet. Drawbridges across Tidal Canal were required by 1882 Decree of Court in condemnation proceedings whereby title was obtained to right-of-way for tidal canal.	Public Res. 28, 70th Cong.
	July 3, 1930	Entrance channel to outer harbor, 800 to 600 feet wide.	Rivers and Harbors Committee Doc. 43, 71st Cong., 2nd sess.
	Mar. 2, 1945	Eliminated requirement that local interests contribute 10 cents per cubic yard toward deepening tidal canal.	Doc. 466, 77d Cong., 1st sess.
	Mar. 2, 1945	Maintenance of 35-foot depth in channel to outer harbor and in outer harbor channel and turning basin.	Report on File in Office, Chief of Engineers
	Oct. 23, 1962 [3]	Deepen inner harbor 35-foot channels and lower 1,300 feet of north channel in Brooklyn Basin to 35 feet.	H. Doc. 353, 87th Cong., 2d sess. [1]

TABLE 34-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Nov. 17, 1986	Deepen Inner and Outer Harbor channels to 42 feet. Widen entrance channel to 1,000 feet; relocate Outer Harbor turning basin 3,000 feet westward and widen turning basin to 1800 feet. Construct 1,200 foot turning basin in Inner Harbor.	Public Law 99-662, 1986 WRDA
	Aug. 17, 1999	Deepen Inner and Outer Harbor channels to 50 feet. Widen Outer Harbor turning basin diameter to 1650 feet and widen Inner Harbor turning basin diameter to 1500 feet.	Public Law 106-53, 106th Cong., 1999 WRDA
4.		**RICHMOND HARBOR, CA**	
	Aug. 8, 1917	Channel 24 feet deep and 600 feet wide from San Francisco Bay to Ellis Slough (Santa Fe Channel); a turning basin at Point Potrero; a training wall.	H. Doc. 515, 63rd Cong., 2d sess.
	July 3, 1930	A 30-foot channel with lessened widths; a turning basin at head of navigation.	Rivers and Harbors Committee Doc. 16, 70th Cong., 1st sess.
	Aug. 30, 1935 [4]	Increase project widths in inner harbor, maintenance of Santa Fe channel to 30 feet; approach areas in outer harbor to 32 feet.	Rivers and Harbors Committee Doc. 7, 73rd Cong., 1st sess., and 10, 74th Cong., 1st sess.
	June 20, 1938	Widen channel at Point Potrero and north thereof; enlarge and maintain to 30-foot depth turning basin at Terminal No. 1.	H. Doc 598, 75th Cong., 3rd. sess.
	Mar. 2, 1945	Channel 20 feet deep, 150 feet wide, in San Pablo Bay north of Point San Pablo.	H. Doc. 715, 76th Cong., 3rd. sess.
	Sep. 3, 1954	Channel 35 feet deep and 600 feet wide adjacent to Southampton Shoal; enlarge and deepen to 35 feet approach area to Richmond Long Wharf; widen and deepen inner harbor and entrance channels; deepen turning basin at Point Richmond and southerly 2,000 feet of Santa Fe Channel. Eliminate restriction that widening north of Point Potrero will not be undertaken until local interests furnish assurances industries will avail themselves of improved navigation facilities and reclamation of Reservation Point.	H. Doc. 395, 83rd Cong., 2nd sess. [1]
	Oct. 27, 1965	West Richmond channel 45 feet deep, 600 feet wide; enlarge and deepen to 45 feet maneuvering area at Richmond Long Wharf (Sacramento Dist. "San Francisco Bay to Stockton, Calif. (John F. Baldwin and Stockton Ship Channels)").	H. Doc. 208, 89th Cong., 1st sess. [1]
	Nov. 17, 1986	Deepen channel to 38 feet between Richmond Long Wharf and Santa Fe Channel. Construct 1,200 feet turning basin.	Public Law 99-662, 1986 WRDA
5.		**SACRAMENTO RIVER, CA**	
	Mar 3, 1899	A depth of 7 feet below Sacramento works.	H. Doc. 186, 55th Cong., 2d sess., and 48, 55th Cong., 3d sess. (Annual Report 1898, p. 2844 and 1899, p. 3171).

TABLE 34-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Jan 21, 1927	The 10-foot channel up to Sacramento	H. Doc. 123, 69th cong., 1st sess.
	July 24, 1946	Modified existing navigation project for Sacramento River, CA, to provide for construction of a ship channel 30 feet deep and 200 to 300 feet wide from deep water in Suisun Bay to Washington Lake, including such works as may be necessary to compensate for or alleviate any detrimental salinity conditions resulting from ship channel; a triangular basin of equal depth, 2,400 by 2,000 by 3,400 feet at Washington Lake; and connecting channel 13 feet deep and 120 feet wide, with lock and drawbridge, thence to Sacramento River.	S. Doc. 142, 79th Cong., 2d sess.
	Nov 17, 1987	Deauthorization of shallow-draft channel, Colusa to Red Bluff, feature of project for navigation, Sacramento River, California.	Sec. 1002, 1986 WRDA
		Reiteration of Public Law 99-08 (Aug 15, 1985), which authorized construction of 35 ft channel	Sec 202(a), 1986 WRDA
	Dec 11, 2000	Reauthorization of Sacramento River, Major and Minor Tributaries and Chico Landing to Red Bluff, CA	Sec 305 (a) (1-2), WRDA 2000
6.		**SAN FRANCISCO BAY TO STOCKTON, CA (JOHN F. BALDWIN AND STOCKTON SHIP CHANNELS)**	
	Oct. 27, 1965	i)Deepen the channel across San Francisco Bar to 55 feet without widening; ii) construct a new channel in upper S.F. Bay leading through the west navigation opening of the Richmond-San Rafael Bridge to 45' depth and 600' width and deepen the maneuvering area adjacent to the Richmond Long Wharf to 45'; (iii) Deepen the Pinole Shoal Channel in San Pablo Bay within its existing 600' width and the maneuvering Area at Oleum to 45'; (iv) deepen the Suisun Bay Channel to 45' as far upstream as Chipps Island and to 35' beyond, with widening to 600' upstream to Middle Point and 400' beyond, and widening and deepening to comparable depths of maneuvering areas at refinery terminals; and (v) deepen the Stockton Deep Water Channel to 35' and realign the channel through False River and across the northern portions of Fanks Tract and Mandeville Island, all to its existing widths of 400' in open water and 225' through levee-confined reaches.	H. Doc. 208, 89th Cong ., 1st sess.
7.		**SONOMA BAYLANDS WETLANDS DEMONSTRATION PROJECT, CA**	
	Oct. 5, 1992	Restoration of tidal wetland on a 348-acre site using dredged material and construction of a replacement levee around the landward periphery of the site.	Section 106, Public Law 102-580, 1992 WRDA

TABLE 34-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
13.		**CORTE MADERA CREEK, CA**	
	Oct. 23, 1962	Levees and channel improvements, lower 11 miles of Corte Madera Creek and tributaries, as modified by Chief of Engineers.	H. Doc. 545, 87th Cong., 2nd sess.
	Nov. 7, 1966	Local cooperation requirements modified to provide 1.5 percent cash contribution toward cost of Ross Valley unit.	Sec. 204, 1966 Flood Control Act
	Nov. 17, 1986	Modify existing project to direct construction of Unit 4 from Lagunitas Road Bridge to Sir Francis Drake Boulevard, and to include construction of floodproofing measures in vicinity of Lagunitas Road Bridge to insure proper functioning of completed portions of authorized project. Further modify project to eliminate any channel modifications upstream of Sir Francis Drake Boulevard.	Sec. 823, 1986 WRDA
14.		**PETALUMA RIVER, CA**	
	Jun. 30, 1948	Floodwalls and channel improvements along 3,600 feet of the Petaluma River and tributaries.	Flood Control Act of 1948, Public Law 80-858, 80th Cong., 2nd sess.
	Jan. 24, 2000	Provide a 100-year level of flood protection to the city of Petaluma.	Public Law 106-541, 106th Cong., 2d sess., 2000 WRDA
15.		**RUSSIAN RIVER BASIN, CA**	
	May 17, 1950	Coyote Valley Dam (Lake Mendocino): Channel improvements on lower 98 miles of Russian River and lower reaches of tributaries.	H. Doc. 585, 81st Cong., 2d sess.
	Feb. 10, 1956	Increased appropriation authorization for initial stage of project development.	PL 404, 84th Cong., 2d sess.
	Oct. 23, 1962	Dry Creek (Warm Springs) Lake; Channel Improvements on Dry Creek below dam.	H. Doc. 547, 87th Cong., 2d sess.
	Mar. 7, 1974	Dry Creek (Warm Springs) Lake and channel; compensate for fish losses on the Russian River which may be attributed to the operation of the Coyote Dam component of the project through measures such as possible expansion of the capacity of the fish hatchery at the Warm Springs Dam component of the project.	Sec. 95, 1974 WRDA
20.		**HAMILTON AIRFIELD WETLANDS RESTORATION, CA**	
	Aug 17, 1999	Implement an ecosystem and wetland restoration project at the Hamilton Army Airfield and adjacent properties and lower reaches of tributaries.	Public Law 106-53, 106th Cong., 1999 WRDA
21.		**SAN RAMON VALLEY RECYCLED WATER, CA**	
	Oct 31, 1992	Provide assistance to non-Federal interests for carrying out water-related environmental infrastructure and resource protection and development projects described in subsection (c), including wastewater treatment and related facilities and water supply, storage, treatment, and distribution facilities.	Public Law 102-580, Appendix A, Sec. 219 WRDA
	Aug 17, 1999	Provide assistance for construction for recycled water.	Public Law 106-53, 106th Cong., 1999 WRDA

1. Contains latest published map.
2. Included deepening of tidal canal above Park Street Bridge to 25 feet, which was deauthorized November 6, 1977.
3. Reconstruction of Fruitvale Avenue Highway Bridge (S. Doc. 75, 87th Cong., 2d sess.) which was deauthorized November 6, 1977.
4. Included in part in Public Works Administration Program, September 6, 1933.

TABLE 34-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30 2003 Construction	Cost to Sep. 30 2003 Operation and Maintenance
Berkeley Harbor, CA [1]	Completed	1966	$ 155,550 [2]	$128,842 [9]
Berkeley Marina, CA [1]	Completed	1979	505,201 [3]	-
Monterey Harbor, CA	Completed	1971	1,108,182 [4]	2,056,442 [5]
San Francisco Harbor (Islais Creek), CA [1]	Completed	1976	848,227 [7]	179,721 [11]
San Francisco Marina (Gas House Cove), CA	Completed	1974	180,472 [6]	104,779 [10]
San Leandro Marina (Breakwater), CA [1]	Completed	1976	210,390 [8]	341,327 [12]
Sausalito Canal, Richardson Bay, CA	Inactive	1963	103,095	153,415 [13]

1. Authorized by Chief of Engineers (Sec. 107, Public Law 86-645).
2. Excludes $155,551 contributed funds.
3. Excludes $378,989 contributed funds.
4. Includes $207,800 Public Works Administration funds and breakwater modifications (1960 Act) placed inactive 1974. The barrier groin and sandtrap feature of the project was deauthorized November 17, 1986, by WRDA of 1986.
5. Includes $2,056,442 for reconnaissance and condition survey for FY 1956-2003.
6. Includes preauthorization costs $26,855 and excludes contributed funds $153,618.
7. Includes $94,550 preauthorization costs.
8. Includes $72,000 preauthorization costs and excludes contributed funds $138,189.
9. Includes $128,842 for jetty condition surveys for FY 1987-2003.
10. Includes $104,779 for reconnaissance and condition survey for FY 1990-2003.
11. Includes $179,721 for reconnaissance and condition survey for FY 1994-2003.
12. Includes $341,327 for reconnaissance and condition survey through FY 2003.
13. Includes $83,250 for reconnaissance and condition survey through FY 2003.

TABLE 34-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Humboldt Bay (Buhne Point), CA	1958	Jan. 1, 1990	$ 2,000	-
Lower San Francisco Bay, CA	1935	Jan. 1, 1990	-	-
Knights Valley Lake, R.R. Basin, CA	1974	Aug. 5, 1977	-	-
Oakland Harbor, CA (Deepen Tidal Canal)	1981	Nov. 6, 1977	-	-
Oakland Harbor, CA (Fruitvale Avenue Bridge)	1981	Nov. 6, 1977	-	-
San Lorenzo Creek, CA (Upper Portion)	1962	Nov. 6, 1977	-	-
San Pablo Bay and Mare Island Strait, CA (Approaches to Vallejo and South Vallejo)	1982	Nov. 6, 1977	-	-
Santa Cruz County, CA	1966	Jan. 1, 1990	245,639	-
Santa Cruz Harbor (Sealing & East Jetty)	1990	Nov 29, 1995	-	-

TABLE 34-H INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(See Section 16 of Text)

Location	Dates of Inspection
Alameda Creek	Apr 2003
Corte Madera Creek	Aug 2003
Coyote Creek, Marin County	Aug 2003
Coyote Creek, Santa Clara County	Jul 2003
Dry Creek	Jun 2003
East Weaver Creek	Jul 2003
Eel River at Sandy Prairie	Aug 2003
Guadalupe River	Aug 2003
Klamath River	Jul 2003
Mad River at Blue Lake	Jul 2003
Pajaro River, Monterey County	Jun 2003
Pajaro River, Santa Cruz County	Jun 2003
Pinole Creek	Aug 2003
Redwood Creek	Jul 2003
Rheem Creek	Aug 2003
Rodeo Creek	Aug 2003
Russian River, Mendocino County	Jun 2003
Russian River, Sonoma County	Jun 2003
San Leandro	Apr 2003
San Lorenzo Creek	Apr 2003
San Lorenzo River	Jun 2003
San Pablo Creek	Aug 2003
Uvas Creek	Jul 2003
Wildcat Creek	Sep 2003

TABLE 34-I RUSSIAN RIVER BASIN, CA: ESTIMATED COST FOR NEW WORK

(See Section 15 of Text)

Project Feature	Estimated Cost Federal	Non-Federal Contribution	Total
Coyote Valley Dam (Lake Mendocino):			
Channel Improvements below Dam on lower 98 miles of Russian River	$ 11,952,000	$ 5,598,000	$ 17,550,000 [1]
Dry Creek (Warm Springs) Lake and Channel Improvements below Dam	361,700,000	120,000 [2]	361,820,000
Total	$373,652,000	5,718,000	$ 379,370,000

1. Exclusive of $1,628,000 for recreation facilities at completed projects.
2. Reimbursements by local interests to Federal Government for costs allocated to water supply storage to be paid over a period not to exceed 50 years after use of storage is initiated and inclusive of lands and damages.

TABLE 34-J RUSSIAN RIVER BASIN, CA: PROJECT FEATURES AND ESTIMATED COST

(See Section 15 of Text)

Name	Nearest City (California)	Distance Above Mouth	Height of Height of Dam Type	Capacity (Acre-Ft)	Estimated Cost
Coyote Valley Dam Mendocino)	Ukiah	Mile 0.8 East Fork of Russian River	160 Feet-Earthfill	122,500	$ 17,550,000 [1]
Channel Improvements (East Fork) below Coyote Valley Dam	Ukiah	Mile 0 to 0.8 East Fork	-	-	24,484,000
and lower 98 miles of Russian River	Guernville	Mile 0 to 98, Russian River	-	-	-
Dry Creek (Warm Springs	Healdsburg	Mile 14.4 Dry Creek	319 Feet-Earthfill	181,000	363,017,000
Channel Improvements (Dry Creek) below Dry Creek (Warm Springs Dam)	Healdsburg	Mile 1 to 14.4 Dry Creek	-	-	2,864,000

1. Exclusive of $1,628,000 for recreation facilities at completed projects.

SACRAMENTO, CA, DISTRICT

This district comprises basins of Suisun Bay and San Joaquin and Sacramento Rivers in California; Goose Lake in Oregon; basins of the Great Salt Lake and Sevier Lake in Utah; an intervening portion of Great Basin in northern Nevada, northern California, and southeastern Idaho; and the upper Colorado River basin, which is in southwestern Wyoming, eastern Utah, northeastern Arizona and western Colorado, west of the Continental Divide.

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SACRAMENTO, CA, DISTRICT

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Navigation

1. SACRAMENTO RIVER, CA

Location. Rises in Trinity Mountains in north-central California, flows generally southerly about 374 miles and empties into Suisun Bay, an arm of San Francisco Bay, at Collinsville, CA. (See Geological Survey topographic map of Sacramento Valley, CA.)

Previous projects. For details see page 1985 of Annual Report for 1915 and page 1708 of Annual Report for 1938.

Existing project. For description of Sacramento Deep Water Ship Channel, see Annual Report for 1969. Total first cost for completed portion was $43,932,558 ($39,560,558 Federal (Corps), $300,000 (Coast Guard), and $4,072,000 non-Federal for lands and damages, including relocations) and excludes local Interests cost $10,741,000 (June 1963) for 30-foot deep connecting canal basic terminal facilities required under terms of project authorization. Project also provided for a shallow-draft channel 10 feet deep at mean lower low water 150 to 200 feet bottom width, from Suisun Bay to Sacramento, CA, 60 miles; a depth of 6 feet at low water between Sacramento and Colusa, 85 miles; a depth of 5 feet at low water between Colusa and Chico Landing, 50 miles; and such depths as practicable between Chico Landing and Red Bluff, 53 miles, a total distance of 248 miles. However, shallow-draft channel feature Colusa to Red Bluff (including Colusa to Chico Landing, 50 miles and Chico Landing to Red Bluff, 53 miles) was deauthorized by 1986 Water Resources Development Act on November 17, 1986 (Public Law 99-662). (See table 35-H on tidal and flood conditions prevailing.)

Local cooperation. Fully complied with for deep water ship channel project. None required on shallow-draft feature.

Terminal facilities. Piers, wharves, and docks at Port of Sacramento for shallow-draft navigation are open-pile structures with timber decks, some of which are designed to meet extreme high waters of flood stages. All main wharves at Sacramento have rail connections. Three of above facilities are owned by

city of Sacramento and remainder by private interests; all are privately operated. For full description see "Port and Terminal Facilities at the Ports of Sacramento, Stockton, Pittsburg and Antioch, Calif., 1986." Deep water terminal facilities comprise wharves and piers, administration and storage buildings, and belt railroad facilities. Majority of these facilities are owned and operated by Sacramento-Yolo Port District; remainder are privately owned and operated. Facilities are considered adequate for existing commerce.

Operations during fiscal year. New work, Deep Water Ship Channel: None. Maintenance: Shallow Draft Channel: Maintenance and operation activities continued in Sacramento River, Sacramento upstream to Colusa. Deep Water Ship Channel: Maintenance and operation activities continued.

Historical summary. Construction of 7-foot shallow-draft channel below Sacramento was initiated in September 1899 and completed in 1904. Modified 10-foot shallow-draft channel up to Sacramento was initiated in FY 1928 and completed in 1931. Shallow-draft channel above Sacramento was begun in April 1946 but new work was discontinued when about 48 percent complete. In February 1974, remaining work for shallow-draft portion of project, provision of a 5-foot depth between Colusa and Chico Landing (50 miles), was reclassified as "deferred." Channel is navigable all year; however, there is no regular navigation above Colusa, 145 miles above river mouth. On November 17, 1986, remaining shallow-draft feature, Colusa to Red Bluff (including Colusa to Chico Landing, 50 miles and Chico Landing to Red Bluff, 53 miles) was deauthorized by 1986 Water Resources Development Act (Public Law 99-662). Construction of 30-foot deep water ship channel was initiated in July 1949; improvement dredging by continuing contracts resulted in provision of an operational facility for oceangoing vessels during June 1963. Bascule bridge was completed in April 1960, barge lock in August 1961, barge canal in November 1961, and entire deep water ship channel in June 1970.

2. SACRAMENTO RIVER DEEP WATER SHIP CHANNEL, CA

Location. The project is located on the Sacramento River, between Collinsville and the Port of Sacramento, a distance of approximately 43 miles, in the counties of Sacramento, Contract Costa, Solano and Yolo, CA.

Existing project. Existing waterways are inadequate to efficiently accommodate vessels currently using the channel. Because of the depth restriction, only 20% of the world's fleet can currently load to full design depth. Once deepened, the Port of Sacramento will be able to accommodate 70% of the world's fleet at full design draft. The project plan is to deepen the existing 30 feet Sacramento River Deep Water Ship Channel from N.Y. Slough to the Port of Sacramento, a distance of about 43 miles, to 35 feet, and widen the channel as necessary. The project provides for establishment of wetland habitat and upland habitat to mitigate for such losses. Recreation was also authorized although no local sponsor has been identified. Current project estimate is $50,000,000 and is comprised of Federal cost (Corps) of $24,900,000; Federal cost (Coast Guard-for navigation aids) of $300,000 and non-Federal cost of $24,800,000.

Local cooperation. A Local Cooperation Agreement (LCA) was signed with the local sponsor, the Port of Sacramento, in June 1986. A modification to the LCA, necessitated by the Water Resources Development Act of 1986, was executed in December 1988. The local sponsor will provide lands, easements, rights of way and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project; and pay 25 percent of the costs allocated to deep draft navigation during construction.

Terminal facilities. All main wharves at Sacramento have rail connections. Three facilities are owned by the City of Sacramento and the rest are privately owned; all are privately operated. For full description, see "Port and Terminal Facilities at the Ports of Sacramento, Stockton, Pittsburg and Antioch, Calif., 1986". Deepwater terminal facilities are comprised of wharves, piers, administration and storage buildings and belt railroad facilities. The majority of these facilities are owned and operated by the Sacramento-Yolo Port District and the rest are privately owned and operated. The facilities are considered adequate for existing commerce.

Historical summary. Funds to initiate pre-construction planning were appropriated in fiscal year

1982. Project construction was authorized by the Supplemental Appropriations Act of 1985 and modified by the WRDA 1986. The General Design Memorandum was approved and the Record of Decision was signed in May 1987. The modified LCA was executed in December 1988. The first construction contract for deepening was awarded in February 1989 and completed in July 1990. A second construction contract was awarded in September 1990 and completed in August 1991. Construction from River Mile 43 to River Mile 35 has been completed. In fiscal year 1996, the sponsor requested indefinite suspension of the project due to their inability to meet their cost share requirements. Based on Congressional direction in Conference Report 105-749, dated September 25, 1998, the Corps has developed a study plan outlining the scope, schedule and costs to prepare a Engineering Documentation Report (EDR). This preliminary assessment has been submitted to the sponsor for their review and a determination will be made as to proceeding with the EDR. This plan, together with the sponsor's financing plan, will serve as the basis for requesting additional Federal funds for costs associated with the EDR. Section 305 of WRDA 2000 "authorized credit toward the non-Federal share of the cost of the project the dredged material from the project that is purchased by public agencies or nonprofit entities..."

Operations during fiscal year. Completed the study plan and continued project coordination. Dredging was initiated and completed at a contract cost of $1,277,000.

The sponsor requested San Francisco District take the lead in the LRR based on SPN's navigation expertise. South Pacific Division memo dated 12 Aug 2002 directed San Francisco District to take the study's regional management responsibilities.

3. SAN FRANCISCO BAY TO STOCKTON, CA (JOHN F. BALDWIN AND STOCKTON SHIP CHANNELS)

Reported on by the San Francisco District. Refer to Report of the Secretary of the Army on Civil Works Activities for FY 1995.

4. SAN JOAQUIN RIVER, CA

Location. Rises in east central California and flows westerly and northwesterly about 340 miles to its confluence with Sacramento River at head of Suisun Bay, 48 miles northeast of San Francisco. Deep water channel in San Joaquin River extends 41 miles from its mouth in Suisun Bay at Pittsburg to city of Stockton. Waterborne access to city provided by Stockton Channel, an artificial cut extending from river about 2 miles into city. (See Coast and Geodetic Survey Sheet 5527.)

Existing project. For description of completed improvement, modifications, and authorizing acts, see Annual Report for 1967. (See table 35-I for total cost of new work for project completed in May 1960.)

Projects units (1950 modification) reclassified and excluded from project cost are set forth in table 35-J.

Modification of existing project is included as one unit of San Francisco Bay to Stockton, CA, (John F. Baldwin and Stockton Ship Channels) project, authorized by 1965 River and Harbor Act (H. Doc. 209, 89th Cong., 1st sess.); this modification is reported in detail under Sacramento District, improvement No. 3 and San Francisco District, Improvement No. 3.

Local cooperation. Fully complied with for completed portion of project; for details of required cash contributions on completed, inactive and deferred portions of project see Existing project paragraph, Annual Report for 1967.

Terminal facilities. For description of harbor facilities at Port of Stockton, CA, see Port Series 32, "The Ports of Sacramento, Stockton, Pittsburgh and Antioch, Calif.," revised 1986. Downstream from Stockton, traffic is accommodated by bank landings and sheds except at Antioch and near Pittsburgh, where there are wharves for shallow- and deep-draft vessels. Terminal transfer facilities at public ocean terminal of Port of Stockton are adequate for present and immediate future.

Operations and results during fiscal year. Maintenance: Condition studies and miscellaneous inspections and reports were accomplished by hired labor. Dredging was initiated and completed at contract cost of $1,322,000. (Repair or restoration of wavewash protection is required by legislation authorized by Improvement No. 3.)

Historical Summary. Active portion of existing project was completed in May 1960. Construction of project was initiated in December 1877.

Flood Control

5. AMERICAN RIVER WATERSHED, (Common Features)

Location. The project is located in Placer, El Dorado, and Sacramento Counties on the North, Middle and South Forks of the American River and along the lower American River and Sacramento Rivers.

Existing Project. Recent evaluations indicate that the level of flood protection along much of the American River and in the Natomas area is less than the 100-year level. The project consists of levee improvements including a slurry wall along 21 miles of the lower American River, levee modifications along 12 miles of the Sacramento River, telemetered gages above Folsom Dam, improving the flood warning system for the lower American River, installing a closure structure at Mayhew Drain, 3 miles of levee modifications along lower American River, and levee modifications along 10 miles of the Natomas Cross Canal. Cost estimate (October 2000) is $96,000,000 (includes an allowance for estimated inflation through the construction period), of which $72,200,000 is Federal cost and $23,800,000 is non-Federal cost (which includes $17,670,000 cash contribution).

Local cooperation. In accordance with cost sharing requirements specified in Water Resources Development Act (WRDA) of 1986, local interests are required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, and pay 18 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities. The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Project cooperation agreement (PCA) was signed July 13, 1998.

Operations and results during fiscal year. Construction contract for levee improvements along the right bank of the lower American River continued with a fiscal year cost of $8,120,000. Construction contracts were awarded for levee improvements along the left bank of the lower American River with a fiscal year cost of $4,436,000. Remaining fiscal year cost of $4,365,000 was for associated engineering and design and construction management costs.

Historical summary. The Defense Appropriations Act for FY 1993 authorized construction of the Natomas feature of the project, which includes levee improvements around the perimeter of the Natomas basin, a 300-acre detention area in North Natomas, and recreation trails. The local sponsor has already constructed much of the project. Federal Construction General funds were appropriated in FY 1998 to initiate reimbursement to the sponsor for the Federal share of the project. Initial reimbursement of $15 million was made to the sponsor in September 1999. The Defense Appropriations Act for Fiscal Year 1993 also directed the Corps to reevaluate other features recommended in the Feasibility Report and a Supplemental Information Report (SIR) was completed in March 1996. The Chief of Engineer's Report recommended implementation of elements common to the final candidate plans presented in the SIR. These "common elements" were authorized for construction in WRDA 96 and Federal Construction General funds were appropriated in FY 1998 for initiation of construction. Sec. 366 of WRDA 99 authorized additional levee improvements as part of the overall project.

6. AMERICAN RIVER WATERSHED, (Folsom Dam Modifications)

Location. Folsom Dam and Reservoir, located on the American River, is about 29 miles upstream of the City of Sacramento, California. The American River watershed drains about 2,100 square miles northeast of Sacramento and includes portions of Placer, El Dorado, and Sacramento Counties. Runoff from this basin flows through Folsom Reservoir and passes through Sacramento to the confluence with the Sacramento River.

Existing Project. The existing Folsom Dam has an objective release of 115,000 cubic feet per second (cfs) during flood operations. However, the existing eight outlets limit releases to about 36,000 cfs until approximately one half of the reservoir's flood control space is filled. At this level, the pool elevation is sufficient for spillways to release the full 115,000 cfs. The project will modify the existing outlets and constructing additional outlets to allow releases of roughly 115,000 cfs much earlier. The project features consist of: enlarging the eight existing river outlets; constructing two new river outlets, constructing a stilling basin downstream from the emergency spillway; and modifying the auxiliary spillway gates and dikes at Folsom Dam to normalize the use of surcharge storage. Following authorization of the Folsom Dam Mini-Raise project, design of the Surcharge Storage project features has been deferred. With the increased release capacity, it will be possible to make significant release in advance of a flood event. This "advance release" would allow the reservoir storage level to be reduced, thus creating additional space to store incoming flood volume. Cost estimate is $212,900,000 of which $138,385,000 (65%) is Federal cost and $74,515,000 (35%) is non-Federal cost.

Local Cooperation. The California State Reclamation Board and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors. The Project Cooperation Agreement (PCA) is scheduled for execution in March 2004. The non-Federal sponsor is financially capable and willing to contribute the non-Federal share. State of California legislation (AB 1147), enacted 31 August 2000, authorizes the State Reclamation Board to participate in the project to modify Folsom Dam adopted and authorized by Congress in Section 101 (a) (6) of WRDA 99.

Historical Summary. The American River Watershed Feasibility Report was completed in December 1991. The Supplemental Information Report, completed in March 1996, identified three candidate plans which would help reduce the flood risk facing Sacramento: modifying Folsom Dam and increasing the dedicated flood space; modifying Folsom Dam and the downstream system to allow increased objective releases; and constructing a detention dam upstream of Folsom Dam. In June 1996, the Chief of Engineers deferred a decision on a comprehensive flood control plan, but recommended that features common to all three plans be authorized as the first component of a comprehensive plan. These elements are being constructed within the American River Watershed (Common Features) Project. SAFCA prepared the Folsom Dam Modification Report New Outlets Plan dated March 1998 (SAFCA Outlet Report), which identified proposed changes to the Folsom Modification Plan described in the 1996 Supplemental Information Report. The 1996 Supplemental Information Report as modified by the SAFCA Outlet Report was the basis for the project authorized under WRDA 1999. Funds used to initiate pre-construction engineering and design of the Folsom Modifications were allocated in Fiscal Year 2000 under the American River Watershed Project. Funds to initiate construction were appropriated in Fiscal Year 2001. The LRR, should be approved January 2004, will serve as the document to support the PCA. Due to new technologies being developed which produce a more accurate inventory of residential structures and changes in without-project conditions, benefits included in the LRR have changed since the 1992 Feasibility Report and the 1996 Supplemental Information Report (SIR).

7. AMERICAN RIVER WATERSHED, (Natomas Reimbursement)

Location. The project is located in the metropolitan area of Sacramento, California. The 1991 Feasibility Report identified a project including levee improvements around the perimeter of the Natomas Basin, a 300-acre detention area in North Natomas, and recreation trails.

Existing Project. The local sponsor, SAFCA, has constructed Natomas flood control features. The Natomas Federal Plan dated Mar 99 identified portions of the project eligible for reimbursement under the Memorandum of Agreement (MOA) signed Sep 99. Based on the MOA and the Federal Plan, initial reimbursement of $15M for Phase I was made to SAFCA Sep 99. Estimated final reimbursement for Phase I of $4.2M is unscheduled and will require reprogramming of funds. The sponsor has requested that the Corps design and construct the recreation features of the authorized project. Design of the recreation features has been completed. Construction of recreation features is currently unscheduled.

Local Cooperation. SAFCA is seeking

reimbursement for construction of local project features in addition to that eligible under Natomas Federal Plan (initial reimbursement in FY 02 estimated at $5 million). The current MOA allows for reimbursement to SAFCA for the Federal share of the plan identified in the Natomas Federal Plan dated March 1999. The SAFCA flood control project (North Area Local Project, or NALP) was larger in scope than the plan in the Natomas Federal Plan. ASA (CW) agreed, by letter to SAFCA dated 13 Sep 99, that the Corps would reevaluate our conclusions on what part of SAFCA's NALP could be considered for reimbursement consistent with the authorization. SPK will reevaluate the previous conclusions, giving consideration to SAFCA's information, and prepare a report describing our conclusions and any recommendations. The scope and schedule of this effort are being developed. Additional reimbursement could range from $8M-18M (Phase II).

Historical Summary. The Defense Appropriations Act for FY 1993 authorized construction of the Natomas flood control project (including recreation features), as defined in the feasibility report. The Act also authorized the sponsor to construct and receive reimbursement for the Federal share of project costs.

8. BUCHANAN DAM-H.V. EASTMAN LAKE, CHOWCHILLA RIVER, CA

Location. On Chowchilla River about 36 miles above its mouth and about 16 miles northeast of city of Chowchilla, CA. (See Geological Survey quadrangles for area.)

Existing project. Provides for construction of a 205-foot high rockfill dam to create a reservoir with gross storage capacity of 150,000 acre-feet for flood control, irrigation, recreation, and fish and wildlife. In conjunction with dam, project plan provides for about 12 miles of downstream levee and channel construction on Ash Slough to accommodate a project design flow of 5,000 cubic feet per second within slough and 7 miles of levee and channel improvement on Berenda Slough. Operation and maintenance of dam and reservoir is the responsibility of the Federal Government. Total first cost for existing project is $28,919,597, of which $27,369,597 is Federal cost, including $4,580,000 for basic recreation facilities, and $1,550,000 non-Federal costs for lands and damages, including relocations for downstream levee and channel improvements. Local interests have contracted with the Bureau of Reclamation for irrigation service. For future non-Federal reimbursement, see Local cooperation paragraph. Local interests have also, over a period of years expended about $500,000 for construction of low levees and clearing downstream channels to provide some local flood protection in project area. This work is inadequate during major floods. Existing project was adopted by 1962 Flood Control Act (S. Doc. 98, 87th Cong., 2d sess., contains latest published map). Lake formed by Buchanan Dam on Chowchilla River was designated ``H.V. Eastman Lake'' by Public Law 93-217.

Local cooperation. Fully complied with.

Operations and results during fiscal year. New work: None. Maintenance: Maintenance and operation activities were continued. Runoff of Chowchilla River above Buchanan Dam was above normal for the year. Maximum storage of 32,003 acre-feet occurred June 4, 2003. Maximum hourly inflow to reservoir was 1,900 cubic feet per second on December 17, 2002. Maximum release of 358 cubic feet per second on July 28, 2003, was above maximum permissible flood release. During the year, a total of 12,872 acre-feet of water was released for irrigation and other purposes. Releases for flood control purposes totaled 0 acre-feet.

Historical summary. Construction began in July 1971 and was completed in May 1979. Construction of Buchanan and Hidden dam and appurtenances was combined under one contract. Project was completed in September 1983, except for installation of piezometers (now deferred indefinitely). Dam closure was in March 1975; dam was completed in January 1976. Reservoir clearing and boundary marking were completed May 1975. Bifurcation structure was completed in February 1976. Channel improvement, Ash and Berenda Sloughs, was completed in March 1976. Recreation areas: Phase I was completed in January 1976; Phase II was completed in February 1978. Residences, administration building, and visitors center contract was completed in May 1978. Landscaping was completed in May 1979 and erosion control was completed in April 1979. A resources interpretive display and road relocation were completed in FY 1982. Dam safety assurance studies were initiated in FY 1981. Solar heating was installed at Chowchilla recreation area in FY 1984. An hydrilla eradication (spraying) program was initiated in FY

1989. Final land audit was approved on December 3, 1985.

9. CACHE CREEK BASIN, CA (Cache Creek Settling Basin)

Location. At the mouth of Cache Creek in Yolo County where it enters the Yolo Bypass about 2 miles east of city of Woodland and about 15 miles northwest of city of Sacramento, CA.

Existing project. Provides for raising the perimeter levees of the existing settling basin an average of 12 feet, extending the levees upstream to County Road 102 to provide 50-year sediment storage capacity, enlarging and reconstructing the cobble weir, and degrading existing training levees and rebuilding them adjacent to western perimeter levee to provide 50 years of sediment storage capacity (340 acre-feet annually.). Estimated cost (October 2003) for existing project is $27,000,000 (includes an allowance for estimated inflation through the construction period), of which $16,900,000 is Federal and $10,100,000 is non-Federal (which includes $1,350,000 cash contribution). For future non-Federal reimbursement, see Local cooperation paragraph. Existing project was adopted by Water Resources Development Act of 1986, Public Law 99-662, November 17, 1986 (HD 98-134, 98th Cong., 1st sess, contains published map.) Project as authorized included development of a national wildlife refuge within the settling basin; however, the Department of the Army determined that such refuge would be more appropriately funded and developed by the U.S. Fish and Wildlife Service. Refuge feature was reclassified to deferred category on April 11, 1988.

Local cooperation. Local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in construction of the project; pay 5 percent of cost allocated to flood control, and bear all costs of operation, maintenance and replacement of flood control facilities. Local interests have agreed to make all required payments concurrently with project construction. Local Cooperation Agreement was executed March 12, 1990.

Operations and results during fiscal year. Engineering activities were continued.

Historical summary. Local Cooperation Agreement was executed March 12, 1990. Cache Creek Settling Basin enlargement (multicomponent) construction contract was awarded August 5, 1991, completed in September 1993, and work was transferred to local interests for operation and maintenance on December 2, 1993.

10. CALAVERAS RIVER AND LITTLEJOHN CREEK AND TRIBUTARIES, INCLUDING NEW HOGAN LAKE AND FARMINGTON DAM, CA

Location. Streams comprising Calaveras River and Littlejohn Creek groups rise in Sierra Nevada and its foothills, flow easterly across flatlands of San Joaquin Valley and empty into San Joaquin River directly, or through various sloughs, in vicinity of Stockton, CA. Littlejohn Creek is in Calaveras, Stanislaus, and San Joaquin Counties. The three principal stream systems of the group are, from south to north, Lone Tree Creek, Littlejohn Creek, and Duck Creek. Calaveras River group is in Calaveras and San Joaquin Counties. The two principal streams of the groups are, from south to north, Calaveras River and Bear Creek. (See Geological Survey Valley Springs quadrangle for New Hogan reservoir area and Trigo and Bachelor Valley quadrangles for Farmington reservoir area.)

Existing project. For description of completed improvements consisting of Farmington Dam, New Hogan Lake, and Bear Creek levee and channel improvement, and authorizing act, see Annual Report for 1967. (a) Farmington: Total first cost (July 1955) for project was $3,995,684, of which $3,676,384 was Federal and $319,300 non-Federal for lands and damages including relocations. (b) New Hogan: Federal cost for project is $15,906,150, including $543,514 for basic recreation facilities. For future non-Federal reimbursement, see Local cooperation paragraph. Federal cost for recreation facilities funded from Code 710 appropriations is $897,742. (c) Bear Creek: Project cost is $6,485,734, of which $3,242,867 is Federal, including reimbursement ($488,096) to local interests of one-half of excess local interest cost of lands, rights-of-way, and relocations over estimated Federal construction cost in accordance with section 3, Public Law 738, 74th Congress. Non-Federal cost included in above amount

is $3,242,867 for relocations and lands and damages, exclusive of above Federal reimbursement.

Local cooperation. Fully complied with. New Hogan: Local interests must pay portion of first cost and annual operation and maintenance costs allocated to conservation functions of project. These costs are estimated at 36.2 percent of first cost and 38 percent of annual costs. In addition, local interests contributed land, the (July 1964) market value of which was $556,000. For years 1961 through 1970, an interim contract between the Bureau of Reclamation and local water users provided for storage and payment of irrigation water; a long-term contract between that agency and local water users was executed August 25, 1970. Local interests paid $5,401,959 through December 31, 2002. A concessionaire at New Hogan Marina provided public use facilities in accordance with lease agreement with the Secretary of the Army at an estimated cost to date of $234,000.

Operations and results during fiscal year. New work: New Hogan Lake, regular funds: None. Code 710 funds: None. Bear Creek, San Joaquin County: None. Maintenance: Farmington Dam Maintenance and operation activities continued; structures were maintained in serviceable condition. During rain flood season, maximum flow of Duck Creek Diversion was 458 cubic feet per second on December 16, 2002. Maximum flow of Littlejohn Creek at Farmington was 558 cubic feet per second on December 16, 2002. Maximum flow of Duck Creek near Farmington was 263 cubic feet per second on December 16, 2002. Maximum storage in reservoir was 308 acre-feet on December 16, 2002, and maximum estimated inflow to reservoir was 1,550 cubic feet per second on December 16, 2002. Maximum release of 430 cubic feet per second on December 16, 2002, was above maximum permissible flood release. During the year, 16,791 acre-feet was released for flood control. Release for irrigation purposes amounted to 118,362 acre-feet. New Hogan Lake Maintenance and operation activities continued. Structures were maintained in serviceable condition. Runoff of Calaveras River above New Hogan was above normal for the year. Maximum storage of 162,316 acre-feet occurred December 16, 2002. Maximum hourly inflow to reservoir was 4,010 cubic feet per second on December 16, 2002. During the year, 74,338 acre-feet was released for irrigation and other purposes. Release for flood control purposes amounted to 0 acre-feet.

Historical summary. Farmington Dam: Construction of Farmington project was initiated in July 1949 and completed for beneficial flood control operation in 1952. Duck Creek channel improvement was completed in November 1951; and channel improvement on south Littlejohn Creek was completed in May 1955. There are no recreation facilities or public-use areas. All work completed. Dam safety assurance studies were initiated in FY 1982. New Hogan Lake: Construction was initiated May 1960, main dam closure November 1963, project completed for operational use in June 1964, and all work completed October 1973. Recreation facilities have been provided from Code 710 appropriations. See page measurement weir constructed in June 1980. Dam safety assurance studies were initiated in FY 1980. Bear Creek, San Joaquin County: Construction began in June 1963 and was completed in June 1967. Final cash contribution was made to local interests December 23, 1970. Solar heating was installed at recreation facilities in FY 1984. A cultural resources survey was completed in FY 1984.

11. COLORADO RIVER AT GRAND JUNCTION, CO

Location. On north bank of Colorado River from 9th Street west to the Denver Rio Grande Western Railroad Bridge at city of Grand Junction, CO, in Mesa County.

Existing project. Provides for construction of a 3,200 foot levee located on north side of Colorado River, one road ramp over levee for accessing Watson Island, 3 detention basins, a relief well system and a 550-foot-long impermeable blanket to prevent seepage though railroad embankment. Estimated cost (September 1994) is $1,651,200, of which $1,086,700 is Federal cost and $564,500 is non-Federal cost for lands and damages and includes a cash contribution of $63,000. Existing project was approved by Chief of Engineers on February 28, 1994, under provisions of section 205, 1948 Flood Control Act, as amended.

Local cooperation. Local sponsor shall furnish to the Government all lands, easements, and rights-of-way, including suitable borrow and dredged material disposal areas, as determined by the Government to be necessary for construction, operation, and maintenance of the project, and shall furnish to the Government evidence supporting local sponsor's legal

authority to grant rights-of-entry to such lands. Necessary lands, easements, and rights-of-way may be provided incrementally, but all lands, easements, and rights-of-way determined by the Government to be necessary for work to be performed under a construction contract must be furnished prior to advertisement of the construction contract.

Local sponsor shall provide or pay to the Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins that may be required at any dredged material disposal areas necessary for project construction.

Upon notification from the Government, local sponsor shall accomplish or arrange for accomplishment at no cost to the Government all relocations (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for project construction.

Local sponsor shall comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act. Local sponsor shall provide such documentation as contracting officer requires to demonstrate compliance.

The Local Cooperation Agreement (LCA) between the Department of the Army and the City of Grand Junction, CO, was signed April 8, 1994.

Operations and results during fiscal year. O&M Manual and As-Built drawings were finalized. Project audit, closeout activities and fiscal completion continued.

Historical summary. Plans and specifications were completed in August 1994. Non-Federal cash contribution of $63,000 for construction was received September 27, 1994. First construction contract in amount of $575,830 was awarded September 30, 1994.

12. CORTE MADERA CREEK, CA

Reported on by San Francisco District. Refer to Report of the Secretary of the Army on Civil Works Activities for FY 1996.

13. COYOTE CREEK, CA (Known As Coyote And Berryessa Creeks)

Location. Project is located in the cities of San Jose and Milpitas immediately south of San Francisco Bay in Santa Clara County, CA.

Existing project. Plan of improvement on Coyote Creek consists of overflow channels and offset levees. Improvement on Berryessa Creek includes two sedimentation basins at the upstream end of the concrete lined trapezoidal channel and offset levees. Combined plan would provide flood protection from Coyote and Berryessa Creeks to cities of San Jose and Milpitas, which include large industrial complexes and some residential development. Estimated cost (October 1998) for the Coyote Creek element of the existing project is $61,750,000 (includes an allowance for estimated inflation through the construction period), of which $30,890,000 is Federal and $30,860,000 is non-Federal (which includes $3,100,000 cash contribution). For future non-Federal reimbursement, see Local cooperation paragraph. Estimated cost (October 1998) for the Berryessa Creek element of the existing project is $16,525,000 (includes an allowance for estimated inflation through the construction period), of which $12,425,000 is Federal and $4,100,000 is non-Federal (which includes $1,830,000 cash contribution). Existing project was authorized under Section 101(a)(5) of WRDA 1990, Public Law 101-640 (HD 101-126, 101st Cong., 2d sess.).

Local cooperation. (Coyote Creek) Local interests are required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas, which may be reduced for credit allowed based on prior work (Sec. 104 of WRDA 86 ($8,633,000), Sec. 26 of WRDA 88 (not to exceed $3,000,000) and Sec. 215 of the Flood Control Act of 1968 (not to exceed $3,000,000) after reductions for such credit have been made in the required cash payments; modify or relocate utilities, roads, bridges (except railroad bridges), and other

facilities, and perform prior work under Sec. 104 of WRDA 86, Sec. 26 of WRDA 88, and Sec. 215 of the Flood Control Act of 1968, where necessary for the construction of the project; and pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities. Local interests will receive an estimated Federal reimbursement of $8,280,000 for one-half of non-Federal costs allocated to flood control in excess of Federal costs (Sec. 103 of WRDA 86). (Berryessa Creek) Local interests are required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project; and pay 11 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities. The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

Operations and results during fiscal year. Coyote Creek mitigation contract continued at a fiscal year cost of $162,711.

Historical summary. Separate General Design Memorandums were prepared for Coyote and Berryessa Creeks. General Design Memorandum for Coyote was submitted in May 1993. Local interests have completed construction of Reach 1 (Sec 104, Water Resources Development Act (WRDA), Reach 2 (Sec 26, WRDA) and Reach 3A (Sec 215, WRDA). National Defense Authorization Act for FY 1994 directed the Secretary of the Army to construct project notwithstanding sec 902, WRDA. Project Cooperation Agreement was executed in September 1994. Coyote Creek Reach 3B construction contract was completed at a final cost of $5,308,925. Preconstruction engineering and design cost is $4,410,000. Total reimbursement of $7,400,000 for costs in excess of 50% maximum requirement and credit payments of $14,633,000 for prior integral work, have been made to the local sponsor as of September 30, 1997.

14. FAIRFIELD VICINITY STREAMS, CA

Location. On five streams in vicinity of cities of Fairfield and Suisun, Solano County, CA.

Existing project. See Annual Report for 1996, p.35-8.

15. GUADALUPE RIVER, CA

Location. On Guadalupe River in downtown area of city of San Jose, Santa Clara County, CA.

Existing project. Authorized plan provides for widening and deepening one or more sides of Guadalupe River for 2.5 miles from Interstate Highway 280 to Interstate Highway 880 in downtown San Jose, CA, and channel modifications with provisions for fish and wildlife mitigation, as necessary. Non-Federal sponsor must pay 100 percent of incremental construction cost of locally preferred plan. Project is an integral component of a much larger regional park plan being undertaken by the San Jose Redevelopment Agency.

Estimated cost (October 2000) is $182,800,000 (which includes an allowance for estimated inflation through the construction period) of which $78,500,000 is Federal and $104,300,000 is non-Federal including reimbursement, see Local cooperation paragraph. Existing project was adopted by Water Resources Development Act of 1986, Energy and Water Development Appropriation Act of 1990 which directed the Secretary of the Army to construct the project notwithstanding Sec. 902 of the Water Resources Development Act of 1986 regarding project cost limitations, and Energy and Water Development Appropriations Act of 1992 which directed the Secretary of the Army to modify and construct the project in accordance with the January 1991 GDM; it is consistent with the Guadalupe River Park plan requested by the local sponsor and with cost sharing policy.

Local cooperation. Local interests, through a public body legally authorized and financially capable, must give assurances they will furnish lands, easements, rights-of-way, and dredged material disposal areas, which are partially offset by a credit ($5,701,000) allowed for prior work (Sec. 104, Water Resources Development Act of 1986); credit was approved by the Assistant Secretary of the Army; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where

necessary in the construction of the project; pay 5 percent of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities. Federal reimbursement will be made to non-Federal sponsor for one-half of non-Federal costs allocated to flood control in excess of Federal costs. Local interests have agreed to make all required payments concurrently with project construction.

On June 2, 1989, the local sponsor, the Santa Clara Valley Water District, expressed intent to provide all needed cost sharing funds. On September 21, 1990, the San Jose Redevelopment Agency requested modification of project to include recreation facilities and confirmed that they intend to participate as local sponsor for recreation. Local Cooperation Agreements for both flood control and recreation were executed March 30, 1992.

Operations and results during fiscal year. Construction contract No. 2 (Hedding Street to Coleman Avenue) was completed with fiscal year cost of $257,000 (Interstate 880 to Hedding Street). Fiscal year mitigation costs included Early Plant collection for Contract 2 (Hedding Street to Coleman Avenue) of $15,000 and River Street Historic Salvage and Demolition $560,000.

Historical summary. Final General Design Memorandum (GDM) reflecting locally preferred plan, was approved by the Assistant Secretary of the Army on March 26, 1992, with comments. Revision of GDM to address comments was completed in July 1993. Local Cooperation Agreements for both flood control and recreation were executed March 30, 1992. Construction contract No. 1 for channel improvement (Highway 880 to Hedding Street) was awarded August 10, 1992; and was essentially completed and transferred to local interests for maintenance and operation on August 11, 1994. Construction contract No. 2 (Hedding Street to Coleman Avenue) was awarded July 8, 1994, and was essentially completed and transferred to local interests for maintenance and operation on October 25, 1996.

16. HIDDEN DAM-HENSLEY LAKE, FRESNO RIVER, CA

Location. On Fresno River about 50 miles above its mouth and about 15 miles northeast of Madera, CA (See Geological Survey quadrangles for area.)

Existing project. Provides for construction of a 163-foot high earthfill dam to create a reservoir with gross storage capacity of 90,000 acre-feet for flood control, irrigation, recreation and other purposes. In conjunction with the dam, the project provides for about 13 miles of downstream levee and channel improvements on Fresno River immediately upstream of Chowchilla Canal crossing to accommodate project design flow of 5,000 cubic feet per second. Operation and maintenance of dam and reservoir is the responsibility of the Federal Government. Total first cost for existing project is $31,785,426, of which $30,555,426 is Federal cost, including $3,564,168 for basic recreation facilities, and estimated $1,230,000 non-Federal cost for lands and damages including relocations for downstream levee and channel improvements. Local interests have contracted with the Bureau of Reclamation for irrigation service. For future non-Federal reimbursement, see Local cooperation paragraph. Local interests have also, over a period of years, expended about $300,000 for construction of low levees and clearing downstream channels to provide some local flood protection in the project area. This work is inadequate during major floods. Existing project was adopted by 1962 Flood Control Act (S. Doc. 37, 87th Cong., 1st sess., contains latest published map). Lake created by Hidden Reservoir project on Fresno River was designated "Hensley Lake" by Public Law 93-603.

Local cooperation. Fully complied with.

Operations and results during fiscal year. New work. None. Maintenance: Maintenance and operation activities were continued. Runoff of Fresno River below Hidden Dam was above normal for the year. Maximum storage of 36,637 acre-feet occurred June 10, 2003. Maximum hourly inflow to the reservoir was 557 cubic feet per second on March 16, 2003. Maximum release of 242 cubic feet per second on June 23, 2003, was above maximum permissible flood release. During the year, 25,987 acre-feet was released for irrigation and other purposes and 0 acre-feet was released for flood control.

Historical summary. Construction began in July 1971 and was completed in January 1979. Dam closure was in March 1975; dam was completed November 1975. Instrumentation was completed in January 1976. Downstream channel improvement, Fresno River, was completed April 1976. Recreation

areas: Phase I was completed in March 1976; Phase II was completed in June 1978. Residences, administration building, grounds, and utilities contract was completed in February 1978. Landscaping was completed in December 1978 and erosion control was completed in January 1979. Project was completed in September 1980. Final land audit was approved February 5, 1980. Dam safety assurance studies were initiated in FY 1980. Piezometer installation was completed in September 1982. Solar heating was installed at County relinquished all administration of recreation and development and maintenance of public use areas at the recreation areas in FY 1984.

17. ISABELLA LAKE, KERN RIVER, CA

Location. About 35 miles northeast of city of Bakersfield, CA, near confluence of north and south forks of Kern River; auxiliary dam is about one-half mile east of main dam. (See Geological Survey quadrangles of area.) In 1991, Isabella Lake and 16,000 acres of surrounding land was transferred to the Forest Service in exchange for about 2,500 acres of Forest Service land near Pine Flat Lake.

Existing project. For description of completed improvement and authorizing act, see Annual Report for 1967. Federal cost for new work is $22,027,452. For future non-Federal reimbursement see Local cooperation and Licenses paragraphs. Federal cost funded from Code 710 appropriations is $2,199,085. Operation and maintenance of dam and reservoir is Federal responsibility.

Local cooperation. California officially adopted project by chapter 1514 of statutes of 1945, State of California. Local interests, represented by North Kern, Buena Vista, and Tulare Lake Basin Water Storage Districts and La Hacienda Water District, were required to reimburse the Federal Government the portion of first cost and annual operation and maintenance costs allocated to irrigation functions of project. These costs, based on a cost allocation study completed in December 1955, are $4,573,000 of first cost and 21.7 percent of annual operation and maintenance cost. For the years 1956 through 1964, an interim contract between the Bureau of Reclamation and local water users provided for storage and payment of irrigation water. Under provisions of this interim contract, local interests paid $1,936,229 through December 31, 1964. A long-term contract between the Bureau and local water users was executed October 23, 1964. Balance due on allocated first cost of $4,573,000 was paid by the water users on March 31, 1965. Kern County assumed administration of recreation and development and maintenance of public use areas at project in accordance with a 25-year license February 15, 1955. The agreement with Kern County provided for joint operation and development by the Corps and Kern County including permits granted to concessionaires by the county to provide certain services. As of September 30, 1971, Kern project. A State law permitting the Department of Boating and Waterways (known as the Department of Navigation and Ocean Development prior to January 1979) to participate in inland water development with Federal agencies was signed by the Governor on August 11, 1972. Isabella Lake and surrounding land, 16,000 acres around the lake currently being used for park and recreation purposes, was turned over to the Forest Service by the Corps on May 15, 1991, in exchange for approximately 2,500 acres of Forest Service recreation land near Pine Flat Lake. This was accomplished by using a memorandum of understanding (MOU) between the Secretary of the Army and the Secretary of Agriculture (Forest Service). The MOU requires an exchange of land between departments. Three Corps maintenance employees, under supervision of the Success Lake park manager, will stay at Isabella to operate the dam for flood control and water conservation purposes. Authority for new concessionaire operating permits to be issued, as well as those previously granted by the Corps, will be transferred to the Forest Service.

Total cost to date of present recreation facilities developed by the county and the marina concessionaires is about $965,000; $235,000 of this was a grant from the California Wildlife Conservation Board and about $534,000 is investment by marina concessionaires.

Licenses. In accordance with Federal Power Commission Docket No. E-6578, issued April 1, 1963, payment of $377,426 was made to the Federal Government by Pacific Gas and Electric Co. ($108,352) and Southern California Edison Co. ($269,074) for headwater benefits to downstream existing plants from Isabella Dam to cover benefits from April 15, 1954, to December 31, 1962. Between 1962 and 1982, the power companies have in the aggregate made annual payments of $44,650 for

headwater benefits. That amount was to be paid each year until changes in operation, development, or costs indicated some modification to be advisable. Federal Power Commission Docket No. E-6578 was revised by Docket No. HB07-75-4-000 (order issued July 11, 1983 under 24 FERC, paragraph 62052) which modified cumulative use charges after 1974, effective retroactively. Such charges will now vary each year. An adjustment (years 1974 through 1984) was included in 1984 payment of $244,790. The 1985 payment was $52,747; 1986 payment was $51,905. No payment was received in 1987. The 1988 payment was $58,187. No payment was received in 1989. Two payments ($60,894 and $55,443) were received in 1990; $60,983 was received in 1991; $65,975 in October 1991 (FY 1992) $77,577 in October 1992 (FY 1993), and $62,231 in October 1993 (FY 1994). Cumulative use charges collected by the Federal Power Commission (known as the Federal Energy Regulatory Commission since January 9, 1978) and returned to the U. S. Treasury through period ending September 30, 1995, amounted to $2,150,458.

Operations and results during fiscal year. New work, regular funds: None. Code 710 funds: None. Maintenance: Maintenance and operation continued. Structures were maintained in good condition. Runoff of Kern River above Isabella Dam was above normal for the year. Maximum storage of 305,075 acre-feet occurred June 10, 2003. Maximum hourly inflow to the reservoir was 23,022 cubic feet per second on November 8, 2003 and maximum outflow of 1,472 cubic feet per second occurred June 10, 2003. During the year, 452,699 acre-feet was released for irrigation and 0 acre-feet was released for flood control.

Historical summary. Construction began in March 1948 and was completed in June 1968. Main dam, Borel Canal outlet works and appurtenances, and auxiliary dam were completed in April 1953. Storage impoundment began December 1952. Piezometer was installed in August 1982. Project is operating to provide flood protection and irrigation benefits for which it was designed. Recreation facilities were provided by Code 710 funds. Dam safety assurance studies were initiated in FY 1979. A cultural resources survey was completed in FY 1984. On May 15, 1991, Isabella Lake and surrounding land, 16,000 acres around the lake currently being used for park and recreational purposes, was turned over to the Forest Service by the Corps in exchange for approximately 2,500 acres of Forest Service recreation land near Pine Flat Lake. A memorandum of understanding (MOU) between the Secretary of the Army and the Secretary of Agriculture (Forest Service) was used. The MOU requires an exchange of land between departments. Three Corps maintenance employees, under supervision of the Success Lake park manager, will stay at Isabella to operate the dam for flood control and water conservation purposes.

18. KAWEAH AND TULE RIVERS, INCLUDING TERMINUS DAM AND SUCCESS LAKE, CA

Location. Terminus Dam is on Kaweah River about 20 miles east of Visalia, CA. Success Lake is on Tule River about 5 miles east of Porterville, CA. (See Geological Survey quadrangles of area.)

Existing project. Terminus Dam: For description of completed improvement and authorizing act, see Annual Report for 1975. Federal cost of new work is $19,302,957, including $242,605 for basic recreation facilities and excluding spreading works constructed by local interests at an estimated (July 1957) cost of about $750,000. Spreading works portion of project has been deauthorized. The 90-day Congressional project review period, required by sec. 12, Public Law 93-251, as amended, ended August 5, 1977, and resulted in deauthorization of that portion of project. Federal cost of recreation facilities funded from Code 710 appropriations is $700,004. Success Lake: For description of completion improvement and authorizing act, see Annual Report for 1975. Federal cost of new work for Success Lake is $14,247,221, including $253,697 for basic recreation facilities. Federal cost of recreation facilities funded from Code 710 appropriations is $747,048. For future non-Federal reimbursements, see Local cooperation paragraph. Operation and maintenance of reservoirs is Federal responsibility.

Local cooperation. California officially adopted projects by chapter 1514 of statutes of 1945, State of California. Local interests for Terminus Dam are represented by Kaweah Delta Water Conservation District. Local interests for Success Lake are considered to be represented by the Vandalia, Porterville, and Lower Tule River Irrigation Districts, the Tulare Lake Basin Water Storage District, and Pioneer Water Co., which represent over 90 percent of irrigated land and water-right holders along Tule

River below damsite. Local interests must reimburse the Federal Government the portion of first cost and annual operation and maintenance costs allocated to irrigation functions of projects. These costs are estimated at 14.1 percent of first and annual costs for Terminus and 9.5 percent of first and annual costs for Success. Local interests for Terminus stated they will continue to operate and maintain spreading works and downstream channel systems to provide required capacity for disposal of floodwaters. Local interests for Success stated they will continue to maintain downstream channel systems to provide required capacity for disposal of floodwaters. Repayment contracts between the Bureau of Reclamation and local water users for irrigation supply from Terminus and Success reservoirs were executed January 11, 1965, and April 30, 1965, respectively. Reservoirs are being operated for irrigation storage as well as flood control and incidental recreation use. Tulare County acquired water for recreation pools at the projects. Local interests paid the following total amounts for irrigation services from the reservoirs through December 31, 2002: Terminus, $2,623,460 and Success, $1,307,574. Tulare County was granted a 25-year license for planning, development, and management of public recreation areas at Success, July 10, 1960, and at Terminus, June 5, 1961. Basic public-use facilities constructed by Corps at the Success reservoir were transferred to jurisdiction of Tulare County on January 18, 1962; facilities at Terminus were transferred June 20, 1962. In March 1967, an amendment to the license agreements was approved by the Assistant Secretary of the Army. Under these amended licenses, Tulare County retained administration of only specified land areas and operation and maintenance of recreation facilities in these areas. In addition, they continued their program of water safety, boat inspection, and law enforcement at both reservoirs. The Corps took over the administration of the remainder of the project land areas and the operation and maintenance of recreation facilities in these areas. Calif. Department of Fish and Game expended funds to improve fishery resources of the Terminus reservoir. As of April 1, 1972, Tulare County relinquished all planning, development, and management of public recreation areas at Terminus Dam. Tulare County by expenditure of county funds and by a lease to a marina concessionaire has aided in the development of recreation facilities at an estimated cost of $199,000. Calif. Department of Fish and Game expended funds in conjunction with Tulare Sportsman's Council and developed a habitat for upland game birds at Success Lake. As of April 1, 1972, Tulare County relinquished all planning, development, and management of public recreation areas at Success Lake, except for the Bartlett Park recreation area. Tulare County has aided in development of recreation facilities. Total cost to date of present recreation facilities developed by the county ($360,000) and the marina concessionaires ($373,000) is about $733,000.

Operations and results during fiscal year. New work: Terminus Dam, regular funds: None. Code 710 funds: None

Success Lake, regular funds: None. Code 710 funds: None.

Maintenance: Terminus Dam: Maintenance and operation continued. Dam safety assurance studies were continued at a fiscal year cost of $118,300. Structures were maintained in serviceable condition. Runoff of Kaweah River above Terminus Dam was above normal for the year. Maximum storage of 121,708 acre-feet occurred on May 28, 2003. Maximum hourly inflow to the reservoir on November 8, 2002, was about 30,273 cubic feet per second. Maximum outflow of 3,698 cubic feet per second occurred May 29, 2003. Irrigation and spreading releases totaled 350,756 acre-feet. Releases for flood control totaled 75,290 acre-feet. Success Lake: Maintenance and operation continued. Relief wells were placed at a fiscal year cost of $120,000. Structures were maintained in serviceable condition. Runoff of Tule River above Success Dam was above normal during the year. Maximum storage of 73,964 acre-feet occurred on June 10, 2003. Maximum hourly inflow to the reservoir was 20,458 cubic feet per second on November 8, 2003, and maximum outflow of 720 feet per second occurred on November 10, 2003. Irrigation and spreading releases amounted to 18,110 acre-feet. Releases for flood control amounted to 106,895 acre-feet.

Historical summary. Terminus Dam: Construction of project began in July 1957 and was completed in June 1968. Final land audit was approved on April 20, 1987. Construction of main dam and appurtenances, initiated in February 1959, was completed in June 1962. Dam has been operating since November 1961 to provide flood protection for which it was designed; conservation impoundment was commenced May 1962. Appurtenances are in

good condition. Recreation facilities were provided by Code 710 funds. Dam safety assurance studies were initiated in FY 1979 and completed in FY 1989. Piezometer installation and a cultural resources survey were completed in FY 1984. Success Lake: Construction of project began in November 1956, was completed in June 1968, and final audit of historical land record was approved December 17, 1979. Construction of main dam and appurtenances, initiated in October 1958, was completed in May 1961. Dam has been operating since October 1960 to provide flood protection for which it was designed; conservation impoundment was commenced March 1962. Recreation facilities were survey was completed in FY 1984.

19. LITTLE DELL LAKE, UT

Location. On Dell Creek, a tributary of Parleys Creek, about 8 miles east of Salt Lake City upstream of Mountain Dell Reservoir in Salt Lake County, UT.

Existing Project. Project providing for construction of a dam about 253 feet high to create a reservoir with a gross capacity of 30,000 acre-feet for flood control, municipal and industrial water supply, recreation and fish and wildlife was authorized by the 1968 Flood Control Act (S. Doc. 53, 90th Cong., 1st sess., contains published map) as modified by sec. 170, Water Resources Development Act of 1976, Public Law 94-587, October 22, 1976. Facility would be operated in conjunction with existing downstream 3,200 acre-foot Mountain Dell Reservoir on Parleys Creek for flood control and water supply.

Authorized project had been reexamined and scaled down to reflect local interests' ability to pay. Recreation was deferred as of May 30, 1986, and Emigration Creek Diversion was deleted and placed in an inactive status. Recreation was reactivated in 1995 and the Recreation DM approved in 1996. The project includes an earthfill dam 224 feet high, a 20,500 acre-foot reservoir, and 10,035 feet of pipeline to divert water from Parleys Creek. Estimated project cost (September 2003) is $64,100,000 (includes an allowance for estimated inflation through the construction period) of which $40,600,000 is Federal and $23,500,000 is non-Federal for lands and damages and includes a cash contribution of $17,000,000. Project is included in FY 1985 Supplemental Appropriations Act (Public Law 99-88) August 15, 1985.

Local cooperation. Local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay all costs allocated to municipal and industrial water supply; pay 20 percent of costs allocated to flood control to bring total non-Federal share of flood control costs to 25 percent, pay 50% of joint recreation costs, and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations and results during fiscal year. Mitigation establishment continued.

Historical summary. A Local Cooperation Agreement (Sec. 221) was executed June 10, 1986. Construction was initiated in April 1988. Construction of core trench and test fill was completed in February 1989. Main dam and appurtenances contract was awarded May 12, 1989 and completed in September 1993. Project was transferred to the local sponsor for maintenance and operation on March 26, 1993. Dam was dedicated on August 5, 1993.

20. MARTIS CREEK LAKE, MARTIS CREEK, NV AND CA

Location. Reservoir is on Martis Creek a tributary of Truckee River, near Truckee, CA; intermittent channel improvements are on Truckee River in Reno, NV. (See Geological Survey quadrangles for areas.)

Existing project. For description of completed improvement and authorizing act, see Annual Report for 1975. Federal cost for project was $8,503,789 including $289,506 for basic recreation facilities. Federal cost of recreation facilities funded from Code 710 appropriations was $1,200. Construction of recreation facilities under Code 710 was determined to be infeasible. Operation and maintenance of reservoir is Federal responsibility.

Local cooperation. Fully complied with.

Operations and results during fiscal year. New work: None. Maintenance: Maintenance and operation of project, including recreation facilities, was continued. Structures were maintained in

serviceable condition. Runoff above Martis Creek Dam was above normal for the year. Maximum storage of 973 acre-feet occurred on March 16, 2003. Maximum inflow to the reservoir was 216 cubic feet per second on March 15, 2003, and maximum outflow of 76 cubic feet per second occurred January 27, 2003. During the year, 15,069 acre-feet was released for irrigation purposes. Releases for flood control amounted to 0 acre-feet.

Historical summary. Project construction began in August 1967; dam closure was in October 1971; dam completed in August 1972; basic recreation facilities were completed in December 1972; and project was completed in June 1974. Recreation facilities under Code 710 funding were considered infeasible. Dam safety assurance studies were initiated in FY 1981.

21. MERCED COUNTY STREAMS, CA

Location. In vicinity of city of Merced, CA, on streams draining from Mariposa County foothills of the Sierra Nevada into Merced County. Streams lie easterly of and drain into the San Joaquin River between Chowchilla River on the south and Merced River on the north. Drainage area represents about 1,000 square miles; nearly 700 square miles of foothills and mountains in Mariposa County and about 300 square miles of flood plain in Merced County. (See Geological Survey quadrangles for area.)

Existing project. Project is a modification of Merced County Stream Group, Calif., Improvement No. 18, authorized by 1944 Flood Control Act (H. Doc. 473, 78th Cong., 2d sess.) and completed in FY 1957. Existing project provides for enlargement of four existing reservoirs Burns, Bear, Owens, and Mariposa, providing a total capacity of 117,900 acre-feet for multipurpose storage; channel improvements in reaches of Bear, Black Rascal, and Deadman Creeks, thereby tying the existing project channels into the USFWS grasslands and into Eastside Bypass of San Joaquin River flood control system. Bear, Burns, and Owens projects would provide flood control only; Castle and Burns projects, flood control and recreation; Marguerite project, flood control and irrigation; and Mariposa project, all three purposes. Existing project was adopted by 1970 Flood Control Act.

Current plan of improvement would defer enlargement of existing Mariposa reservoir and the irrigation function associated with the latter two facilities, enlargement of existing Owens reservoir and about 32 miles of levee and channel improvement on Owens, Mariposa, and Deadman-Dutchman Creeks. Estimated total project cost (October 1996) is $132,700,000 (includes an allowance for estimated inflation through the construction period), of which $91,800,000 is Federal and $40,900,000 is non-Federal (which includes a $6,855,000 cash contribution).

Local cooperation. Local interests are required to provide lands, easements, and rights-of-way and dredged material disposal areas; modify or relocate buildings, utilities, roads, and other facilities, where necessary in the construction of the project; pay one-half of the separable and joint costs allocated to recreation, presently estimated at $282,000, of which $240,000 is a cash contribution and $42,000 is for lands; and bear all costs of operation, maintenance, and replacement of flood control facilities. Total non-Federal share of Castle Dam first cost is $5,230,000 and includes cash contribution of $595,000.

The California Reclamation Board and the City of Merced are the local sponsors of the authorized project. The Reclamation Board will serve as sole sponsor for the Castle Dam Unit. Merced County Board of Supervisors reaffirmed their support for the project by letter of April 4, 1986. City of Merced by letter of March 13, 1986, reaffirmed its support for and intent to furnish assurances for recreation aspects of the project. California Reclamation Board reaffirmed its support for total project by letter of April 9, 1986. A Local Cooperation Agreement (Sec. 221) was executed for Castle Dam Unit on June 27, 1986. State of California legislation (AB3369) was enacted on September 14, 1986 which enabled the Reclamation Board to financially participate in the project. A new Local Cooperation Agreement (LCA) was signed by the Assistant Secretary of the Army November 30, 1988, in accordance with the Water Resources Development Act of 1986. The California Reclamation Board, the Merced County Board of Supervisors and the city of Merced have indicated support for balance of the project by letters of intent dated August 29, 1991 and August 20, 1991, respectively. This support was again reaffirmed in letters of support as provided by the California

Reclamation Board on January 9, 1996.

Operations and results during fiscal year. Engineering activities continued for Bear Creek Dam Unit. Castle was transferred to sponsor for maintenance and operation in April 1995.

Historical summary. Castle Dam multicomponent construction contract was awarded February 26, 1991, and construction was completed in March 1993. Castle Dam check structure contract was initiated in April 1993 and completed in January 1994. Castle Dam was transferred to the sponsor on April 12, 1995, and accepted by the sponsor in FY 2000.

22. MERCED COUNTY STREAM GROUP, CA

Location. Reservoirs and channel improvements are on Bear, Burns, Mariposa, and Owens Creeks, in foothills of Sierra Nevada about 15 to 20 miles east of city of Merced, CA. (See Geological Survey Haystack Mountain quadrangle for Burns and Indian Gulch quadrangle for Bear, Owens, and Mariposa areas.)

Existing project. For description of completed improvements and authorizing act, see Annual Report for 1962. Improvements consist of reservoirs at Mariposa, Owens, Burns and Bear Creeks and diversions from Black Rascal Creek to Bear Creek and from Creek to Mariposa Creek. Total first cost for project was $3,899,259, of which $2,751,259 was Federal and $1,148,000 non-Federal for lands including relocations and channel improvement.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Maintenance: Ordinary maintenance and operation of the four completed reservoirs continued. Structures were maintained in a serviceable condition. Runoff from drainage areas below Merced County stream group reservoirs was above normal for the year. See Table 35-K for maximum inflow storage and outflow for the projects. Outflows were less than channel capacity rates in the project streams.

Historical summary. Construction was initiated March 1948, with construction of Mariposa project, which was completed in November 1948. Construction of Owens project, initiated in March, was completed in October 1949; Burns project, initiated in July 1949, was completed in January 1950; and Bear project initiated in April, was completed in December 1954. Black Rascal and Owens Creek diversion channels and stream-gaging stations were completed in April 1956. Local interests completed channel enlargement and restoration of channel capacities of Miles, Burns, Owens, and Mariposa Creeks in 1956 at their expense. Improvement of Bear Creek and Black Rascal Slough, below their confluence, was deferred pending possible improvements downstream, outside limits of project.

23. NAPA RIVER, CA

Location. The project is located in the city and county of Napa, California. The Napa River drainage basin, comprising 426 square miles, is just north of San Pablo Bay and approximately 40 miles northeast of San Francisco, California.

Existing project. A major portion of the presently developed area of the city is located in a high flood hazard area and is subject to flooding. The project consists of modifications to provide the project area with 100-year level of flood protection from Napa River and Napa Creek. Channel modifications include overbank excavation, vertical walls, floodwalls, levees, bridge modifications, pumping stations and flowage easements. The project also includes recreation trails and incidental ecosystem restoration. Current total project cost estimate is $256,000,000 and is to be cost shared 50% Federal and 50% local sponsor.

Local cooperation. In March 1998, the Napa County electorate passed “Measure A” to fund the non-Federal share of the project. In February 2000, Napa County Flood Control and Water Conservation District, the local sponsor, signed a Project Cooperation Agreement for the project. The sponsor will furnish lands, easements, rights of way and borrow and excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges) and other facilities where necessary for the construction of the project; provide 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement for flood control facilities; and pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement or recreation facilities.

Operations during fiscal year. Contract 1B was initiated in June 2003 and will be completed in April 2004. HRTW Phase 2 Remedeation initiated July 2003 and will be complete January 2004. Fiscal year expenditure totaled $11,423,247

Historical summary. The project was authorized by the Flood Control Act of 1965 for flood control and recreation and was modified by the Flood Control Act of 1976 to include modifications to Napa Creek. The project was placed in inactive status in 1978. Following severe flooding in February 1986, the sponsor requested reactivation of the project. Funds to resume pre-construction engineering and design (PED) were appropriated in fiscal year 1989. A revised Final SGDM was completed in October 1998 and approved in May 1999. The ROD for the revised SEIS/EIR was issued in June 1999. The PED phase of the project was completed in fiscal year 2000 at a total cost of $15,587,000. Project was approved as new start construction for fiscal year 2000. Construction Contract 1A, estimated at $2,550,000, was completed in October 2000. Demolition contract was completed in October 2002 and Phase 1 HTRW Remediation was completed in December 2002. Planning, engineering and design, construction management and non-Federal lands certification efforts continue.

24. PAJARO RIVER, CA

Location. In the Uvas-Carnadero and Llagas Creeks watersheds of the upper Pajaro River Basin in south Santa Clara County in vicinity of the city of Gilroy about 75 miles south of San Francisco, CA.

Existing project. See Annual Report for 1996, pg. 35-15.

Local cooperation. Fully complied with. Local Cooperation Agreement (LCA) for flood control was executed with the Santa Clara Valley Water District on June 25, 1987, and LCA for recreation was executed with the City of Gilroy on July 27, 1987.

Operations and results during fiscal year. The project is fiscally completed.

Historical summary. Responsibility for remaining portions of advance engineering and design, plans and specifications, and construction was transferred to Sacramento District in April 1982. Construction began in October 1987. Construction for the first contract (levee work and bike path upstream of Thomas Road Bridge), second contract (levee work and hiking trails), and third and final contract (landscaping) has been transferred to local interests for operation and maintenance. Total reimbursement of $5,583,369 has been made to the local sponsor.

25. PINE FLAT LAKE AND KINGS RIVER, CA

Location. Reservoir is on Kings River, about 25 miles east of Fresno, CA, and channel improvements are on Kings River downstream from Lemoore weir, about 25 miles south of Fresno. (See Geological Survey quadrangles of area.) Project also includes 2,500 acres of Forest Service recreation land near Pine Flat Lake.

Existing project. Improvement is a unit in comprehensive plan for flood control and other related purposes for Sacramento-San Joaquin Basins. Project consists of a 429-foot high concrete gravity dam, including a gated overflow section with a maximum discharge capacity of 391,000 cubic feet per second, creating a reservoir with gross storage capacity of 1 million acre-feet, for flood control, irrigation, and related purposes. Outlet provisions for future power development are included in dam, but Federal construction of power-generating facilities is not authorized. Improvement also includes levee and channel work on Kings River and its tributaries on valley floor about 25 miles south of Fresno. Channel improvement work will enlarge channel capacities and regulate flows in lower branches of the Kings River. There are nine public-use and recreation areas: One maintained by the Corps, four by the Forest Service, three jointly by the Corps and concession, and one by Fresno County. Also, five boat access-only areas are maintained by the Corps on the south side of the reservoir. Project cost is $42,072,330, of which $41,502,330 is Federal (including $13,700 for basic recreation facilities) and $570,000 non-Federal for rights-of-way for downstream channel improvements. For future non-Federal reimbursement, see Local cooperation paragraph. Federal cost of recreation facilities for Pine Flat Lake, funded from Code 710 appropriations is $1,595,100 exclusive of recreation facilities previously provided at a cost of $13,700. In addition, Federal cost of recreation facilities for Pine Flat Lake, funded from Public Works Acceleration Executive

Act of 1962 appropriations, was $239,235 (July 1963). Operation and maintenance of dam and reservoir is Federal responsibility. Existing project was adopted by 1944 Flood Control Act (H. Doc. 630, 76th Cong., 3d sess., contains latest published map).

Local cooperation. Local interests must reimburse the Federal Government for first costs allocated to irrigation functions of reservoir portion of project in accordance with reclamation law. Under provision of War Department Civil Appropriations Act of 1947, the Secretary of War, with concurrence of the Secretary of the Interior, determined allocation of cost to irrigation should be set at an amount not to exceed $14,250,000. In addition, local interests must pay 37.4 percent of annual maintenance, operation, and replacement costs of dam and reservoir allocated to irrigation function. Repayment contracts between the Bureau of Reclamation and the local water users for the irrigation use of the reservoir were executed December 23, 1963. The Bureau is administering the contracts in accordance with reclamation law as amended by the Reclamation Reform Act of October 12, 1982. That act generally exempts the limitations under the early reclamation laws as being applicable to projects constructed by the Corps with two exceptions; however, all existing contracts to share construction and maintenance costs remain in effect. Prior to execution of the final contracts, the Bureau provided conservation water to local interests under an interim contract. Irrigation interests paid $15,013,721 for irrigation services through December 31, 2002. With respect to the downstream channel improvements, sec. 3, Flood Control Act of June 22, 1936, applies. King River Conservation District represents local interests; assurances were accepted November 20, 1959. Local interests have furnished all requirements for construction rights-of-way for construction of channel improvements required to date. Three concessionaires each at Lakeridge Marina (Deer Creek), Pine Flat Marina and Trimmer Marina provided public-use facilities in accordance with lease agreements with the Secretary of the Army. Estimated cost to date of facilities installed by these concessionaires is $1,727,000. Fresno County developed public-use facilities on an 85-acre tract immediately downstream from dam for picnicking, camping, swimming, and playground activities, at an estimated cost of $476,000 under provisions of a license agreement. The U.S. Forest Service developed and operates a picnic area at the upper end of reservoir. Cost of site development is about $37,500. Installation of a hydroelectric power plant, located at the downstream toe of the Corps Pine Flat Dam, was completed in January 1984 by Kings River Conservation District. Project consists of an outdoor-type powerhouse containing three generating units with capacities of 55 megawatts each for a total of 165 megawatts. Conservation District would make use of the three existing 13.5-foot diameter penstocks that were installed in Pine Flat Dam when constructed in 1954.

Licenses. License No. 1988, effective April 1, 1955, was issued by Federal Power Commission to Pacific Gas and Electric Co. for hydroelectric power development of North Fork Kings River by the company upstream from the Pine Flat reservoir. Under interim Contract No. DA-04-167-eng-1182 with the Department of the Army, Pacific Gas and Electric Co. paid for storage of power water in the Pine Flat reservoir May 15, 1954, through March 31, 1955. Current Contract No. DA-04-167-eng-1328 with the Department of the Army provides for storage of power water at the rate of 0.1375 per acre-foot; the contract covers April 1, 1955, through March 31, 2005. By an agreement of January 1972, supplementing the December 1954 contract, Pacific Gas and Electric Co. transferred ownership of most of its Kings River system water to the Kings River Water Association. Accordingly, no further significant storage service to Pacific Gas and Electric Co. by the reservoir at Pine Flat is anticipated. Total payment under these contracts through June 30, 1972, (last year of payment), amounts to $2,478,798; these funds were paid to Sacramento District and deposited for return to the Treasury. License No. 2741, effective September 25, 1979, was issued by the Federal Energy Regulatory Commission to the Kings River Conservation District for hydropower development at the downstream toe of the Corps Pine Flat Dam. Payment to the Department of the Army for construction and installation of the penstocks in the amount of $1,044,685 was made to Sacramento District and deposited for return to the Treasury in November 1985.

Operations and results during fiscal year. New work, regular funds: None. Code 710 funds: None. Maintenance: Maintenance and operation activities continued. Structures were maintained in serviceable condition. Runoff of Kings River above Pine Flat Dam was above normal for the year. Maximum storage of 804,790 acre-feet occurred on June 9, 2003. Maximum hourly inflow to the reservoir was 20,629

cubic feet per second on November 8, 2002, and maximum outflow of 7,251 cubic feet per second occurred on June 5, 2003. During the year, 1,303,233 acre-feet was released for irrigation and spreading. There was no release for flood control.

Historical summary. Construction began in April 1947 and project, including channel improvement, was completed in September 1977. Main dam was initiated in January 1950, completed in June 1954, and has been operating since February 1954 to provide flood protection for which it was designed. Total of 35.2 miles of new and reconstructed levees and 13.2 miles of channel clearing have been transferred to the Kings River Conservation District for maintenance. Recreation facilities for various recreation areas under Code 710 appropriation are complete. Completed preliminary design and cost estimates for Pine Flat fish barrier were reviewed by the State, but the State was unable to provide necessary assurances of local cooperation. Dam safety assurance studies were initiated in FY 1982. A cultural resources survey was completed in FY 1984. On May 15, 1991, Pine Flat Lake acquired additional acreage as part of a memorandum of understanding (MOU) between the Secretary of the Army and Secretary of Agriculture (Forest Service). The Corps exchanged Isabella Lake and the 16,000 acres around that lake currently being used for park and recreational purposes for approximately 2,500 acres of Forest Service recreation land near Pine Flat Lake.

26. RAMS – RESTORATION OF ABANDONED MINES

Location. Presently, there are 68 funded sites and 88 potential sites located in eleven states in the Western Region. The states are Nevada, California, Colorado, Montana, New Mexico, Arizona, Minnesota, Alaska, Utah, Hawaii and Idaho.

Existing Project. RAMS was authorized in Sec. 560 of WRDA 1999 to provide assistance to non-Fed and nonprofit entities to develop, manage, and maintain a database of conventional and innovative, cost effective technologies for reclamation of abandoned & inactive non-coal mine sites. Consolidated Appropriations Act, 2001 (P.L. 106-554) provided $5m of previously appropriated funds may be used for this activity. Of the 68 funded sites, there are 25 in Nevada, 12 in California, 9 in Colorado, 7 in Montana, 5 in New Mexico, 3 in Arizona, and 2 in Minnesota and Idaho; and Alaska, Utah, and Hawaii have one site each. Technical, planning and design assistance have been scoped within available funds. Funds are also being used to continue program management and support the technology database. A model cost sharing agreement was submitted to ASACW and HQUSACE and is expected to be approved in November 2002 for projects with non-Federal partners.

Local Cooperation. Authorized in Section 560 of WRDA 99 for technical, planning and design assistance; authorized $5m to be appropriated for this purpose; cost-sharing 50% Fed/50% non-Fed.

Historical Summary. In Dec 98 a MOU was signed w/NWD, POD, SPD. PMP signed Aug 01 w/SPD & NWD. Previously appropriated FY 01 funds of $2.810M reprogrammed to initiate program management & site-specific planning & design assistance for prioritized sites. FY 03 funds of $1.248M was available for the program.

27. REDBANK AND FANCHER CREEKS, CA

Location. Northeast and adjacent to the Fresno-Clovis Metropolitan Area in Fresno County about 170 miles southeast of Sacramento, CA.

Existing project. Provides for flood control detention basins on Redbank Creek, Pup Creek, and Alluvial Drain; construction of a dam 45.5 feet high to create a reservoir with gross capacity of 10,300 acre-feet for flood control on Fancher Creek; and enlargement of Big Dry Creek project to provide increased flood protection and recreational development. Since the local sponsor does not support recreational development at this time, the recreation feature of the project is considered to be inactive. The Authorization Act states "measures determined appropriate by the Secretary of the Army to minimize benefits to groundwater recharge" shall be included in the project. Estimated cost (October 1997) for existing project is $73,710,000 (includes an allowance for estimated inflation through the construction period), of which $47,460,000 is Federal and $26,250,000 is non-Federal (which includes $3,670,000 cash contribution). For future non-Federal reimbursement, see Local cooperation paragraph. Existing project was adopted by Sec. 401, Water Resources Development Act of 1986, Public Law

99-662, November 17, 1986. (HD 98-147, 98th Cong., 2d sess., contains published map.)

Local cooperation. Local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in construction of the project; pay 5 percent of cost allocated to flood control to bring total non-Federal share of flood control costs to 25 percent, of which $3,680,000 is cash contribution, and bear all costs of operation, maintenance and replacement of flood control facilities. Local interests have agreed to make all required payments concurrently with project construction.

Operations and results during fiscal year. Engineering activities, real estate crediting, and project auditing were continued.

Historical summary. Local Cooperation Agreement was executed on August 1, 1987. Project construction was begun in September 1987 with initiation of archaeological work on Cultural Resources Preservation. Construction contract for Dry Creek Crossing was completed and transferred to local interests for operation and maintenance on January 10, 1989. Construction at Redbank Creek Detention Basin was completed and transferred to local interests for operation and maintenance on August 23, 1990. Construction contract for Fancher Creek Dam awarded May 23, 1990, was completed and transferred to local interests for operation and maintenance on March 13, 1992. Construction contract for Big Dry Dam, Pup and Alluvial detention basins was awarded March 18, 1992. Big Dry Creek Dam and Pup Creek Detention Basin were transferred to local interests on June 22, 1994. Last piece of completed work, Alluvial Drain Detention Basin, was transferred to local interests for maintenance and operation on July 18, 1994.

28. RUSSIAN RIVER BASIN, CA

Reported on by the San Francisco District.

29. RURAL NEVADA, SECTION 595, NV

Location.

Existing project. WRDA 1999, Section 595 authority provides for design and construction assistance for water supply wastewater treatment, environmental restoration and surface water protection. Projects are to be cost shared 75% Federal and 25% non-Federal and the total program is limited to $100 million. The Federal share may be in the form of grants or reimbursement. Two SPK projects may be in the form of grants or reimbursements. Two SPK projects were funded for FY 01 Lawton-Verdi and Silver Springs. In FY 02, funding was provided to continue these two projects and added projects at Carlin, NV and McGill, NV. Lawton-Verdi and Silver Springs are wastewater projects to reduce septic systems and improve water quality. Carlin is a waterline and McGill is replacing the failing existing sewer collection system.

30. SACRAMENTO RIVER AND TRIBUTARIES, CA, FROM COLLINSVILLE TO SHASTA DAM

Location. Rises in Trinity Mountains in north-central California, flows generally southerly about 374 miles and empties into Suisun Bay, an arm of San Francisco Bay at Collinsville, CA. Works covered by this improvement are on Sacramento River and tributaries from Collinsville to Shasta Dam, about mile 312. Drainage area above Rio Vista is 26,500 square miles (See Geological Survey quadrangles of area for Sacramento River and Upper Butte Basin; Flournoy and Fruto quadrangles for Black Butte Lake; and Tuscan Buttes, Tehama, Redding, and Hooker quadrangles for Table Mountain Lake.)

Existing project. Improvement of Sacramento River and tributaries, from Collinsville to Shasta Dam was authorized as a unit of a comprehensive plan for flood control and other related purposes in Sacramento River Basin. (a) Sacramento River and major and minor tributaries, for flood control purposes: Enlargement of existing levees on Sacramento River between vicinity of Moulton weir and Ord Bend; construction of new levees from present levee terminus to vicinity of Chico Landing; construction of a weir near Chico Landing, extension of Moulton weir, and construction of a bypass through Upper Butte Basin; construction of new levees in Lower Butte Basin; enlargement of existing levees in Sutter, Tisdale, Sacramento, and Yolo Bypasses; and levee construction and/or channel enlargement on

following minor tributaries of Sacramento River: Antelope Creek; Chico and Mud Creeks and Sandy Gulch; Butte and Little Chico Creeks; Cherokee Canal; Elder Creek; Deer Creek (Tehama County); Thomes Creek; and Willow Creek. Improvement provides for about 155 miles of channel improvement and about 294 miles of levees with an average height of 12 feet and a freeboard of 3 feet. Improvement also provides for revetment as required for protection of bypass levee slopes against erosion. Total first cost for project is $18,300,000 (October 1988), of which $11,900,000 is Federal, and $6,400,000 non-Federal for lands and damages, including relocations. (See table 35-N on project units classified and excluded from cost estimate.) (b) Sacramento River, Chico Landing to Red Bluff, CA: An extension of the existing Sacramento River Flood Control project which provides for construction of bank protection works and minor channel improvements as required on Sacramento River between Chico Landing and Red Bluff for flood control purposes. Estimated first cost (October 1987) for project work in Tehama, Butte, and Glenn Counties is $31,000,000, of which $25,700,000 is Federal cost and $5,300,000 non-Federal cost for lands and damages including relocations and cash contribution of $3,435,000. (c) Sacramento River, CA, Bank Protection Project: Includes initial phase covering 430,000 lineal feet of bank protection and a second phase covering 405,000 lineal feet of bank protection under a long range program of bank protection, erosion control works, and setback levees at critical locations within limits of authorized or existing levees included in the Sacramento River Flood Control project to protect integrity of levee system for flood control purposes. Total estimated (October 1997) first cost for project is $249,400,000, (includes an allowance for estimated inflation through the construction period) of which $179,900,000 is Federal and $69,500,000 non-Federal comprised of lands and damages including relocations $26,671,000 and required cash contribution $42,829,000 toward first cost. Total estimated cost for recreation facilities, $2,874,000 (includes both Federal and non-Federal). Construction in (a), (b), and (c) above supplements program of levee improvements as accomplished pursuant to 1917 Flood Control Act, as amended by subsequent acts, including 1941 Flood Control Act, and which are reported on page 35-3A under Sacramento River, CA, flood control. (d) Authorization also provided for Black Butte Lake. For description of completed project see Annual Report for 1975. Federal first cost for project is $14,508,820, including $475,507 for basic recreation facilities. For future non-Federal reimbursement, see Local cooperation paragraph. Federal cost for recreation facilities funded from Code 710 appropriations is $1,000,162. A concessionaire at Black Butte Marina provided public use facilities in accordance with lease agreement with the Secretary of the Army at an estimated cost to date of $87,000. (e) Authorization also provided for construction of Table Mountain (Iron Canyon) project, an earthfill dam on Sacramento River about 3 miles north of Red Bluff, CA. For details, see Annual Report for 1978.

Local cooperation. (a) Sacramento River and major and minor tributaries: Sec. 3, Flood Control Act of June 22, 1936, applies. Fully complied with for all work completed or under contract, and local interests indicated they will be able to fulfill requirements for remaining work as scheduled. Levee construction (107 miles) total requirement for the "active" project has been completed, transferred to, and accepted by the State. (b) Sacramento River, Chico Landing to Red Bluff: Sec. 3, Flood Control Act of June 22, 1936, applies; local interests must also assume responsibility for flood plain zoning. Fully complied with for portions completed in Tehama, Butte, and Glenn Counties; completed work, bank protection at 36 sites, was transferred to and accepted by the State. (c) Sacramento River Bank Protection Project: Sec. 3, Flood Control Act of June 22, 1936, applies. Local interests must also contribute an amount in cash that, when added to costs of lands, easements, rights-of-way and utility modifications, equals one-third of cost of each unit of remedial work; this contribution is estimated (October 2000) at $27,740,000. Water Resources Development Act of 1986 applies. Local interests must also contribute an amount in cash, that when added to the cost of lands easement, rights-of-way and utility modifications, equal one-quarter of each unit of remedial work; this contribution is estimated (October 2000) at $40,970,000, First phase mitigation equals thirty-seven percent for acquisition of land and establishment and maintenance of fish and wildlife habitat, this contribution is estimated (October 2000) at $790,000. Local interests fully complied with requirements for all work completed or under contract, and indicated they will be able to fulfill requirements for remaining work as scheduled. In addition, for reaches where local interests request bank stabilization in lieu of more feasible levee setbacks, local interests will contribute costs over and

above costs of setbacks, and provide local contribution. Completed units transferred to and accepted by the State. (d) Black Butte Lake: None required for construction. Local interests must pay the portion of first cost and annual operation and maintenance costs allocated to the conservation functions of the project; these costs are estimated at 39.9 percent of first cost and 40.2 percent of annual costs. From March 2, 1960, to October 22, 1970, contract between the Bureau of Reclamation and the State of California provided for repayment of irrigation storage costs; Bureau administered contract in accordance with reclamation law. Local interests paid a total of $77,205 for irrigation services during this period. Public Law 502, 91st Cong., 2d sess., October 23, 1970, provided that Black Butte project be financially integrated with the Central Valley project, coordinated operationally with other Central Valley project storage units by the Bureau under the Secretary of the Interior, and that dam and reservoir at Black Butte be physically operated and maintained by the Corps in a manner compatible with recreational use of the reservoir.

Operations and results during fiscal year. New work: (a) Sacramento River and major and minor tributaries None. (b) Sacramento River Bank Protection will complete construction of 40E River mile 149 in November 2002. Design and negotiations continue. Fiscal Year costs total $3,596,270. (c) Sacramento River, Chico Landing to Red Bluff. None. (d) Black Butte Lake, regular funds: None. Code 710 funds: None. Maintenance: Maintenance and operation activities continued. Structures were maintained in serviceable condition. Runoff above Black Butte Dam was above normal for the year. Maximum storage of 132,501 acre-feet occurred May 15, 2003. Maximum hourly inflow to Black Butte reservoir was 19,699 cubic feet per second on December 16, 2002, and maximum outflow of 7,699 cubic feet per second occurred on January 1, 2003. During the year, 241,996 acre-feet was released for flood control and 107,227 acre-feet was released for irrigation and other purposes. (e) Table Mountain (Iron Canyon) Lake: None.

Historical summary. (a) Sacramento River and major and minor tributaries (active portions): Construction was initiated in May 1949 on Deer Creek and Butte Creek units; Cherokee Canal, Elder Creek, Chico and Mud Creeks, and Sandy Gulch units have been completed. Active portion of this improvement is about 99 percent complete. Work remaining is bypass levee revetment as required, which will accomplish under Sacramento River Bank Protection project. (b) Sacramento River Bank Protection Project: First phase (pre-Separable Element 38B and second phase (SE 38B-SE42) have 767,000 linear feet complete. SE 40,41,42 and 43 have 68,000 linear feet remaining. LCAs were executed for SE 41 in August 1988, for SE38B, 40 and 42 in December 1988 and for first phase mitigation in June 1990. Contract LAR 1A1, Site 3 was awarded in August 1996 and completed in December 1996. Contract LAR 1A2, Site 3 (River Park) was awarded in June 1997 and completed in February 1998. Steamboat Slough contract was awarded in September 1997 and completed in November 1997. Contract LAR 1A3, Site (River Park) was awarded in November 1997 and completed in May 1999. Contract for LAR1B, Sites 1, 2, and 4 was awarded July 1998 and completed in December 1999. Contract LAR 2, Site 5, Phase 1 was awarded in January 1999 and completed in March 1999. Contract LAR 2, Site 5, Phase 2 was awarded on August and completed in December 1999. Contract 41D, RD108 was awarded August 2000 and completed in December 2001. Contract 40E, River mile 149 was awarded September 2001 and will be completed November 2002. A total of 357,800 linear feet of erosion protection for Phase II has been installed. Overall project is about 94 percent complete. (c) Sacramento River, Chico Landing to Red Bluff: Active portion of project, bank protection in Tehama County, was initiated in June 1963 and completed in March 1964. Project was reopened in June 1968 to place additional necessary bank protection. Work at 36 sites was completed in Tehama, Butte, and Glenn Counties as of September 1985 and transferred to State for maintenance. Bank protection on Sacramento River, Tehama Countyone site, mile 215, (Unit 5), was completed November 1982, two sites, mile 209.5 and mile 217.5, (Unit 6), were completed in November 1983, and four sites, 241.0, 237.9, 237.7, and 237.5 (Unit 7) were completed in February 1985. (d) Black Butte Lake: Construction began in March 1960 and project is complete. Final land acquisition was completed in December 1966. Construction of main dam was initiated in June 1960 and completed in December 1963. Dam has been operating since November 1962 to provide the flood protection for which it was designed. Final cost allocation approved May 3, 1977. Dam safety assurance studies were initiated in FY 1980 and completed in FY 1986. Piezometer

installation and slope for protection at dam were completed in FY 1983. A cultural resources survey was completed in FY 1984. (e) Table Mountain (Iron Canyon) Lake: Project unit deauthorized as of August 5, 1977.

31. SAN LORENZO, CA

Location. Project is located within the city limits of Santa Cruz, CA, in Santa Cruz County, about 70 miles south of city of San Francisco and includes the lower 2.5 miles of San Lorenzo River which terminates at the Pacific Ocean.

Existing Project. Flood control features of the authorized project consist of construction of 13,000 l.f. of levee embankment raise or floodwalls on top of various portions of the existing project levees on both sides of San Lorenzo River from the Southern Pacific Railroad bridge to Highway 1. Habitat restoration measures include re-vegetating the land-side slopes of the levees. The maximum flood of record occurred in 1955 which inundated 410 acres and caused damages of approximately $7.6 million. Project was authorized by the Water Resources Development Act of 1996 for flood control and habitat restoration purposes. Streambank erosion control was added to the project under the Water Resources Development Act of 1999. Cost estimate (October 2003) is $28,900,000 (includes an allowance for estimated inflation through the construction period), of which $21,060,000 is Federal cost and $7,840,000 is non-Federal cost.

Local cooperation. Local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in construction of project; pay 11 percent of cost allocated to flood control to bring the total non-Federal share of costs to 25 percent, as determined under Section 103(m) of the Water Resources Development Act of 1986 to reflect the non-Federal sponsor's ability to pay as reduced for credit allowed based on prior work ($534,000 authorized under Section 215 of the Flood Control Act of 1968); pay 9 percent of the costs allocated to fish and wildlife habitat restoration to bring the total non-Federal share of habitat restoration costs to 25 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1986 to reflect the non-Federal sponsor's ability to pay as reduced for credit allowed based on prior work ($32,000 authorized under Section 215 of the Flood Control Act of 1968), and bear all costs of operations, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities. Pay 35 percent of the costs allocated to stream bank erosion control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of stream bank erosion control features of the project, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement. Local sponsor, City of Santa Cruz, expressed their continued support for project by letter dated October 8, 1997. The Project Cooperation Agreement (PCA) for flood control was executed October 15, 1998. Streambank erosion control requires an amendment to the PCA. A limited Re-evaluation Report will be completed October 2003. The amendment to the PCA scheduled for execution in March 2004.

Operations and results during fiscal year. Energy and Water Development Appropriations Act, 1997 provided initial construction funds of $200,000. Engineering and design continued, including revisions of plans and specifications to incorporate habitat restoration features into project. Construction General funds were used for fiscal year costs of $1,673,200.

Historical summary. A flood control project, consisting of levee and channel improvements, was completed in 1959 by the Corps of Engineers. The project was to provide a standard project flood level of protection (about a 200-year event). Since that time, excessive sediment deposition in the streambed has reduced the flood carrying capacity of the existing project. Sediment accumulation and the resultant peak flows during a flood event in January 1982 caused the river to flow near design capacity, even though the storm had a recurrence level of only approximately 25-years. As a result of the flood threat, the City of Santa Cruz and the Corps of Engineers initiated a feasibility study of the San Lorenzo River with the signing of a final Feasibility Cost Sharing Agreement (FCSA) on August 18, 1989. Chief's Report was signed June 30, 1994. Preconstruction engineering and design phase was initiated in March 1994 and completed at a cost of $934,000. Streambank erosion control requires an amendment to the PCA. A Limited Re-evaluation Report is being prepared and is scheduled for completion in FY 2003.

32. SOUTH SACRAMENTO COUNTY STREAMS

Location. The project is located in the southeastern portion of Sacramento County, CA. The project consists of the Morrison Creek Stream Group Basin, approximately 180 square miles in size.

Existing Project. The flood control features of the project consist of raising and extending the ring levee around the Sacramento Regional Water Treatment Plant; raising the Beach Stone Lakes and Morrison Creek levees; installing floodwalls, using sheet pile, on Morrison, Elder, Florin and Unionhouse Creeks, and retrofitting bridges to lower the risk of failure due to flooding. Recreation features include a bicycle and pedestrian trail. Restoration of ecosystem at five sites would increase water quality to open water environments and enhance and expand wetlands, riparian vegetation, grasslands, and woodlands. Significant flooding occurred in 1952, 1955, 1962, 1963, 1967, 1969, 1973, 1982, 1995, and 1997. In January 1995, intense rainfall resulted in record flows on Morrison Creek near or exceeding the 1 in 100 annual event. Significant development has occurred in the upper basin, which is increasing the runoff and potential for flooding. The levees currently provide less than a 100-year level of protection. The selected plan would provide a high level of protection (1 in 500 annual event) to all areas of the basin. Cost estimate (October 2003) is $73,400,000 (includes an allowance for estimated inflation through the construction period), of which $47,600,000 is Federal cost and $25,800,000 is non-Federal cost.

Local Cooperation. Local interests are required to provided lands, easements, rights-of-way, and borrow, excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project; pay 20 percent of the costs allocated to flood control and environmental restoration to bring the total non-Federal share to 35 percent for flood control and environmental restoration as reduced for credit allowed based on prior work ($5.9m as authorized under Section 104 of WRDA 86), and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.

Operations and results during fiscal year. Engineering and design continued, including revisions to the hydraulic modeling. The Project Cooperation Agreement for environmental restoration was signed September 18, 2003. Expect to award construction contract December 2003.

Historical Summary. Construction General funds were appropriated in FY 2002 by Congressional add. PED agreement was executed May 1998. The Chief's Report was signed October 1998.

33. STOCKTON METROPOLITAN AREA REIMBURSEMENT, CA

Location. The primary project area is in the city of Stockton, California, approximately 40 miles south of Sacramento and 85 miles east of San Francisco. The approximately 200 square mile area extends from Bear Creek on the north, Mormon Slough on the south, the confluence with the Sacramento/San Joaquin Delta on the west and Jack Tone Road on the east.

Existing Project. Project will reimburse the sponsor for locally constructed improvements made to the existing levee system along the Bear Creek System and the Calaveras River System. After flooding in northern CA in 1986, FEMA initiated a flood zone restudy of the Stockton area. Draft Flood Insurance Rate Maps were released delineating a larger 100-year flood plain than previously recorded, affecting approximately 251,000 residents. Section 211 crediting report concluded that the San Joaquin Area Flood Control Agency's improvements to the Lower Mosher Slough area, with a non-Federal cost of $4.3 million, are not eligible for reimbursement. In addition, improvements to approximately 12,000 feet of the Upper Calaveras River Levee System with a non-Federal cost of $3.28 million, 3,300 feet of Upper Mosher Creek with a non-Federal cost of $812,000 and permitting costs of $773,000 were determined to be ineligible for reimbursement. These areas did not meet the Corps of Engineers minimum flow criteria for participation in urban flood control projects.

Local Cooperation. San Joaquin Area Flood Control Agency (SJAFCA)

Operations and Results During Fiscal Year. FY 2003 reimbursement $3M for a total of $13M.

Historical Summary. SJAFCA, the local sponsor, completed the construction of a flood control project

in March 1999 at 100% local cost. SJAFCA, under authority of WRDA of 1996, Sec 211 (f), entered into a FCSA w/Corps to study the credit/reimbursement of local project costs. Draft 211 report completed Nov 99; HQ reviewed and sent to ASA (CW) Sep 00; ASA sent to OMB Jan 01; OMB sent to ASA Feb 01. ASA approved the report Jul 01. MOA was signed 2 Mar 02. The first reimbursement of $7M was made 21 Mar 02 and a second of $3M was made 23 Sep 02 for a total of $10M.

34. STOCKTON, FARMINGTON RECHARGE, CA

Location. The project area includes Stockton metropolitan & surrounding rural areas.

Existing Project. Groundwater is San Joaquin County's primary water source. Levels have dropped as much as 100 ft. the past 40 years & saline intrusion from the San Joaquin/Sacramento Delta worsens. A significant threat to the San Joaquin County economy exists if saline intrusion continues. Problems involve groundwater overdraft & resulting saline intrusion in the San Joaquin County area. The Corps/SEWD technical investigation concluded the aquifer is overdrafted and that a saline front is moving toward the aquifer. Field flooding within the recharge corridor was found to be the most cost effective method to recharge and reverse saline intrusion.

Local Cooperation. Stockton East Water District (SEWD)

Operations and Results During Fiscal Year. Construction General funds were added in FY 2003. Contracted with Engineering firm in June 2003 to developed site investigation manual. Developed and tested one recharge site in August 2003 monitoring is ongoing.

Historical Summary. Section 502 of the WRDA 1999 (amended Section 219 of WRDA 1992) authorized construction of a ground water recharge and conjunctive use project WRDA 1999 Section 502, Environmental Infrastructure, authorized the Corps to provide technical, planning, design and construction assistance to SEWD associated with groundwater recharge and conjunctive use projects in the SEWD, CA. The conjunctive use study completed in Dec 97 concluded that modifications to Farmington Dam could not provide sufficient replacement water supplies to fully meet the groundwater overdraft problem. In addition, it did not appear to be in the Federal interest at the time, to transfer Farmington Dam to either SEWD or another local entity. With these findings, a feasibility study was initiated to investigate multi-purpose groundwater recharge and wetland habitat features and resources.

Construction funds were added in FY 02 to execute a PCA in June 2002, implement a groundwater recharge site selection process and initiate construction.

35. UPPER JORDAN RIVER, UT

Location. Project is located in Salt Lake County, Utah just south of Salt Lake City corporate limit.

Existing Project. The project includes construction of a flood control diversion and sediment control structure on Mill Creek, a 1.4 mile underground conduit from the diversion structure to a detention basin, and construction of a 100 acre foot Hillview Detention Basin. The project will divert flood flows from Mill Creek to the detention basin and ultimately into Big Cottonwood Creek. The project will provide 100 year flood protection on Mill Creek above State Street.

Local Cooperation. Local interests are required to provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas. Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project. Pay 6 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities. The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Salt Lake County will act as the local sponsor for the project. A Project Cooperation Agreement is pending completion of a limited reevaluation report (LRR) and required funding.

Operations and results during fiscal year. PED was completed at a cost of $1,576,000. At the request of Salt Lake County, the design is being reevaluated to address potential downsizing of the diversion structure and other project features. Results of the reevaluation will be presented in the LRR.

Historical Summary. A feasibility report was completed in 1987 and PED was completed in December 1994. Funds were added in FY 1997 to initiate construction. There has been a long history of flooding which is most commonly associated with snowmelt. The most recent flooding occurred in 1982, 1983, and 1984. A General Design Memorandum (GDM) was approved in December 1994. A project Authorization Change (PAC) report was submitted in January 1996 to obtain Congressional reauthorization on a Section 902 (WRDA 86) new cost limit. The project was reauthorized in WRDA 96.

36. WALNUT CREEK, CA

Location. Project is on Walnut Creek and lower reaches of its principal tributaries, Pacheco, Grayson, San Ramon, Las Trampas, Galindo, and Pine Creeks in Contra Costa County, CA. Improvement will extend from Suisun Bay to head of project about 1 mile above southern limits of city of Walnut Creek. City of Walnut Creek is about 10 miles south of Suisun Bay. (See Geological Survey quadrangles for area.)

Existing project. Comprises extension of existing levees, construction of new levees and concrete channels, channel rectification and enlargement, and utilization of improvements constructed or planned by local interests. Improvements imclude about 18 miles of channel improvement, two reinforced-concrete drop structures, two stilling basins, and 10 miles of levees. Cost estimate (October 2003) is $99,285,000 (includes an allowance for estimated inflation through the construction period), of which $73,027,000 is Federal cost and $26,285,000 is non-Federal cost (includes $19,360,000 for lands and damages and relocations except railroad facilities, and $5,840,000 required cash contribution for land enhancement benefits provided by the project). Local interests have expended about $3 million for flood control in the project area during the period 1955-1965, including the concrete conduits constructed through the city of Walnut Creek at an estimated cost of $1,000,000 considered a pre-project condition to be incorporated in the Corps project. In addition, local developers have made channel improvements for Upper Pine Creek valued at $5,050,000. The cost thereof is not included in above costs of local cooperation. Improvement adopted by 1960 Flood Control Act (H. Doc. 76, 86th Cong., 1st sess., contains latest published map).

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies, except that relocation of railroad facilities is a Federal responsibility. In addition, local interests must make a cash contribution to the United States, in amount of 7.4 percent of cost of construction for land enhancement benefits provided by project. Cash contribution is estimated (October 1992) at $5,840,000. Local interests are represented by Contra Costa County Flood Control and Water Conservation District; formal assurances, including evidence of financial and legal ability to fulfill requirement for the cash contribution, were accepted by the Sacramento District Engineer on November 15, 1963. The Flood Control District furnished all rights-of-way required to date and indicated that it will furnish all requirements as needed for future construction. The Flood Control District arranged for highway bridge modifications and utility relocations before start of work by the Corps contractor. Payment of required contributed funds will be made in installments in amounts equal to 7.4 percent of the estimated construction expenditure for each fiscal year.

Operations and results during fiscal year. Construction associated with repair of the San Ramon Bypass Channel Cover was completed in November 2001 representing completion of scheduled construction. House Report 107-112 included request for a General Re-evaluation of the project to incorporate ecosystem restoration goals with existing flood damage reduction objectives. A Feasibility Cost Sharing Agreement was completed in June 2003 to initiate the study.

Historical summary. Construction was initiated June 1964; project is about 98 percent complete. Total of 17.7 miles of channel improvement, 9.2 miles of levee construction, part of channel improvement landscaping, Drop Structures No. 1 and 2 and construction under San Ramon Bypass Contract No. 1, Contract No. 2 and Contract No. 3 and Upper Pine Creek Channel contact have been transferred to local interests for operation and maintenance. Due to difficulties with Contract No. 1 part of the contract work was completed under Contract No. 1A with a different contractor. A contract for remedial work on San Ramon Bypass Contract No. 2 channel cover was completed in August 1993. The 9-acre mitigation contract was completed in June 1993. Work remaining consists of completion of erosion control mitigation (8-acre Construction responsibility was

transferred from San Francisco District on April 1, 1982.

37. WEST SACRAMENTO, CA

Location. Project is located in West Sacramento, Yolo County, in north-central California.

Existing Project. Project consists of raising 4.9 miles of levees up to 5.0 feet along the Sacramento and Yolo Bypasses; constructing 0.9 miles of slurry cut-off wall approximately 50 feet deep at the waterside toe along the east levee of the Yolo Bypass extending into the south levee of the Sacramento Bypass; constructing concrete wing walls with stop logs at the Union Pacific Railroad; constructing a concrete wing wall and flow cut-off wall on each side of Interstate 80; and developing approximately 40 acres of mitigation lands for riparian and upland habitat loss. Project was authorized by the Water Resources Development Act (WRDA) of 1992. Project was reauthorized by the Energy and Water Development Appropriations Act, 1999 (P.L. 105-245) Estimated cost (October 2003) is $29,460,000 with a Federal cost of $22,095,000 and a non-Federal cost of $7,365,000 which includes a cash contribution of $4,615,000.

Local cooperation. Local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in construction of project; pay 14 percent of cost allocated to flood control to bring the total non-Federal share of costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities. The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. A Project Cooperation Agreement (PCA) with the local sponsor, the California State Reclamation Board, was executed in May 1996.

Operations and results during fiscal year. The ship channel mitigation contract was awarded for $2.6 million. Fiscal year costs were $1,867,215 (Federal) and $318,333 (non-Federal contributed funds).

Historical summary. Funds were appropriated in FY 1992 to initiate preconstruction engineering and design (PED) for the combined American River Watershed and Sacramento Metropolitan studies. The two projects were separated when WRDA 92 authorized the West Sacramento Project (Sacramento Metropolitan) independently of the American River Watershed Project. Funds to initiate construction for the West Sacramento Project were appropriated in FY 1995. Design Memorandum was approved in March 1996. PED was completed at a cost of $1,847,000. First construction contract in the amount of $5,217,225 was awarded June 19, 1998. Second construction contract was awarded September 30, 1999 and completed December 2001. First slump repair contract awarded September 2002 and completed November 2003. Second slump repair contract is scheduled to be awarded April 2004.

38. WILDCAT AND SAN PABLO CREEKS, CA

Reported on by the San Francisco District.

39. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Approved regulations for operation and maintenance of flood control works, part 208, title 33, Code of Federal Regulations, provide for inspection of completed projects transferred to local interests for operation and maintenance to determine status of project and insure compliance with regulations. During fiscal year, inspections were made of: Completed units of Fairfield Vicinity Streams; completed units of Sacramento River and major and minor tributaries; completed units of Sacramento River, Chico Landing to Red Bluff; completed units of Sacramento River flood control project, Kings River Channel Improvement (Pine Flat Lake project), and Walnut Creek project; American River levees; Merced County Stream group; Middle Creek (Lake County); Chester, North Fork Feather River; levee and channel improvements on Chowchilla River (Buchanan project) and Fresno River (Hidden project); Duck Creek diversion, Green Valley Creek, Littlejohn Creek, Mormon Slough, Bear Creek, Kern River-California Aqueduct Intertie, and North Fork, Pit River at Alturas, all in California; Truckee River, CA and NV; completed units of lower San Joaquin River and tributaries, CA; completed units of Red Bank and Fancher Creeks including Big Dry Creek Dam and diversion, and Fancher Dam and Redbank, Alluvial Drain and Pup Creek detention basins, CA; Reese River, Battle Mountain, NV; Sevier River,

Redmond and vicinity, Jordan River, Big Wash near Milford, and Kays Creek, all in Utah; various emergency flood control works under authority of Sec. 208, Flood Control Act of June 30, 1948, and September 3, 1954; Public Law 99, June 28, 1955, and antecedent legislation; and Sec. 14 of Flood Control Act of July 24, 1946. Maintenance inspections conducted indicate that existing agreements and regulations are being complied with on completed flood control works. Continuing effort is required to improve maintenance practices and active steps are being taken by responsible State and local agencies to achieve desired results. Local agencies were advised, as necessary, of measures required to maintain these projects in accordance with standards prescribed by regulations. Total cost of inspections for fiscal year was $390,100.

40. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to sec. 205, Public Law 858, 80th Congress, as amended (Preauthorization).

Costs for preauthorization studies for fiscal year were $689,536. See Table 35-P for list of studies.

Aquatic Ecosystem Restoration activities pursuant to sec 206, Public Law 303,104th Congress.

Cost for studies for fiscal year were $2,458,209. See Table Q for list of studies.

Emergency flood control activities-repair, flood fighting, and rescue work (Public Law 99, 84th Cong., and antecedent legislation).

Federal cost for fiscal year was $17,134,767. $468,774 was for disaster preparedness and $16,665,993 for emergency flood repairs.

Emergency bank protection (Sec. 14, 1946 Flood Control Act, Public Law 526, 79th Cong.).

Federal cost for fiscal year was $1,917, $0 was for emergency operations and $1,917 for emergency streambank and shoreline protection.

Snagging and clearing navigable streams and tributaries in interest of flood control (Sec. 208, 1954 Flood Control Act, Public Law 780, 83d Cong.).

Federal cost for fiscal year was $0 all of which was used for snagging and clearing activities. See Table R for list of studies.

Flood insurance activities (Sec. 1301-1377, 1968 Housing and Urban Development Act, Public Law 90-448 as amended).

In coordination with flood control activities, four flood insurance studies were continued. Inter-Agency Agreements EMW-96-1A-0294, EMW-96-1A-0195-FEMA, EMW-96-IA-0195, and EMW-97-IA-0140, at a fiscal year cost of $126,300 under Federal Emergency Management Agency reimbursable order.

41. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

In accordance with sec. 7, Flood Control Act of 1944, summaries of monthly reservoir operations at Big Dry Creek, Boca, Camanche, Del Valle, Folsom, Friant (Millerton Lake), Indian Valley, Los Banos Detention, New Bullards Bar, New Don Pedro, New Exchequer (Lake McClure), New Melones, Oroville, Prosser, Shasta, and Stampede, CA; East Canyon, Echo, Jordanelle, Little Dell, Lost Creek, Pineview, Red Fleet, Starvation, and Wanship, UT; and Blue Mesa, Lemon, Paonia, Ridgway, and Vallecito, CO, were prepared. No water control manual revisions were completed due to environmental issues. Corps personnel provided advice Sec. 7 as requested during flood control operations at all c. 7 reservoirs. Fiscal year cost was $1,710,700.

Multiple-Purpose Projects including Power

42. NEW MELONES LAKE, CA

Location. On Stanislaus River about three-quarters mile downstream from existing Melones Dam and about 35 miles northeast of city of Modesto. (See Geological Survey quadrangles of the area.).

Existing project. Provides for construction of (a) an earth and rockfill dam about 625 feet high to create a reservoir with gross storage capacity of about 2,400,000 acre-feet for flood control, irrigation,

power, general recreation, fish and wildlife, and other purposes, and (b) a power plant below the dam with an installed capacity of 300,000 kilowatts. Upon completion of construction of dam and power plant by the Corps, the project became an integral part of Central Valley project and is being operated and maintained by the Secretary of the Interior pursuant to Federal reclamation laws, except that the flood control operation of the project shall be in accordance with rules and regulations prescribed by the Secretary of the Army. Maintenance of Stanislaus River channel from Goodwin Dam to San Joaquin River to a capacity of at least 8,000 cubic feet per second will also be Corps responsibility. Estimated (October 1996 price level) Federal cost is $402,000,000. For future non-Federal reimbursement, see Local cooperation paragraph. In addition, local interests expended $300,000 for levees along lower reaches of Stanislaus River. Existing project was adopted by 1962 Flood Control Act (H. Doc. 453, 87th Cong., 2d sess., contains latest published map). This act modified original authorization adopted by 1944 Flood Control Act. (H. Flood Control Committee Doc. 2, 78th Cong., 2d sess., contains latest published map.) The 1944 Flood Control act established $8 million monetary limitation for partial accomplishment of project. Further monetary authorizations of $2.5 million, $5 million, $13 million, $2 million, $17 million, $18 million, $44 million, $83 million, $46 million, $6 million, and $61 million were provided for this project by Public Laws 235 and 780, 83d Cong., and 85-500, 90-17, 90-483, 91-282, 92-222, 93-251, 94-397, 95-104, and 95-189, making a total monetary authorization of $305,500,000 available for the basin plan comprising Lower San Joaquin River and tributaries, including Tuolumne and Stanislaus Rivers, CA. Since FY 1979, appropriations have not been subject to the river basin monetary limitation.

Local cooperation. Based on approved preliminary cost allocation studies (July 1965) local interests will be required to pay 35.2 percent of first cost and 12.7 percent of annual operation and maintenance costs allocated to irrigation. In addition, 31.1 percent of first cost and 62.5 percent of annual cost would be allocated to power. Local interests must also maintain existing private levees along Stanislaus River from Goodwin Dam to San Joaquin River and prevent encroachment on channel and floodway between levees to preserve safe carrying capacity throughout the reach of at least 8,000 cubic feet per second. Recovery of costs allocated to irrigation and power will be the responsibility of the Bureau of Reclamation. Reimbursement of costs will be in accordance with Bureau policies and procedures for the Central Valley project. State of California officially adopted project by chapter 918 of statutes of 1963, and by chapter 1438 of those statutes authorized State Reclamation Board to furnish required assurances. The Board, by letter dated December 13, 1963, stated it would furnish required assurances when formally requested to do so. Assurances were requested by letter of December 30, 1977. On October 2, 1979, the Board reaffirmed its intent to furnish the required assurances. On January 6, 1983, the Board provided formal assurances of local cooperation.

Operations and results during fiscal year. New work: Project close-out and flowage easement acquisition along the Lower Stanislaus River were continued. Maintenance: Maintenance and operation activities continued on Lower Stanislaus River.

Historical summary. Construction was initiated in August 1966. Main dam contract which was awarded in March 1974 has been completed; dam dedication ceremonies were held July 14, 1979. Cultural resources preservation, water intake facilities, flood control and irrigation tailrace modification, reservoir area clearing, Tuttletown Phase I recreation area, Oakdale recreation, Glory Hole Phase I and Phase II recreation area, and operations access road contracts have all been completed. Glory Hole minimal recreation facilities contract has been completed. Boundary fencing, Lower Stanislaus Phase I and Phase II minimal recreation facilities, Lower Stanislaus Corporation Yard, and Lower Stanislaus Administration Building contracts have been completed. Tuttletown minimal recreation facilities, McHenry recreation area, Tuttletown wastewater treatment, Knights Ferry recreation area, Knights Ferry Covered Bridge, Glory Hole recreation area sanitary system, Two-Mile Bar recreation, administration building, and Glory Hole recreation area force main contracts have been completed. Parrotts Ferry Bridge modification (Nov 93), Widening Highway 49 Intersection (Aug 94); Tuttletown Recreation Campgrounds, and Tuttletown and Glory Hole Improvement (Jan 94) have been completed. Remaining recreation facilities were unscheduled pending development of cost sharing agreements and/or specific Congressional appropriation of funds. A Memorandum of

Understanding between the Department of the Interior and the Department of the Army transferring the New Melones dam and reservoir from the Corps of Engineers to the Bureau of Reclamation was executed on November 20, 1979. Agreement provides that the Corps complete land acquisition actions and retain budgeting, design, and construction responsibility for reservoir clearing and recreation development; completion of cultural resources mitigation in project area was vested in the Department of the Interior. The California State Water Resources Control Board's Decision 1422 of April 1973 established conditions which impacted on the planned filling and operation of the project by the Department of the Interior. As a result, the Department of Interior brought suit against the State of California claiming State limitations on project operation were contrary to Congressional intent and authority. The case was heard before the U.S. District Court in Fresno, CA, and in early March 1981, a Federal judge ruled that the Federal Government could fill the New Melones reservoir for purpose of generating electrical power, but not for agricultural or other purposes. Both the Government and the California State Resources Control Board appealed this decision to the 9th Circuit Court of Appeals in San Francisco, CA.

On December 20, 1982, the Court upheld all 25 requirements placed on the Federal Government by the State Water Resources Control Board. The decision reversed the lower court's decision to permit filling of the reservoir for generating electrical power. The Bureau of Reclamation subsequently filed for a permit from the State Water Resources Control Board to fill the reservoir. Permit was approved. The Bureau had originally started generating power on a limited basis on July 1, 1979; however, after the filling of the reservoir in spring of 1983, full power generating benefits have been attained.

General Investigations

43. SURVEYS

See Table 35-S.

44. COLLECTION AND STUDY OF BASIC DATA

Technical assistance was performed for other Federal agencies as well as non-Federal agencies in connection with Flood Plain Management Services Program at fiscal year costs of $244,697 federal funds and $157,849 contributed funds. No Flood Plain Information Studies were prepared after FY 1980.

Fiscal year costs for hydrologic studies were $6,935.

45. RESEARCH AND DEVELOPMENT

The Hydrologic Engineering Center was designated as a separate Field Operating Agency as of January 1, 1979, in accordance with OCE permanent orders 1-1, January 10, 1979. In the reorganization of CEIWR, beginning in FY 2001 appropriations and costs will be reported in CEIWR's database not Sacramento District. Sacramento District will continue to provide advisory and administrative support services to HEC as specified in local support agreement DACW05-79-A-0038 of March 1979. Fiscal year close-out costs were $56,082.

46. PRECONSTRUCTION ENGINEERING AND DESIGN

AMERICAN RIVER WATERSHED, CA (COMPREHENSIVE PLAN)

The projects are located in Placer, El Dorado, and Sacramento Counties on the North, Middle and South Forks of the American River and along the lower American River and Sacramento Rivers.

Recent evaluations indicate that the level of flood protection along much of the American River and in the Natomas area is less than the 100-year level. The Supplemental Information Report (SIR) was completed in March 1996 as directed by the Defense Appropriations act for FY 1993. The Chief of Engineer's Report recommended implementation of elements common to the final candidate plans presented in the SIR. These "common elements", were authorized for construction in the Water Resources Development Act (WRDA) of 1996. Other alternatives addressed in the SIR include: Folsom outlet modifications, Folsom Dam raising, downstream levee raising along the American and Sacramento Rivers, and upstream storage. Efforts are being continued to define plans for alternatives

leading to higher levels of flood protection for the Sacramento area and vicinity.

The Feasibility Report for the American River Watershed Investigation was completed in December 1991 and the Division Engineer's Report was issued in February 1992. Funds were appropriated in FY 1992 to initiate preconstruction engineering and design (PED) for the combined American River Watershed and Sacramento Metropolitan studies. The two projects were separated when WRDA 92 authorized the American River Watershed Project independently of the West Sacramento Project (Sacramento Metropolitan).

Sec. 566 of WRDA 99 directed additional flood control studies for: (a) increasing surcharge flood control storage at Folsom Dam and Reservoir, and (b) increased flood protection through levee modifications on the American and Sacramento Rivers, and directed the Corps to submit a report to Congress by March 2000 documenting results of the studies. The interim report, completed in January 2000, provides additional information on two flood damage reduction plans: The Folsom Enlargement Plan and the Modified Stepped Release Plan. Both of these plans, in addition to the already authorized plans, will further reduce the flood risk to Sacramento. A result of the public scoping process is the addition of the Folsom Dam advance releases in anticipation of high flood flows as a flood control alternative, and the inclusion of ecosystem restoration as a project purpose. A draft supplemental report describing the alternative plans was completed in September 2001. The non-Federal sponsors have selected the Federally supportable 7-foot Folsom Dam raise and ecosystem restoration plan as their preferred plan.

Sec. 101 of WRDA 99 authorized the Folsom Dam Modifications project as described in the Supplemental Information Report dated March 1996, as modified by the report entitled "Folsom Dam Modification Report, New Outlets Plan," dated March 1998, prepared by the Sacramento Area Flood Control Agency, at an estimated cost of $150,000,000, with an estimated Federal cost of $97,500,000 and an estimated non-Federal cost of $52,500,000.

Estimated preconstruction planning cost is $24,500,000.

TRUCKEE MEADOWS, NV

The project is located along the Truckee River from the metropolitan areas of Reno and Sparks in Washoe County, downstream to Pyramid Lake, NV. The project will provide flood protection from the Truckee River to the cities of Reno, Sparks, the Truckee Meadows and Rainbow Bend while re-connecting the floodplain, removing exotic species and restoring the riparian forest along the Truckee River.

The Truckee Meadows project was authorized for construction in the Water Resources Development Act (WRDA) of 1988 based on a 1985 Feasibility Report. During pre-construction, engineering and design (PED), a re-evaluation of project benefits and costs determined that the project, as then formulated, was no longer feasible due primarily to significant increases in land costs. A re-analysis was completed in a reconnaissance study completed in August 1997. The Corps reactivated the PED phase of the project in March 1998 with the first step to conduct a General Reevaluation Report and Environmental Impact Statement (GRR/EIS). At the request of the local sponsors, a Community Coalition process was initiated in April 2000 to assist in the formulation and selection of project alternatives.

The study area for the project is divided into three portions: (1) the floodplain of the Truckee River between Booth Street and U.S. Highway 395 (Downtown Reno Reach); (2) the floodplain of the Truckee River from Highway 395 to Vista, along with the nearby floodplains of Steamboat Creak and Boynton Slough (Truckee Meadows Reach); (3) the floodplain of the Truckee River between Vista and Pyramid Lake (Lower River Reach). Numerous studies have been completed that relate to environmental restoration, water use, hydrology, hydraulics, flooding, and urban development within the Truckee Meadows area and the Truckee River watershed.

The current preliminary alternatives for the Downtown Reno Reach include: bridge replacement of Sierra, Virginia and Lake Streets, replace floodwalls along the north banks upstream of Arlington Avenue to Lake Street and in areas where vacant terraced floodwalls; channelization by removing the existing diversion structure upstream of Arlington Avenue Bridge; channel widening on the north bank from Sierra to Lake streets; mini-spans to Center and/or Sierra Street bridges; building a culvert

around the replaced Lake Street Bridge; plazas; containment at First Street; a new span at Virginia Street Bridge; bridge rehabilitation at Sierra, Virginia and Lake Streets and floodproofing.

The current preliminary alternatives for flood damage reduction and ecosystem restoration in the Truckee Meadows Reach include two bridge and one roadway modifications, channel modification (i.e. channel benching, re-alignment of the North Truckee Drain, extension of the Airport Culvert on Boynton Slough), containment features ranging from 12.5 miles to 21 miles of floodwalls, levees and seepage remediation, floodplain management by floodproofing single family residences near Boynton Slough and detention basins at the University of Nevada, Reno Farms, Huffaker Hills and Mustang Ranch.

These preliminary plans also include recreation facilities with bicycle and pedestrian paths, river overlooks, and picnic sites. High, medium and low restoration measures have are being evaluated for the Truckee Meadows and Downstream Reaches. These measures include removing rip rap, restoring riparian forest, removing exotic species and providing geomorphic restoration.

Estimated preconstruction planning cost is $14,000,000.

SOUTH SACRAMENTO, CA

South Sacramento County Streams drainage basin is located in the southeastern portion of Sacramento County, California. The study consists of the Morrison Creek Stream Group Basin, approximately 180 square miles in size. The basin includes Morrison, Elder, Florin, Unionhouse and Laguna Creeks. Significant flooding occurred in 1952, 1955, 1962, 1963, 1967, 1969, 1973, 1982, 1986, 1995, and 1997.

Approximately 41,000 structures are within the 500-yr floodplain with an estimated value of $5.9 billion. Levees along Morrison Creek and tributaries provide less than a 100-yr level of flood protection. Results of the feasibility study, completed in March 98, indicate the project would include channel and levee improvements and detention facilities.

PED agreement executed May 1998. Chief's Report was signed October 1998. PED agreement amended Feb 2000 to increase cost and complete P&S with PED funding. PED agreement amended Dec 2000 to increase cost to incorporate changes and complete PED phase.

TULE RIVER, CA

The project area is located within the 12,500 square-mi Tulare Lake Basin located in the southeast portion of the San Joaquin Valley. Tule River drains about 390 square mi into Success Lake and flows from the lake on to the valley through the city of Porterville, 5 miles downstream, and continues another 25 miles through agricultural areas, culminating in Tulare Lakebed. Serious flood problems occur in the Tule River Basin generally as a result of inadequate channel capacities. Flooding occurred in 1966 and 1983. 1983 Flood damages downstream in the Tulare Lakebed were extremely severe and widespread; damages attributed to the Tule River were approximately $8 million.

The authorized project is to raise the gross pool elevation of Success Lake for flood control and irrigation water supply by raising the spillway 10 feet and widening the spillway from the existing 200 feet to 365 feet.

The feasibility report was completed and Division Engineer's notice was issued in September 1999. The project was authorized for construction in WRDA 1999. Funds to initiate pre-construction engineering and design (PED) were appropriated in FY 1999 and funds to initiate construction were appropriated in FY 2002. The Project Cooperation Agreement was approved by the Assistant Secretary of the Army (ASA(CW)) in April 2003. The first construction contracts consisting of mitigation and recreation modifications for the raised pool condition are scheduled for award in late 2003.

Total estimated project cost is $25,300,000.

YUBA RIVER, CA

The Yuba River lies between the Feather and American Rivers in northern California. The study is located in Sutter and Yuba Counties approximately 50 miles north of Sacramento. The principal urban centers within the study area include Marysville, Yuba City, Linda and Olivehurst.

Recommended project, which lies downstream of Daguerre Point and goldfields, would include levee improvements including installation of slurry walls, constructing landside berms, toe drains, and levee raising along the Yuba and Feather Rivers. Area has experienced 7 major floods. Despite modifications for flood protection over past years, the area is still vulnerable to catastrophic flooding as demonstrated by floods of February 1986 and January 1997. Damages were estimated at $95 million and $82.4 million, respectively.

Section 104 - Sponsor has been approved to proceed with advance work in conjunction with the Marysville Yuba City project to assure at least a 200-year level of flood protection is obtained. In October 1996, ASA(CW) approved the advance work for possible Section 104 credit/reimbursement. Current milestones for the project include: DE Notice - April 1998; Chief's Report - Nov 1998; PED Agreement – June 2000. Project authorized for construction WRDA 1999.

47. OTHER WORK UNDER SPECIAL AUTHORITY

ASHLEY CREEK ECOSYSTEM, UT (Section 1135) Project Modification for Improvement of Environment

The proposed project modification consists of restoring 2.4 miles of stream meanders and associated riparian vegetation on Ashley Creek. The site is part of a 12-mile reach that was straightened and enlarged (dredged) by the Ashley Creek Clearing and Snagging Project constructed by the Corps in 1966. The restoration project would modify the features of the clearing and snagging project by reconstructing stream meanders and replanting associated riparian vegetation on the reach of Ashley Creek most adversely affected by the flood control work. Estimated project cost is $3,616,000.

Current project is proceeding under authority of Sec. 1135(b) of Water Resources Development Act (WRDA) of 1986.

Fiscal year costs were $103,482.

CHEROKEE CANAL, CA (Section 1135) Project

Modification for Improvement of Environment

The Cherokee Canal project study area is the entire Dry Creek/Cherokee Canal watershed. Dry Creek becomes Cherokee Canal northeast of Richavale, then flows into Butte Creek and ultimately the Sacramento River east of the City of Colusa. The watershed lies west of the Feather River in Butte County. A high sedimentation rate in the Cherokee Canal land the resulting periodic dredging to maintain channel capacity has caused a loss of riparian and fish habitat.

The Cherokee Canal Section 1135 Ecosystem Restoration Project seeks to restore the ecosystem by implementing measures to improve stream channels, riparian habitats and wetland habitats. The alternatives are being formed to evaluate the sedimentation rate and transport within the watershed. These alternatives would include the location to best impact the project area with positive benefits and increase habitats for fish, waterfowl, migratory birds and other wildlife including listed endangered species. It should be noted that one alterative being explored is the restoration of an unfinished dry-dam in the upper watershed. If the alternative is found to have no merit, the possibility of changing the project to a Section 205, Flood Damage Protection Project exists.

Preliminary Restoration Plan was approved in January 00. Estimated project costs are $5,000,000. Fiscal year costs were $118,123.

CHESTER, NORTH FORK FEATHER RIVER, CA (Section 1135) Project Modification for Improvement of Environment

The project is located on the North Fork of the Feather Rive near Chester, CA 120 miles northeast of Sacramento, CA.

The project consists of a diversion dam and diversion channel, which protects the town of Chester from flooding by diverting flood flows. The fish passage modification project consists of construction of a shear boom which controls the amount of debris reaching the fish ladder structure, modification of the fish ladder itself and installation of an auxiliary water supply system in order to aid in attracting and guiding the fish.

Construction was completed in Jan 95 however, high flows in the spring of 1995 revealed that follow-on work would be required for the project to function properly. Completion of in-water work was partially completed during summer of 1999. Final contract completed Nov 00. Project transferred to local sponsor Dec 00. Project was fiscally completed March 02 at a cost of $2,264,106.41.

LOWER TRUCKEE RIVER, McCARRAN RANCH, NV (Section 1135) Project Modification for Improvement of Environment

Lower Truckee River, McCarran Ranch, Washoe County, State of Nevada is a portion of the lower Truckee River on The Nature Conservancy's McCarran Ranch. It represents roughly five miles of the Truckee River, located approximately 15 miles downstream of Sparks.

The McCarran Ranch is deeply incised and separated from the floodplain in large part as a result of a previous flood control project. The Nature Conservancy is committed to restoring a healthy and functioning river system, including reconnecting the river to the floodplain. Estimated project cost is $7,500,000.

Preliminary Restoration Plan (PRP) has been approved in Apr 02. Initiated Detailed Project Report (DPR) in May 02.

Fiscal year costs were $216.578.

MORMON CHANNEL, CA (Section 1135) Project Modification for Improvement of Environment

Project was terminated in FY 03. Project is located in San Joaquin County, including a portion of the City of Stockton and an area northeast of the City of Stockton.

Project will restore the degraded aquatic ecosystem that resulted from the construction and operation of the Stockton Diverting Canal. Mormon Channel originates just downstream of New Hogan Dam and runs west southwest towards Stockton, roughly paralleling the Calaveras River. The Diverting Canal was constructed across Mormon Channel near Highway 99 to divert Mormon Channels floodwaters away from eastern Stockton and back into the Calaveras River. The diversion has been an effective flood control measure, but has also excluded most flows from the downstream portion of Mormon Channel. A possible project alternative includes a mechanism whereby some floodwaters are transferred from the Stockton Diverting Canal into the downstream portion of Mormon Channel. This floodwater will be used as part of an ecosystem restoration effort encompassing the 6.3 miles of Mormon channel between the Diverting Canal and the Stockton Deepwater Ship Channel Turning Basin. Estimated project cost is $6,000,000.

The PRP has been approved in Mar 99 and initiated Environmental Restoration Report (ERR) in May 99. Project will terminate due to request from local sponsor.

Fiscal year costs were $54,226.

MURPHY SLOUGH, CA (Section 1135) Project Modification for Improvement of Environment

The project site is on the upper Sac River, near Chico Landing and within the Butte Basin Overflow Area. Potential restoration measures identified during the recon study of Murphy Slough include re vegetation of riparian forest and development of shaded riverine aquatic habitat. Restoration would provide acres for several State and/or Federally listed endangered or threatened bird and fish species; e.g. willow flycatcher, yellow-billed cuckoo, VELB, Swainsons hawk, Chinook salmon and steel head trout. Physical improvements are desirable along the upper Sacramento River system to improve both flood control conveyance and F&W habitat. Loss and deterioration of riparian habitat is contributing to the extinction and elimination of several wildlife species. Project was completed and post construction establishment contracts (irrigation, pest control, etc.) have been in place since late 2002. The established habitat had a better than expected result and was often viewed as a "poster project" for eco-restoration. Unfortunately, an out of control wildfire destroyed roughly 75 percent of the plantings on July 16th 2003. It is anticipated that costs will exceed $500,000 to remediate for fire damage and re-establish plantings.

PCA was signed 18 September 1998. Project is in the construction phase.

Current project is proceeding under authority of Sec. 1135(b) of Water Resources Development Act (WRDA) of 1986.

Fiscal year costs were $75,331.

PINE FLAT TURBINE BYPASS, CA (Section 1135) Project Modification for Improvement of Environment

The project is located on the Kings River approximately 20 miles east of Fresno, CA

The project was constructed for flood control and water conservation, consisting of Pine Flat Dam and downstream channel improvements. Penstocks were included in the construction of the dam and a power plant was added in 1984 by the Kings River Conservation District. Turbine bypass modification consists essentially of installing a steel conduit ahead of the power plant to allow releases through the penstocks when the turbines are off-line. Construction of Pine Flat Dam eliminated the native trout fishery in the lower Kings River, which now supports stocked and wild trout fishery. Releases from the dam have been too warm to support the fishery in late summer and early fall of below normal storage years. The modification would improve the water temperature released from the dam.

PCA was executed Nov 00. Completed the P&S and awarded the valve manufacture contract in Jun 01. Awarded installation contract Sep 01. Physical completion was April 2003. Fiscal year costs were $6,261,380.

PROSPECT ISLAND, CA (Section 1135) Project Modification for Improvement of Environment

Project is located in Solano County, California, within the northwest portion of the Sacramento-San Joaquin Delta Region.

Prospect Island is a long, rectangular island comprised of 1,228 acres bordered by the Sacramento Deep Water Ship Channel (SDWSC) to the west and Miner Slough and Ryer Island to the east. The island has flooded four times, in 1983, 1986, 1995, and in January 1997. The Corps constructed levees adjacent to the SDWSC, which run parallel along the length of the island. These levees are damaged by wave wash from passing ocean vessels in the channel. The construction of the ship channel and reclamation of adjacent lands have also contributed significantly to the loss of valuable wetlands in the study area. Estimated project cost is $8,515,365.

PCA was executed in Sep 99. Plans and Specs were completed in July 01. In September 2002, a second construction contract was cancelled due to lack of non-Federal funds from the project sponsor. The PCA was placed into a three year deferred status in September 2002.

Fiscal year costs were $7,065.

SOUTH FORK PUTAH CREEK PRESERVE, CA (Section 1135) Project Modification for Improvement of Environment

The project site is located near the south levee of South Fork Putah Creek, just southeast of the city of Davis. Project is grading and planted for habitat restoration. Estimated project cost is $1,601,000.

PCA was signed on 18 December 1998.

The previous project was included under the Sacramento River Flood Control Project. Project is in the construction phase. Current project is proceeding under authority of Sec. 1135(b) of Water Resources Development Act (WRDA) of 1986: The project was completed and post-construction/plant establishment continues. A reoccurring problem with young plant destruction by voles had plagued the project. Additional plantings have been required and the maintenance contract has been extended to care for young, newly planted plant species. Additional funds in fiscal year 2005 are anticipated.

Fiscal year costs were $91,247.

STEAMBOAT CREEK, NV (Section 1135) Project Modification for Improvement of Environment

Steamboat Creek, which is located in the Reno-Sparks metropolitan area, Washoe County, Nevada, is a major tributary to the Truckee River flowing from Washoe Lake, a distance of about 18 miles.

Hydraulic changes to Truckee River upstream of Steamboat Creek have caused a degradation of the stream and surrounding habitat. The ecosystem

restoration plan would include bank stabilization, improved fish and wildlife habitat, reduced aggradation to downstream reaches, and improved water quality along Steamboat Creek. Estimated project cost is $7,500,000.

Preliminary Restoration Plan (PRP) has been approved in Nov 01. Initiated Detailed Project Report (DPR) in Jan 02.

Fiscal year cost were $192,332.

VIC FAZIO WILDLIFE AREA, CA (formerly Yolo Basin Wetlands, Sacramento River, CA, Section 1135)

The project is primarily located within the boundaries of the Yolo Bypass, an operative feature of the Sacramento River Flood Control Project. The Yolo Bypass extends 43 miles from Fremont Weir on the Sacramento River, south to the town of Rio Vista where it rejoins the river.

During periods of high flows on the Sacramento River water is diverted through the Yolo Bypass, creating seasonal wetland areas. The 3,700-acre wildlife restoration area is expected to be a major stop for migratory waterfowl in the Pacific Flyway. Restoration of wetland habitat will attract additional waterfowl, wading birds and shore birds and contribute to the recovery of many Federal and state rare, threatened, or endangered species. The importance of the Yolo Bypass wetland to waterfowl and other water birds has increased due to the disappearance over recent decades of vital wetlands in the Central Valley. The project is the largest wetland restoration project west of the Florida everglades and consists of physical improvements to help create a mixture of native marsh, permanent and seasonal wetlands and riparian forest. Improvements include modifications to existing drainage canals or construction of small dikes and weirs to redirect available water sources to proposed wetland areas. Congress added construction of an administration and maintenance facility and a flood plain hydraulic management model as authorized project features. Current total project cost estimate is $17,362,000, cost shared 70% Federal and 30% local sponsor.

The California State Department of Fish and Game is the non-Federal sponsor. The sponsor will furnish lands, easements, rights of way and borrow and excavated or dredged material disposal areas; and bear all costs of operation, maintenance, repair, rehabilitation and replacement of project modifications for improvement of the environment. At the sponsor's request, separate Local Cooperation Agreements (LCA) were prepared for the Putah Creek Sinks and Yolo Causeway sites. The LCA for the Putah Creek Sinks site was executed in December 1993. The LCA for the Yolo Causeway site was executed in April 1995. A third LCA for a 180-acre site was executed in October 1996.

Efforts to complete the floodplain hydraulic management model and project close out and audit activities continue. Fiscal Year costs total $17,768.

The project was authorized by the Water Resources Development Act (WRDA) of 1986, Public Law 99-662, Sec. 1135(b), as amended by Sec. 304 of WRDA 1990. The project was initiated in fiscal year 1991 with funds added by Congress to the Fiscal Year 1991 Appropriations Bill. A Project Modification Report and an Environmental Assessment/Initial Study were completed in April 1992. Three existing sites were identified for wetlands restoration: Putah Creek Sink (3,000 acres), Yolo Causeway (182 acres) and Willow Slough Bypass (345 acres). Willow Slough Bypass was later withdrawn due to difficulty in acquiring lands. The project was turned over to the Department of Fish and Game in November 1997. The Energy and Water Development Appropriations Act of 1999, Sec. 508 changed the project name from "Yolo Basin Wetlands" to "Vic Fazio Yolo Wildlife Area".

YOLO WETLANDS BASIN, DAVIS SITE, SACRAMENTO, CA (Section 1135) Project Modification for Improvement of Environment

Project is located contiguous to boundaries of Yolo Bypass and Willow Slough Bypass, which is a levied tributary of Sacramento River on west side of Yolo Bypass. Yolo Bypass and Willow Slough Bypass are operative features of the Sacramento River Flood Control Project.

Project include a 369-acre site that consists of 212 acres of permanent wetland, 64 acres of riparian woodland, 64 acres of grassland/upland, and 56 acres of seasonal wetland, dikes, roads, gates, ponds and islands. Water for wetland site is available from City of Davis wastewater treatment plant and from its

stormdrain system. Estimated project cost is $6,000,000.

A previous Davis site was included under Yolo Basin Wetlands, Sacramento River project, but was with drawn for consideration by local sponsor due to difficulty in obtaining lands. Current project is proceeding under authority of Sec. 1135(b) of Water Resources Development Act (WRDA) of 1986.

Fiscal year costs were $0

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
1.	Sacramento River CA (Federal Funds)	New Work Approp.	-	-	-		40,331,192 [1]
		Cost	-	-	-		40,331,192 [1]
		Maint. Approp.	1,909,000	2,802,269	1,888,000	1,283,000	65,204,947 [2]
		Cost	1,725,466	2,985,327	1,765,162	1,147,228	65,201,796 [3]
	(Contrib. Funds. Other)	Maint Contrib.	-	-	-	-	85,000 [4]
		Cost	-	-	-	-	85,000
2.	Sacramento River Deep Water Ship (Required Contrib. Funds)	New Work-	-	-	2,000	-	7,818,474 [5]
		Approp.	7,298	2,349	27,983	41	7,812,678
		New Work Contrib.	-	-	-	-	2,610,000
		Cost	2,177	7,574	1,670	-	2,600,893
	(Contrib. Funds, Other)	Maint. Contrib.	-	-	-	-	15,000
		Cost	-	-	-	-	14,578
3.	San Francisco Bay to Stockton, CA (John F. Baldwin and Stockton Ship Channels)	New Work Approp.	-	-	14,000	-	64,710,000 [6]
		Cost	10,859	7,840	10,900	3,251	64,218,214 [7]
4.	San Joaquin River, CA	New Work Approp.	-	-	-	-	5,833,117 [8]
		Cost	-	-	-	-	5,833,117 [9]
		Maint. Approp.	2,607,000	1,970,639	1,500,700	1,126,500	35,062,221
		Cost	2,617,123	1,919,481	1,353,749	1,324,112	35,053,311
5.	American River Watershed (Common Elements)	New Work Approp.	13,129,000	26,622,000	16,322,000	13,499,900	82,188,900
		Cost-	13,865,637	24,932,029	18,143,629	14,053,563	81,739,342
		New Work Contrib.-	1,121,200	7,477,900	6,466,778	2,535,537	25,025,415
		Cost-	3,055,566	8,973,723	5,753,985	4,710,546	23,637,333
6.	American River Folsom Modifications	New Work Approp.	-	4,690,000	5,897,000	6,514,000	17,101,000
		Cost	-	4,505,343	5,246,597	6,995,927	16,747,867

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
		New Work Contrib.	-	-	-	-	0
		Cost	-	-	-	-	0
7.	American River Watershed (Natomas)	New Work Approp.	145,000	17,000	30,000	1,170,000	16,240,000
		Cost	228,709	64,806	37,314	1,177,697	16,671,710
8.	Buchanan Dam-H.V. Eastman Lake Chowchilla River, CA (Federal Funds)	New Work Approp.	-	-	-	-	27,369,597
		Cost	-	-	-	-	27,369,597
		Maint Approp.	1,657,500	1,697,602	1,785,796	1,753,154	30,431,445
		Cost	1,457,826	1,657,911	1,696,874	1,930,044	30,426,662
	(Contrib. Funds Other)	New Work Contrib.	-	-	-	-	111,187 [10]
		Cost	-	-	-	-	111,187 [10]
9.	Cache Creek Settling Basin, CA (Federal Funds)	New Work Approp.-	30,000	-	-	80,000	13,721,000
		Cost	-	16,577	7,339	86,776	13,719,609
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	1,279,000
		Cost	27,464	15,433	13,410	-80,070	1,146,051
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	724,000 [11]
		Cost	-	-	-	-	676,755 [12]
10.	Calaveras River and Littlejohn Creek and Trib-utaries including New Hogan Lake & Farmington Dam CA (Federal Funds)	New Work Approp.	-	-	-	-	23,723,144 [13]
		Cost	-	-	-	-	23,723,144 [13]
		Maint Approp.	2,137,900	2,742,504	2,606,407	2,442,000	48,454,422 [14]
		Cost	2,196,515	2,715,262	2,288,667	2,794,126	48,030,730 [14]
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	1,499,951 [15 16]
		Cost	12,131	-	2,432	6,007	1,490,319 [15 17]
11.	Colorado River at Great Junction, CO (Federal Funds)	New Work Approp.	-73,200	-	-	-	834,900
		Cost	-33,026	-	-	-	839,963
	(Required Contrib. Funds)	New Work Contrib.	-1,545	-	-	-	96,773
		Cost	40,520	-	-	-	96,773

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
12.	Corte Madera Creek, CA	New Work Approp.	-	-	-6,000	-	12,452,725
	(Federal Funds)	Cost	-	-	842	-	12,452,725
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	190,213 [19]
		Cost	-	-	-	-	190,213 [19]
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	804,761 [20]
		Cost	-	-	-	-	804,761 [20]
13.	Coyote Creek, CA	New Work Approp.	300,000	598,000	724,000	-295,000	29,491,000
		Cost	113,330	342,069	898,679	-41,197	29,456,841
		New Work Contrib.	-	-	450,000	0	1,355,000
		Cost	103,229	4,336	190,974	182,973	1,260,762
14.	Fairfield Vicinity Streams, CA	New Work Approp.	-	-20,000	-2,000	-	14,717,000
	(Federal Funds)	Cost	-	349	362	-	14,717,000
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	592,381
		Cost	-	-	-	-	592,381
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	3,779,000 [21]
		Cost	-	-	-	-	3,770,497 [22]
15.	Guadalupe River, CA	New Work Approp.	4,194,000	5,866,000	12,651,000	26,834,000	95,173,000
		Cost	8,297,194	8,137,792	13,673,592	27,512,492	94,901,779
	(Required Contrib. (Funds)	New Work Contrib.	2,580,509	-1,214,454	1,116,000	3,153,240	12,592,215
		Cost	1,563,499	466,173	989,240	3,617,909	12,292,785
	(Contrib. Funds. Other)	New Work Contrib.	919,491	1,999,152	1,859,000	5,144,476	15,343,759 [23]
		Cost	1,448,545	540,104	1,017,122	3,765,578	11,305,787 [24]
16.	Hidden Dam Hensley Lake, Fresno River, CA	New Work Approp.	-	-	-	-	30,555,426
	(Federal Funds)	Cost	-	-	-	-	30,555,426
		Maint Approp.	1,491,000	1,618,525	1,898,920	1,785,000	31,683,263
		Cost	1,545,946	1,602,597	1,665,20	2,038,783	31,677,574
	(Contrib. Funds Other)	New Work Contrib.	-	-	-	-	165,112 [25]
		Cost	-	-	-	-	165,112 [25]

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
17.	Isabella Lake, Kern River, CA (Federal Funds)	New Work Approp.	-	-	-	-	24,450,537 [27]
		Cost	-	-	-	-	24,450,537 [27]
		Maint Approp.	834,810	1,047,795	1,263,532	1,180,300	51,213,154 [28]
		Cost	836,005	1,063,610	1,125,562	1,320,585	51,187,130 [28]
	Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	753,000 [29]
		Cost	-	-	-	-	747,718 [30]
18.	Kaweah and Tule Rivers including Terminus Dam and Success Lake, CA (Federal Funds)	New Work Approp.	595,000	939,000	4,750,000	7,786,000	49,067,230 [31]
		Cost	261,817	1,112,202	4,808,638	7,789,648	48,969,535 [31]
		Maint Approp.	3,573,000	3,958,352	5,178,320	3,287,063	77,975,309 [32]
		Cost	3,614,081	3,907,238	3,884,326	4,582,505	77,282,436 [32]
	Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	633,420 [33 34]
		Cost	-	-	-	-	632,695 [33 35]
19.	Little Dell Lake, UT (Federal Funds)	New Work Approp.	-400,000	-50,000	-	-150,000	40,456,900
		Cost	-407,677	2,192	15,890	-150,000	40,449,507
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	19,954,500
		Cost	-242,644	50,699	74,473	170,737	19,317,434
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	4,300,147 [36]
		Cost	-	-	-	-	4,300,147 [37]
20.	Martis Creek Lake, New Work Martis Creek, NV, and CA	Approp.	-	-	-	-	8,504,989 [38]
		Cost	-	-	-	-	8,504,989 [38]
		Maint Approp.	521,000	807,878	675,000	549,000	11,248,261
		Cost	551,391	712,912	713,070	611,103	11,247,481
21.	Merced County Streams, CA (Federal Funds)	New Work Approp.	919,000	519,000	300,000	505,000	22,521,000
		Cost	619,205	766,925	362,226	481,605	22,456,023
	(Required Contrib. Funds)	New Work Contrib.	-	251,052	-	-	865,557
		Cost	-	274,362	22,853	-	892,179
	(Contrib. Funds Other)	New Work Approp.	-	-	-	-	4,719,938 [39 40]

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
		Cost	25,539	-	-	-	4,560,608 [39 40]
22.	Merced County Stream Group, CA	New Work Approp.	-	-	-	-	2,751,259 [41]
		Cost	-	-	-	-	2,751,259 [41]
		Maint. Approp.	62,000	190,381	255,000		3,927,567
		Cost	62,559	188,606	239,057		3,927,062
23.	Napa River, CA (Federal)	New Work Approp.	2,152,000	2,192,000	7,456,000	10,590,000	22,390,000
		Cost	1,996,761	2,197,473	7,114,292	10,589,973	21,898,499
	(Contrib. Funds)	New Work Contrib.	1,800,000	772,400	2,325,000	-	4,897,400
		Cost	856,690	2,434,979	1,119,275	833,274	4,244,218
24.	Pajaro River Basin CA (Federal Funds)	New Work Approp.	-	-	-	-	8,686,968 [42]
		Cost	-	-	-	-	8,686,967 [42]
	(Required Contrib. Fund)	New Work Contrib.	-	-	-	-	37,250 [43]
		Cost	-	-	-	-	37,250 [44]
25.	Pine Flat Lake and Kings River, CA (Federal Fund)	New Work Approp.	-	-	-	-	43,356,265 [45]
		Cost	-	-	-	-	43,356,265 [45]
		Maint. Approp.	2,256,000	2,510,166	4,115,831	1,767,000	59,479,043 [46]
		Cost	2,322,568	1,494,767	2,753,836	3,089,194	59,411,024 [46]
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	110,000 [47]
		Cost	-	-	-	-	110,000 [47]
26.	Redbank and Fancher Creeks, CA (Federal Funds)	New Work Approp.	-	-	-	-	47,516,065 [48]
		Cost	3,461	359	-	-	47,515,727 [48]
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	3,354,920
		Cost	6,180	17,781	13,808	18,910	3,308,228
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	759,580 [49]
		Cost	-	-	-	-	701,546
27.	Restoration of Abandoned Mines	New Work Approp.	-	2,380,000	163,000	1,248,000	3,791,000

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
		Cost	-	369,983	1,192,260	1,231,082	1,793,325
28.	Rural Nevada	New Work					
		Approp.	-	1,294,000	-586,000	1,851,000	2,559,000
		Cost	-	18,666	468,282	2,050,083	2,537,031
29.	Russian River Basin, CA, Coyote Valley Dam (Lake Mendocino) and Channel Improvements (Federal Funds)	New Work					
		Approp.	-	-	-	-	14,435,869 [50]
		Cost	-	-	-	-	14,435,869 [50]
		Maint.					
		Approp.	-	-	-	-	44,777,546 [51 52]
		Cost	-	-	-	-	44,777,546 [51 52]
	(Contrib. Funds, Other)	New Work					
		Contrib.	-	-	-	-	589,911 [53]
		Cost	-	-	-	-	581,774 [54]
	Dry Creek (Warm Springs) Lake and Channel Improvements, CA (Federal Funds)	New Work					
		Approp.	50,000	-	81,000	-	333,364,645 [55]
		Cost	38,214	29,407	47,917	-	333,342,341 [55]
		Maint					
		Approp.	-	-	-	-	32,915,552 [56]
		Cost	-	-	-	-	31,836,635 [57]
	(Contrib. Funds, Other)	New Work					
		Contrib.	-	-	-	-	230,574 [58]
		Cost	-	-	-	-	228,732 [59]
30.	Sacramento River and Tributaries, CA from Collinsville to Shasta Dam (Federal Funds)	New Work					
		Approp.	2,803,000	3,929,000	3,546,000	1,837,000	158,475,000 [60 61]
		Cost	3,405,859	3,684,201	2,960,415	2,673,304	158,138,956 [60]
		Maint					
		Approp.	1,899,000	1,936,010	2,294,644	1,956,000	40,413,782 [62]
		Cost	1,915,496	1,919,967	2,112,324	2,157,961	40,410,372 [62]
	(Required Contrib. Funds)	New Work					
		Contrib.	1,860,000	2,000,000	1,000,000	-	34,284,354
		Cost	1,167,367	2,730,625	597,349	-183,108	32,816,780
	(Contrib. Funds, Other)	New Work					
		Contrib.	-	-	-	-	2,927,796 [63 64]
		Cost	-	-	-	-	2,925,131 [63 64 65]
31.	San Lorenzo, CA (Federal Funds)	New Work					
		Approp.	5,546,000	6,702,000	1,792,000	462,400	17,502,400
		Cost	5,285,178	7,095,418	1,673,161	734,246	17,352,393
	(Required Contrib. Funds)	New Work					
		Contrib.	978,669	1,751,777	180,000	-	3,482,446
		Cost	801,038	2,117,535	333,274	69,753	3,362,770

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
32.	South Sacramento County Streams	New Work Approp.	-	-	291,000	565,000	856,000
		Cost	-	-	228,550	578,007	806,557
		New Work Contrib.	-	-	-	-	0
		Cost	-	-	-	-	0
33.	Stockton-Farmington Recharge	New Work Approp.	-	-	104,000	550,000	654,000
		Cost	-	-	43,968	254,628	298,596
34.	Stockton Metro Reimbursable	New Work Approp.	-	142,000	10,083,000	3,041,000	1,326,600
		Cost	-	88,209	10,103,238	3,055,974	13,247,421
35.	Tule River, CA	New Work Approp.	-	-	505,000	880,000	1,385,000
		Cost	-	-	447,327	738,221	1,185,548
		New Work Contrib.	-	-	-	191,307	191,307
		Cost	-	-	-	8,854	8,854
36.	Upper Jordan UT	New Work Approp.	150,000	270,000	423,000	45,000	1,421,000
		Cost	206,000	251,675	421,234	96,052	1,406,045
37.	Walnut Creek, CA (Federal Funds)	New Work Approp.	-	475,000	95,000	-	72,412,430 [66]
		Cost	6,995	666,933	107,300	70,201	72,357,243 [67]
	(Required Contrib. Funds)	New Work Contrib.	-	75,190	-	41,000	5,799,662 [68]
		Cost	-	-	46,000	206	5,724,063 [69]
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	14,783,553 [70]
		Cost		-	-	-	14,783,553 [70]
38.	West Sacramento	New Work CA Approp.	3,093,000	3,898,000	399,000	2,837,700	18,997,700
	(Federal Funds)	Cost	2,911,110	4,212,191	572,828	2,939,053	18,772,890
	(Require Contrib. Funds)	New Work Approp	-	698,915	358,084	-	4,876,999
		Cost	297,663	1,624,758	344,298	483,651	3,800,345

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
39.	Wildcat and San Pablo Creeks, CA (Federal Funds)	New Work Approp.	12,000	-10,000	-	-	20,375,000
		Cost	-36,689	136	332	2,141	20,337,993
	(Required Contrib. Funds)	New Work Contrib.	-	-	-	-	1,620,000
		Cost	10,449	900	1,289	670	1,601,544
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	1,937,000 [71]
		Cost	-	-	-	-	1,906,943 [72]
40.	Lower San Joaquin River and Tributaries, CA including Tuolumne and Stanislaus Rivers, CA, New Melones Lake, CA (Federal Funds)	New Work Approp.	-	4,300	-10,000	-	371,157,296 [73 74]
		Cost	19,742	12,487	6,517	66	371,153,665 [74]
		Maint Approp.	1,721,000	1,659,059	1,800,000	1,554,100	22,541,875
		Cost	1,778,408	1,659,828	1,585,438	1,785,228	22,541,521
	(Contrib. Funds, Other)	New Work Contrib.	-	-	-	-	80,000 [75]
		Cost	-	-	-	-	80,000 [75]

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

1. Includes the following amounts for new work: Regular Funds: Previous project, $185,198; existing project, $585,436 for shallow-draft and $39,650,558 for deep-draft.

2. Includes the following funds for maintenance: Regular Funds: Previous project, $553,720; existing project, $17,224,432 for shallow-draft and $41,383,526 for deep-draft; and deferred maintenance funds, $70,000 for shallow-draft.

3. Includes the following costs for maintenance: Regular Funds: Previous project, $553,720; existing project, $17,224,432 for shallow-draft and $41,194,611 for deep-draft; and deferred maintenance funds, $70,000 for shallow draft.

4. Includes $85,000 contributed funds, other, from Sacramento-Yolo Port District for clearing and grubbing on dredged material deposit areas to be used on ship channel maintenance dredging work.

5. Includes unobligated carryover for continuation of planning and engineering (CP&E) funds as of September 30, 1985 ($33,474) for Sacramento River Deep Water Ship Channel to be included in project cost (for cost sharing) per TWX of September 9, 1985.

6. Includes $28,326,800 funds for Sacramento District.

7. Includes $28,298,863 costs for Sacramento District.

8. Includes $1,158,348 public work funds, of which $207,198 was for work done along 30-foot channel in Suisun Bay Channel; excludes $19,000 expended for engineering for inactive portion of 1950 modification. In addition, $1,342,500 was expended from required contributed funds

9. In addition, $1,250 was expended from required contributed funds for maintenance.

10. Contributed funds, other, from State of California for design and construction of downstream channel improvements on Ash and Berenda Sloughs below Buchanan Dam.

11. Includes $724,000 contributed funds, other, from State of California for relocation activities including demolition or salvage of various pipes and facilities, constriction of ramps, turnouts, pipe gates and bank protection at Cache Creek Settling Basin.

12. Includes $676,755 contributed funds, other, costs for relocation activities for State of California.

13. Includes code 710 funds and costs for recreation facilities at New Hogan lake: total to date $897,742.

14. Includes $99,000 special recreation use fees and costs at New Hogan Lake, and $826,600 maintenance and operation of dam funds and costs (96X5125) at New Hogan Lake beginning in FY 1988.

15. For miscellaneous construction under local cooperation requirements, primarily for Bear Creek, San Joaquin County; includes $108,056 as related to Duck and Littlejohn Creeks channel improvements as part of Farmington Dam project unit.

16. Includes $393,195 contributed funds, other from California Department of Boating and Waterways for design and construction of boat launching and related facilities, and $30,000 for design and construction of a boarding float at North Shore recreation area at New Hogan Lake.

17. Includes $104,000 contributed funds, other, and costs from Calaveras County Water District for New Hogan hydropower studies.

18. Includes $6,999,725 San Francisco District construction funds and costs for Corte Madera Creek.

19. $8,695 contributed funds transferred to Sacramento District in FY 1983. Includes $97,400 San Francisco District required contributed funds and costs.

20. Contributed funds, other, and costs, from Marin County including $536,921 for miscellaneous bridge and road relocations and $267,840 for additional expenses for disposal sites at Corte Madera Creek.

21. Includes $3,643,000 contributed funds, other, from the State of California for relocation (automotive type bridge) at Laurel Creek Diversion near Fairfield, $113,000 from City of Fairfield for Phase III contract for channel development on Laurel Creek, and $23,000 from City of Suisun for Phase IIA contract for widening of Railroad Avenue

22. Includes $3,638,022 contributed funds, other costs for relocations at Laurel Creek Diversion, $19,537 contributed funds, other costs for Phase III contract, and $112,939 for Phase IIA contract.

23. Includes contributed funds, other: $2,905,630 for recreation betterment, $2,195,591 for NED relocation and $70,000 for incremental relocations at Guadalupe River.

24. Includes contributed funds, other costs: $2,624,578 for recreation betterment, $1,496,809 for NED relocations and $0 for incremental relocations at

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

Guadalupe River, and $1,175,848 for flood control betterments.

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

25. Contributed funds, other from the State of California for miscellaneous design and construction at Hidden Dam.

26. Includes $2,199,085 code 710 funds and costs for recreation facilities at Isabella lake and $224,000 Code 713 funds and costs for improvement at Tillie Creek and Live Oak campgrounds.

27. Includes $407,640 special recreation use fees and costs at Isabella Lake.

28. Includes $131,900 maintenance and operation of dam funds and costs (96X5125) at Isabella Lake beginning in FY 1985.

29. Includes $438,000 contributed funds, other, from California Department of Boating and Waterways for design and construction of boat launching and related facilities at Old Isabella Road and Isabella Peninsula and $337,500 for Isabella Dam hydropower studies.

30. Includes $438,000 contributed funds, other, costs for boat launching and related facilities at Old Isabella Road and Isabella Peninsula, and $309,808 costs for Isabella Dam hydropower studies.

31. Includes code 710 funds and costs for recreation facilities: Success Lake: Total to date $747,048. Terminus Dam: Total to date: $704,000.

32. Includes $165,000 special recreation use fees and costs at Success Lake.

33. Includes contributed funds, other, from State of California Department of Boating and Waterways and costs for acquisition of a boarding float at Success Lake, $30,000 and at Terminus Dam, $12,420.

34. Includes contributed funds, other, from Kaweah River Power Authority, Visalia, California for Terminus Dam hydropower studies, $423,000; and from DITT, Inc., Paris, France, for Success Lake hydropower studies, $168,000.

35. Includes contributed funds, other, costs for Terminus Dam hydropower studies, $422,697, and for Success Lake hydropower studies, $167,579.

36. Includes $4,300,147 contributed funds, other from the Metropolitan Water District of Salt Lake City for relocation of State Highway 65 at Little Dell Lake.

37. Includes $4,300,147 contributed funds, other, costs for relocation of State Highway 65 at Little Dell Lake.

38. Includes $1,200 initiation of plans for specifications for Code 710 recreation facilities, for FY 1978. Construction of recreation facilities at Martis Creek Lake under Code 720 was determined to be infeasible.

39. Includes contributed funds, other $4,572,938, for lands, easements and rights-of-way for Castle Dam from State of California and contributed funds, other costs for lands, easements and rights-of-way for Castle Dam.

40. Includes $274,000 contributed funds, other, relocation and $227,968 costs.

41. In addition, $66,532 expended for new work from contributed funds, other, miscellaneous construction under local cooperation requirements as related to acquisition of right-of-way and utility alterations for Merced County Stream Group.

42. Includes $1,949,968 San Francisco construction funds and costs and $260,000 Sacramento general investigation funds and costs for Pajaro River.

43. Includes $37,250 contributed funds, other, from Santa Clara Valley Water District for bridge relocation at Pajaro River.

44. Includes $37,250 contributed funds, other, costs for bridge relocation at Pajaro River.

45. Includes code 710 funds and costs for recreation facilities at Pine Flat Lake: Total to date: $1,595,100. Includes Public Work Acceleration, Executive (PL 87-68) (Transfer to Corps of Engineers, Civil) 1963 funds and costs ($239,235) for recreation facilities and $19,600 Code 713 funds and costs for Pine Flat fish barrier.

46. Includes $158,300 special recreation fees and costs at Pine Flat Lake and $799,785 maintenance and operation of dam funds and costs at Pine Flat Dam.

47. Miscellaneous construction and engineering and design services (non-project) accomplished at expense of State of California under local cooperation requirements in connection with acquisition of rights-of-way and utility alterations at Pine Flat Lake.

48. Includes unobligated carryover for continuation of planning and engineering (CP&E) funds as of September 30, 1985 ($29,065) and FY 1986 allocation for Redbank and Fancher Creeks to be included in project cost (for cost sharing) per TWX of September 9, 1985.

49. Includes contributed funds, $759,580 other, from Fresno Metropolitan Flood Control District for road relocation and betterments (Nees Avenue) at Fancher Dam and includes $701,546 contributed

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

funds, other costs for road relocation (Nees Avenue) and betterments at Fancher Dam.

50. Excludes $5,598,000 contributed funds: $400,000 for recreation facilities at completed projects funded under Public Works Acceleration Program; and $1,628,411 for recreation facilities at completed projects funded under Code 711 at Coyote Valley Dam, Lake Mendocino.

51. Includes $94,459 special recreation use fees and costs (FY 1982-1983), but excludes prior special recreation fees and cost for Coyote Valley Dam, Lake Mendocino.

52. Includes $1,625,280 maintenance and operation of dam funds and costs at Coyote Valley Dam, Lake Mendocino for FY 1985 through FY 1996.

53. Includes $251,911 contributed funds, other from City of Ukiah for Coyote Valley Dam, Lake Mendocino, hydropower studies; and $338,000 from California department of Boating and Waterways for launching facility at Lake Mendocino.

54. Includes $250,117 contributed funds, other, costs for Coyote Valley Dam, Lake Mendocino, hydropower studies; and $331,657 for California Department of Boating and Waterways for launching facility at Lake Mendocino.

55. Includes $253,421,793 San Francisco construction funds and costs through August 1983 for Dry Creek, Warm Springs Dam.

56. Includes $964,114 San Francisco maintenance funds and costs through April 1982 for Dry Creek, Warm Springs Dam.

57. Includes $75,400 maintenance and operations of dam funds and costs at Dry Creek, Warm Springs Dam.

58. Includes $208,074 contributed funds, other, from Sonoma county for Dry Creek, Warm Springs, hydropower studies; and $22,500 from City of Ukiah for hatchery pump design at Lake Mendocino.

59. Includes $208,074 contributed funds, other, costs for Dry Creek, Warm Springs hydropower studies; and $20,658 costs for hatchery pump design.

60. Excludes $614,608 for Table Mountain (Iron Canyon) project, deauthorized August 5, 1977, and $531,000 for Sacramento River and Major and Minor Tributaries portions which are considered inactive and deferred.

61. Includes Code 710 funds and cost for recreation facilities at Black Butte lake: Total to date $1,000,162.

62. Includes $104,100 special recreation use fees and costs at Black Butte Lake.

63. Miscellaneous construction and engineering and design services (non-project) accomplished at expense of State of California under local cooperation requirements in connection with acquisition of rights-of-way and utility alterations (primarily for Sacramento River and Major and Minor Tributaries project). Includes State Highway Commission payment, $789,008, for use of excess excavation from Chico and Mud Creeks and Sandy Gulch (Sacramento River and Major and Minor Tributaries) for freeway embankment through the city of Chico.

64. Includes $41,984 contributed funds, other, from State of California for required modification of existing private facilities and salmon rearing habitat, Sacramento River, Chico Landing to Red Bluff; $15,977 contributed funds, other, from State of California Department of Boating and Waterways for replacing a boarding float at Orland Buttes boat launching ramp at Black Butte Lake; $392,000 contributed funds, other, from the City of Santa Clara for hydropower studies at Black Butte Lake; and $59,334 contributed funds, other from State of California for relocation.

65. Includes $389,335 contributed funds, other, costs for Black Butte hydropower studies; and $59,334 costs for relocations.

66. Includes $8,849,825 San Francisco construction funds for Walnut Creek.

67. Includes $9,049,609 San Francisco construction costs for Walnut Creek.

68. Includes $450,268 San Francisco required funds for Walnut Creek.

69. Includes $525,846 San Francisco required costs for Walnut Creek.

70. Includes $400,348 San Francisco contributed funds, other, and contributed funds costs for Walnut Creek.

71. Includes $1,937,000 contributed funds, other, from Contra Costa Flood Control and Water Conservation District for replacement of sewer line in Richmond for Wildcat and San Pablo Creeks project.

72. Includes $1,906,943 contributed funds, other, costs for replacement of sewer line in Richmond for Wildcat and San Pablo Creeks project.

73. Excludes funds applicable to other units of this basin authorization (Lower San Joaquin River and Tributaries, and Tuolumne River Basin, California). (See Table 35-E).

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT

74. Includes $110,000 utilized for preparation of 1957 Economic Feasibility Report and of Revised Feasibility Report (FY 1960, 1961, and 1962) applicable to 1962 reauthorization of project.

75. Includes $80,000 contributed funds, other, and costs, from the Bureau of Reclamation for visitors center at Mark Twain area, New Melones Lake.

TABLE 35-A (Cont'd) COST AND FINANCIAL STATEMENT PRECONSTRUCTION ENGINEERING AND DESIGN

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003
	American River Watershed CA,	Approp.	4,290,000	3,629,000	2,303,000	839,000	
		Cost	4,022,524	3,863,698	2,110,741	931,880	
	Caliente Creek CA	New Work					
		Approp.	-	-	-		60,000
		Cost	-	-	-		60,000
	Coyote and Berryessa Creeks, CA	New Work					
		Approp.	-	-	-		4,368,900
		Cost	-	-	-		4,368,900
	Napa River, CA	New Work					
		Approp.	-123,000	-	-		12,947,000
		Cost	155,246	-100	100		12,947,000
	Kaweah River	New Work					
		Approp	651,000	-36,000	-		3,515,000
		Cost	751,360	67,895	-		3,515,000
	South Sacramento	New Work					
		Approp	750,000	615,000	6,812	-	2,320,812
		Cost	665,701	152,313	78,974	-	1,748,387
	San Lorenzo River, CA	New Work					
		Approp.	-	-	-	-	813,000
		Cost	-	-	-	-	730,243
	Truckee Meadows NV	New Work					
		Approp.	936,000	900,000	1,336,000	1,845,000	10,704,330
		Cost	982,814	909,629	1,207,407	1,748,409	10,276,749
	Tule River Basins	New Work					
		Approp.	-15,000	242,000	-	-2,700	254,300
		Cost	2,085	214,422	27,718	78	252,216
	Upper Jordan River, CA	New Work					
		Approp.	-	-	-	-	1,576,000
		Cost	-	-	-	-	1,576,000
	West Sacramento CA	New Work					
		Approp.	-	-	-	-	1,817,000
		Cost	-	-	-	-	1,817,000
	Yuba River, CA	New Work					
		Approp	100,000	410,000	556,000	33,860	1,149,860
		Cost	39,197	457,007	454,524	146,949	960,583
		New Work					
		Contrib	-	-	30,000	50,000	80,000
		Cost	-	-	19,434	24,838	44,272

1. Beginning in FY 1982, Advance Engineering and Design (Preconstruction, Engineering and Design) programs are funded under General Investigations Appropriations.

2. Includes FY 1985 unobligated carryover and FY 1986 allocation for CP&E funds and all AE&D funds to be included in project cost (for cost sharing) per TWX of September 9, 1985.

3. Excludes $2,639,955 funds and costs for a previous flood control project on Napa River. (See Table 35-E).

TABLE 35-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**SACRAMENTO RIVER, CA**	
	Mar 3, 1899	A depth of 7 feet below Sacramento works.	H. Doc. 186, 55th Cong., 2d sess., and 48 55th Cong., 3d sess. (Annual Report 1898, p. 2844 and 1899, p. 3171).
	July 25,1912	For work above Sacramento.	H. Doc. 76, 62d Cong., 1st sess. [1]
	Jan 21, 1927	The 10-foot channel up to Sacramento	H. Doc. 123, 69th cong., 1st sess. Rivers and Harbors Committee Doc. 35, 73d Cong., 2d sess.
	Aug 30, 1935	A depth of 6 feet between Sacramento and Colusa and 5 feet between Colusa and Chico Landing at a cost of $390,000 provided flow of rivers is increased to minimum flow of 5,000 cubic feet per second after Shasta Reservoir is built.	Rivers and Harbors Committee Doc 35, 73d Cong., 2d sess.
	Aug 30, 1935	Authority for a special direct participation of Federal Government of $12 million in cost of Shasta Reservoir.	S. Doc. 142, 79th Cong., 2d sess.
	Aug 26, 1937	Transfer of authority for expenditure of above $12 million from Secretary of War to Secretary of the Interior.	
	July 24, 1946	Modified existing navigation project for Sacramento River, CA, to provide for construction of a ship channel 30 feet deep and 200 to 300 feet wide from deep water in Suisun Bay to Washington Lake, including such works as may be necessary to compensate for or alleviate any detrimental salinity conditions resulting from ship channel; a triangular basin of equal depth, 2,400 by 2,000 by 3,400 feet at Washington Lake; and connecting channel 13 feet deep and 120 feet wide, with lock and drawbridge, thence to Sacramento River.	Sec. 1002, 1986 WRDA
	Nov 17, 1987	Deauthorization of shallow-draft channel, Colusa to Red Bluff, feature of project for navigation, Sacramento River, California.	

TABLE 35-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec 11, 2000	Reauthorization of Sacramento River, Major and Minor Tributaries and Chico Landing to Red Bluff, CA	Sec 350 (a) (1-2), WRDA 2000
10.		**CORTE MADERA CREEK, CA**	
	Oct 23, 1962	Levees and channel improvements, lower 11 miles of Corte Madera Creek and tributaries, as modified by Chief of Engineers.	H. Doc. 545, 87th Cong., 2d sess.
	Nov 7, 1966	Local cooperation requirements modified to provide 1.5 percent cash contribution toward cost of Ross Valley unit.	Sec. 204, 1966 Flood Control Act.
	Nov 17, 1986	Modify existing project to direct construction of Unit 4 from Lagunitas Road Bridge to Sir Francis Drake Boulevard, and to include construction of flood-proofing measures in vicinity of Lagunitas Road Bridge to insure proper functioning of completed portions of authorized project. Further modify project to eliminate any channel modifications upstream of Sir Francis Drake Boulevard.	Sec 823, 1986 WRDA
23.		**RUSSIAN RIVER BASIN, CA**	
	May 17, 1950	Coyote Valley Dam (Lake Mendocino): Channel improvements on lower 98 miles of Russian River and lower reaches of tributaries.	H. Doc. 585, 81st Cong., 2d sess.
	Feb 10, 1956	Increased appropriation authorization for initial stage of project development.	PL 404, 84th cong., 2d sess.
	Oct 23, 1962	Dry Creek (Warm Springs) Lake: Channel Improvements on Dry Creek below dam.	H. Doc. 547, 87th Cong., 2d sess.
	Mar 7, 1974	Dry Creek (Warm Springs) Lake and channel; compensate for fish losses on the Russian River which may be attributed to the operation of the Coyote Dam component of the project through measures such as possible expansion of the capacity of the fish hatchery at the Warm Springs Dam component of the project.	Sec. 95, 1974 WRDA
24.		**SACRAMENTO RIVER AND TRIBUTARIES, CA, FROM COLLINSVILLE TO SHASTA DAM**	
	Dec 22, 1944	Modify Sacramento River Flood Control Project	H. Doc. 649, 78th Cong.,

TABLE 35-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		to provide for extensions in levees and other structures along Sacramento River and major and minor tributaries; construct Black Butte Dam and Reservoir; construct low-level Table Mountain Dam and Reservoir with power facilities; and provision of monetary authorization of $15 million for initiation of modification.	2d sess. [2]
	May 17, 1950	Improvements for protection of Upper Butte Basin (included full monetary authorization).	H. Doc. 3667, 81st cong., 1st sess. [2]
	Jul 3, 1958	Extend existing Sacramento River Flood Control Project to Keswick Dam for purposes of zoning area below dam and modification of project by construction of bank protection and incidental channel improvements between Chico Landing and Red Bluff (included full monetary authorization).	H. Doc. 272, 84th Cong., 2d sess. [2]
	Jul 3, 1958	Additional authorization of $17 million for comprehensive plan approved in act of December 22, 1944.	
	Jul 14, 1960	Further modification of Sacramento River Flood Control Project by construction of initial 10-year phase of bank erosion control works and setback levees on Sacramento River and authorization of $14,240,000 for prosecution of modification.	S. Doc. 103, 80th Cong.,
	May 12, 1967	Additional authorization of $7 million for bank protection approved in act of July 14, 1960.	PL 90-17
	Mar 7, 1974	Initiation of construction of second phase of bank erosion control works and setback levees on Sacramento River as approved in act of July 14, 1960, and additional authorization of $16 million for such purpose. [3]	PL 93-251
	Jun 19, 1975	Deauthorization of Table Mountain Dam and Reservoir. [4]	H. Doc. 94-192, 94th Cong., 1st sess.

TABLE 35-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2002 Construction	Cost to Sep. 30, 2002 Operation and Maintenance
Feather River, CA		1951	-	$ 5,752 [1 2]
Middle River and Connecting Channels, CA	Completed	1974	$ 8,354 [3] 8,500	93,494
Mokelumne River, CA	Completed	1974	2,132 [5 6]	189,152
Navajo Reservoir, NM	Completed	-	23,185 [7]	-
Old River, CA	Completed	1970		
Stockton and Mormon Channels, CA	Completed	1970	253,151 [8]	9,631,128
Suisun Bay Channel, CA	Completed	1974	200,928 [9 10 11]	218,854
Suisun Channel, CA	Completed	1973	217,677	3,316,622 [12 13]
Suisun Point Channel, CA	Completed	1965	191,728 [5 15]	733,489 -

1. Maintenance project, channels adequate for commerce.
2. Includes $10 for maintenance for previous project. Excludes $6,160 for previous project and $3,840 for existing project for maintenance expended from contributed funds.
3. Includes $1,600 for previous project.
4. Includes $790 for previous project.
5. Authorized by Chief of Engineers under authority of sec. 107, Public Law 86-645, as amended.
6. All costs transferred from Los Angeles District in FY 1968.
7. Estimated cost to local interests was $3,6000 for lands, damages and public landings. Remaining portion of project, consisting of side channel at Orwood and completion of project channels from mouth of Old River to Lammers Ferry rod and from Crocker Cut to Holly Sugar Factory was deauthorized November 17, 1986, by WRDA of 1986.
8. Upon completion of Mormon Slough, Calaveral River, CA in February 1970, local interests accepted maintenance responsibility for Mormon Slough as well as for Stockton and Mormon Channels CA, and Federal maintenance was discontinued. No Federal maintenance costs have been incurred since FY 1969.
9. Includes $58, 901 for previous project.
10. Excludes $59,551 expended from required contributed funds for previous project.
11. Excludes work accomplished under existing project at a cost of $207,198 from Public Works Administration funds allotted to San Joaquin River, CA.
12. Includes $59,817 for previous projects. Excludes $5,449 expended from required contributed funds for previous project.
13. Maintenance responsibility transferred to San Francisco District, January 1, 1974.
14. Includes reconnaissance and condition surveys of $5,496 and $483 for fiscal year 1963 and 1964, respectively.
15. Estimated cost (July 1964) to local interests was $12,000 for lands, damages, and spoil retention dikes.

TABLE 35-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Operation and Maintenance	
Alameda Creek, CA	Completed	1978	$26,995,350		$54,778	[1 2]
American River, CA	Completed	1959	2,125,818	[3]	-	
Aquatic Plant Control, CA	Completed	1967	1,000		-	
Big Dry Creek Dam and Diversion, CA	Completed	1955	1,369,931	[4]	-	
Big Wash, Milford, Beaver County, UT	Completed	1961	217,879	[5 6]	-	
Burch Creek, Weber County, UT		1964	26,049	[5]	-	
Cache Creek Basin, CA (Outlet Channel)	Active	1993		[7]	-	
Chester, CA	Active	1981	3,570,000	[8]	-	
Cottonwood Creek, CA	Active	1991	15,765,000		-	
Coyote Creek, CA	Completed	1968	705,622	[1 5]	-	
Duck Creek, San Joaquin County, CA	Completed	1967	664,825	[5 9]	-	
East Weaver Creek, CA	Completed	1965	220,636	[1 5 10]	-	
Folsom Lake, American River, CA Completed		1957	63,014,810	[11]	-	
Green Valley Creek, Solano County, CA	Completed	1963	136,026	[5 12]	-	
Kays Creek, UT	Completed	1973	407,989	[5 13]	-	
Kern River-California Aqueduct Intertie, CA	Completed	1977	1,503,073	[5 14]	-	
Klamath River, CA	Completed	1972	4,838,000	[5]	-	
Lake Camanche, CA	Completed	1976	10,252,950	[15]	-	
Lake Oroville, CA	Completed	1981	70,425,470	[16]	-	
Lower San Joaquin River and Tributaries, including Tuolumne and Stanislaus Rivers, CA	Completed	1976	27,835,263	[17]	-	
Marysville Lake, CA	Active	1980	-	[17]	-	
Merced River, CA	Completed	1976	10,918,796	[19]	-	
Middle Creek, CA	Completed	1967	2,643,499	[20]	-	
Mormon Slough, CA	Completed	1976	2,965,402	[21]	-	
Napa River Basin, CA	Active	1979	2,639,955	[1 22]	-	
New Bullards Bar, CA	Completed	1972	12,890,625	[23]	-	
North Fork, Pit River at Alturas, CA	Completed	1972	904,278	[5 24 25]	-	
Pinole Creek, CA	Completed	1968	885,750	[1 5]	-	
Redwood Creek, Humboldt County, CA	Completed	1970	4,620,070	[1 26]	-	
Reese River, Battle Mountain, NV	Completed	1969	133,339	[5 27]	-	

TABLE 35-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2002 Construction		Cost to Sep. 30, 2002 Operation and Maintenance	
Rheem Creek, CA	Completed	1962	400,000	[1 5 28]	-	
Rodeo Creek, CA	Completed	1966	974,100	[1 5]	-	
Salinas River, CA	Inactive	1952	94,213	[1 29]	-	
Salt Lake City, Jordan River, UT	Completed	1961	1,227,570	[30]	-	
San Leandro Creek, CA	Completed	1973	1,000,000	[1 31]	-	
San Lorenzo Creek, CA	Completed	1962	5,130,821	[1 32]	-	
San Lorenzo River, CA	Completed	1966	4,314,406	[1 33]	-	
Sevier River near Redmond, UT	Completed	1952	919,000	[1 34]	-	
Sonoma Creek, CA	Inactive	1973	781,500	[1 35]	-	
Truckee River and Tributaries, CA and NV	Active	1968	1,038,960		-	

TABLE 35-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

1. Project responsibility transferred from San Francisco District to Sacramento District April 1, 1982.

2. Scheduling of reservoir operations costs.

3. Excludes $54,919 other contributed funds for miscellaneous construction for local interests pursuant to requirements of local cooperation were $951,000 (1959) for lands and relocations.

4. Excludes $44,008 other contributed funds for construction in connection with bridge construction pursuant to requirements of local cooperation. Total cost to local interests for all requirements of local cooperation was $370,000 (9159) for lands and relocations.

5. Authorized by Chief of Engineers under authority of sec. 205, Public Law 80-858, as amended.

6. Excludes $22,000 for preauthorization studies.

7. Project not economically feasible; preconstruction planning was terminated in FY 1993.

8. Excludes $69,262 other contributed funds from State of California for two low water crossings and appurtenances at Chester. A fish ladder modification project was continued under sec. 1135 in FY 2001 at fiscal year cost of $38,765.

9. Excludes $50,000 for preauthorization studies. Estimated costs to local interests were $665,000 for lands and damages including relocations.

10. Includes $174,938 Public Works Acceleration Program Funds.

11. Transferred to Bureau of Reclamation in May 1956 for operation and maintenance by that agency in conjunction with other units of Central Valley project.

12. Excludes $20,000 for preauthorization studies.

13. Includes $30,000 for preauthorization studies. Estimated costs (FY 1973) to local interest for all requirements of local cooperation were $150,117 for lands and damages including relocation.

14. Includes $73,000 for preauthorization studies. Non-Federal (Kern County Water Agency) cost for road relocation was $18,260 (required contributed funds).

15. Constructed by East Bay Municipal Utility District. Final Federal contribution of $51,202 made July 18, 1978 (total $10,111,684). Non-Federal costs $34,988,53616.

16. Constructed by State of California. Final Federal contribution of $64,186 was made on February 9, 1981 (total $69,994,105) for flood control reservation.

17. Cherry Valley and New don Pedro Reservoirs constructed by local interests. Federal contribution of $9,000,000 and $5,464,000, respectively, for flood control reservation. Final Federal contribution of $308,898 was made on January 18, 1972, for New don Pedro. Excludes $3,004,946, contributed funds, other, for miscellaneous engineering and construction (non-project) at local interest expense under local cooperation requirements for acquisition of rights-of-way for levee and channel improvement on Lower San Joaquin River and Tributaries. Unconstructed portion of snagging and clearing project modification of Lower San Joaquin River and Tributaries) was classified as "deferred" on April 9, 1993. For full report see Annual Report for FY 1993.

18. Planning and any future development is uncertain awaiting State of California's position on support of Marysville project.

19. Constructed by Merced Irrigation District, Final Federal contribution of $839 was made December 2, 1975 (total $10,818,638) for flood control reservation.

20. Estimated costs (FY 1967) to local interests for all requirements of local cooperation were $1,340,000 for lands and damages including relocation.

21. Non-Federal cost $2,965,402 (FY1976) for lands and relocations. Federal contribution of $599,336 made to State Reclamation Board.

22. This project was reclassified as "active" on August 3, 1987.

23. Constructed by Yuba County Water Agency. Final Federal contribution of $33,470 was made in FY 1972 (total $12,759,127) for flood control reservation.

24. Includes $41,800 for preauthorization studies.

25. Excludes $146,000 other contributed funds for miscellaneous construction and engineering and design services under local cooperation requirements in connection with acquisition of rights-of-way, relocation and utility alterations.

26. Includes $107,000 costs for remedial work to drainage system completed in FY 1977.

27. Includes $52,549 contributed funds.

29. Cost includes engineering and design prior to June 30, 1952 and costs of $4,288 (FY 1962-1963) to

TABLE 35-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

determine if project classification to an active category was justified.

30. Estimated cost to local interest for all requirements of local cooperation were $463,000 (July 1962) for lands and damages including relocations. Project prevented $4,544,000 in damages from the April-May 1994 snowmelt runoff.

31. Excludes $285,329 contributed funds.

32. Excludes $200,000 estimated value of work performed in lieu of cash contribution.

33. Excludes $421,182 contributed funds.

34. Excludes $48,000 required contributed funds toward first cost. Costs to local interests for all requirements of local cooperation, including required contributions, were $118,000 (1951). Project prevented $9,000 in damages from the April-May 1994 snowmelt runoff.

35. Place inactive 1974.

TABLE 35-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Alhambra Creek, CA	1981	1986	$300,000	-
Bear River, CA	1980	1986	-	-
Cottonwood Creek	1991	1998	15,765,000	- 2/
Eel River, CA	1971	1986	1,272,816	-
Gleason Creek, NV	1977	1986	215,826	-
Humboldt River and and Tributaries, NV	1982	1986	1,532,932	-
Lakeport Lake, CA 1	1976	1993	2,353,000	-
Little Valley Wash, Magna, UT	1951	1977	-	-
Lower San Joaquin River and Tributaries, CA	1993	1998	27,835,263	- 2/
Mad River Basin, CA	1973	1986	4,243,750	-
Spanish Fork River, UT	1955	1977	20,000	-
Weber River and Tributaries, UT (Morgan County)	1974	1972	75,120	-
Wildcat and San Pablo Creek Reach 2, CA	1997	1998	-	-

1. Lakeport Lake was deauthorized on November 17, 1988; and deauthorized November 18, 1993.
2. Requested reauthorization March 2001.

TABLE 35-H SACRAMENTO RIVER, CA: TIDAL AND FLOOD CONDITIONS PREVAILING (See Section 1 of Text)

Place	Miles from Mouth of River	Range in Feet: Mean Tidal [1]	Extreme Tidal [2]	Ordinary Flood [3]	Extreme Flood [4]
Collinsville	0	4.3	7	8	10
Sacramento	59	2.0 [2]	3	20	28
Verona (Mouth of Feather River)	80	-	Trace	22	30
Colusa	144	-	-	26	32
Chico Landing	193	-	-	20	25
Red Bluff	248	-	-	24	30

1. Mean lower low water to mean higher high water.
2. Tide at low water season only.
3. Mean lower low water to flood stage.
4. Extreme low water to indicated flood condition.

TABLE 35-I SAN JOAQUIN RIVER, CA: TOTAL COST OF NEW WORK FOR PROJECT [1] (See Section 4 of Text)

Modification	Federal: Corps of Engineers (Construction)	Federal: Coast Guard (Construction)	Non-Federal [2]: Required Cash Contribution	Non-Federal [2]: Lands and Damages (including Relocations)	Non-Federal [2]: Total	Total Project
Prior to 1950 Modification	$4,009,938	$80,000	$1,307,500	$1,042,000	$2,349,500	$6,439,438
1950 Modification	1,823,179	-	35,000	135,00	170,000	1,993,170
Total	5,833,117	80,000	1,342,500	1,177,000	2,519,500	8,432,617

1. Completed in May 1960.

2. Excludes $5,865,000 (Feb 1954) local interests costs for Stockton Deep Water Channel terminal facilities required under terms of project authorization.

TABLE 35-J SAN JOAQUIN RIVER, CA: PROJECT UNITS (1950 MODIFICATION) RECLASSIFIED AND EXCLUDED FROM PROJECT COST[1]
(See Section 4 of Text)

Unit	Federal Corps of Engineers	Required Cash Contributions	Non-Federal Lands and Damages (including Relocations)	Total	Total Project
Settling Basin above head of Burns Cutoff [1]	$1,073,000	$30,000	$200,000	$230,000	$1,303,000
Burns Cutoff improvement; new turning basin; dredging Mormon Channel [2 5]	7,882,000[3]	431,000	1,455,000	1,886,000	9,768,000
Upper Stockton Channel enlargement [4 5]	535,000	34,000	15,000	49,000	584,000

1. July 1959 price index. Deauthorized August 5, 1977.
2. Deferred; July 1960 price index.
3. For lands and construction.
4. Deleted by 1965 River and Harbor Act authorization of San Francisco Bay to Stockton Channel, Sacramento District, Improvement No. 3.
5. Deauthorized November 17, 1986.

TABLE 35-K MERCED COUNTY STREAM GROUP, CA MAXIMUM INFLOW, STORAGE, AND OUTFLOW FOR PROJECTS
(See Section 19 of Text)

Stream	Maximum Inflow (c.f.s.) (hourly)	Maximum Storage (acre-feet)	Maximum Outflow (c.f.s.)
Burns	1,287	140	884
Bear	1,372	252	838
Owens	149	19	48
Mariposa	2,775	1,491	526

TABLE 35-N SACRAMENTO RIVER AND TRIBUTARIES, CA, COLLINSVILLE TO SHASTA DAM: PROJECT UNITS RECLASSIFIED AND EXCLUDED FROM COST ESTIMATE (See Section 24 of Text)

Unit	Current Classification	Estimated Cost Federal	Non-Federal [1]	Total
1944 Modification:				
Antelope Creek [2]	Inactive	$1,400,000	$340,000	$1,740,000
Lower Butte Basin [3]	Deferred	7,286,000	2,285,000	9,571,000
Thomas Creek [2]	Deferred	1,140,000	140,000	1,280,000
Willow Creek [2]	Inactive	1,290,000	120,000	1,410,000
Bypass Levees [4]	Deferred	7,100,000	940,000	8,040,000
Bypass Levees [4]	Inactive	3,010,000	-	3,010,000
1950 Modification:				
Upper Butte Basin [2]	Deferred	3,530,000	1,787,000	5,317,000

1. For lands and damages, including relocation.
2. July 1960 price level.
3. Excludes work applicable to extension of Moulton weir (July 1954 price level).
4. July 1961 price level

TABLE 35-P FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205, PUBLIC LAW 80-858 AS AMENDED (PREAUTHORIZATION)

(See Section 32 of Text)

Study	Stage	Fiscal Year Cost (Federal)
Contra Costa (Rock Slough), CA		$ 14,283
Battle Mountain, NV	Plans and Specification	62,743
Galindo Creek, CA	Reconnaissance	37,577
Magpie and Don Julio Creeks, CA	Plans and Specifications	303,280
Mallard Slough, Pittsburgh CA	Reconnaissance	13,799
Miner's Ravine, CA	Reconnaissance	49,885
North Spanish Springs, NV	Reconnaissance/Feasibility	40,266
Reno Flood Warning System	Reconnaissance/Feasibility	125,756
Tehama, CA	Reconnaissance	30,865
		$ 678,454[2]

1. See Improvement No. 8 for construction.
2. Excludes Coordination Account. ($11,082)

TABLE 35-Q AQUATIC ECOSYSTEM RESTORATION (SECTION 206, PUBLIC LAW 104-303) (See Section 32 of Text)

Study	Stage	Fiscal Year Cost (Federal)
Aspen, CO	Reconnaissance	$9,521
Basalt, CO	Reconnaissance	246,144
Blackwood Creek, CA	Reconnaissance/Feasibility	146,726
Blue River, CO	Reconnaissance	53,606
Carson River City, NV	Reconnaissance	37,730
City Creek Ecosystem, Utah	Reconnaissance/Feasibility	101,724
Clear Lake Aquatic Plant Control	Reconnaissance	93
Delta Science Center at Big Break	Reconnaissance	40
Green river, UT	Reconnaissance/Feasibility	6,841
Hayden Diversion	Reconnaissance/Feasibility	233,542
Incline & 3rd Creeks, NV	Reconnaissance/Feasibility	205,533
Lake Natoma		104,589
Lower Truckee River Paiute	Reconnaissance/Feasibility	7
Mill Creek, NV	Reconnaissance	7,561
Northfork Gunnison River, CO	Reconnaissance	306,736
Pacific Flyway, CA	Reconnaissance/Feasibility	234,538
Soldier Hollow, Utah	Reconnaissance/Feasibility	15,511
Sulfur Creek, CA	Reconnaissance	11,687
Turtle Bay, CA	Reconnaissance/Feasibility	206,970
Upper Jordan River Ecosystem Restoration	Reconnaissance/Feasibility	220,409
Ward Creek, CA	Reconnaissance	60
West Jordan River, Utah	Reconnaissance/Feasibility	289,767
		$2,439,335 [1]

[1]. Excludes Coordination Accounts ($18,873)

TABLE 35-R SNAGGING AND CLEARING UNDER SPECIAL AUTHORIZATION PURSUANT TO (SECTION 208, 1954 FLOOD CONTROL ACT PUBLIC LAW 83-780)

Study	Stage	Fiscal Year Cost (Federal)
San Joaquin River Firebaugh	Planning Design Analysis	$ 1,318
Walker River, NV	Planning Design Analysis	19
		$ 1,337

TABLE 35-S SURVEYS
(See Section 37 of Text)

Fiscal year costs were as follows:

Navigation Studies	$ 0
Flood Damage Prevention Studies	1,018,551
Required Cost Contributions	2,884,295
Non-Federal Contributions (not required)	-
Special Studies/Ecosystem Restoration	3,225,124
Review of Authorized Project	0
Special Investigations	40,122
Review of FERC Licenses	363
Interagency Water Resources Development	34,216
National Estuary Program	2,698
American Waterfowl Management Plan	850
Coordination with Other Water Resource Agencies	17,023
CAL-FED	181,242
Lake Tahoe Partnership	149,413
Planning Assistance to States	219,708

TABLE 35-T EMERGENCY STREAMBANK & SHORELINE PROTECTION
(SECTION 14, 1946 FLOOD CONTROL ACT)

Study	Fiscal Year Cost (Federal)
Coordination Account	$ 1,917

SACRAMENTO, CA, DISTRICT

PROJECTS SPECIFICALLY AUTHORIZED UNDER THE FORMER CALIFORNIA DEBRIS COMMISSION

The California Debris Commission, consisting of three Corps officers appointed by the President with the consent of the Senate, created by act of March 1, 1893 (27 Stat. L., p. 507), was organized in San Francisco, CA, on June 8, 1893, and has jurisdiction and duties extending over drainage area of Sacramento and San Joaquin Rivers, comprising great central valley of California and extending from crest of the Sierra Nevada on the east to that of the Coast Range on the west, and from Mount Shasta and Pit River Basin on the north to Tehachapi Mountains on the south. These rivers empty into head of Suisun Bay ultimately discharging into the Pacific Ocean through connecting bays and straits and the Golden Gate. Duties of the Commission comprise regulation of hydraulic mining in drainage area of Sacramento and San Joaquin Rivers, CA, so that debris will not be carried into navigable waters or otherwise cause damage; jurisdiction over construction and control of water storage facilities for domestic, irrigation, and power development purposes; and direction of improvements for control of floods on Sacramento River. On November 19, 1986, the Commission was abolished by the Water Resources Development Act of 1986 (PL 99-662) and all authorities, powers, functions, and duties were transferred to the Secretary of the Army. All acquired lands and other interests presently under jurisdiction of the Commission were authorized to be retained and administered under direction of the Secretary.

IMPROVEMENTS

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2. Sacramento River and Tributaries, CA (debris control) 35-2A
3. Treatment of Yuba River Debris Situation-Restraining Barriers, CA 35-3A

Flood Control

4. Sacramento River, CA 35-4A

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Table 35-CC Sacramento River, CA: Total Cost of Existing Project 35-12A

Navigation

1. REGULATION OF HYDRAULIC MINING AND PREPARATION OF PLANS

Location. Operations largely limited to territory between Mount Lassen on the north and Yosemite Valley on the south, on western watershed of Sierra Nevada. (See Geological Survey sheets for the area, 25 in number.)

Existing project. Provided for regulating hydraulic mining operations, planning improvement of conditions upon Sacramento and San Joaquin Rivers and their tributaries affected by such operations, and preparation of plans to enable hydraulic mining to be resumed in their drainage areas. In addition, the Secretary of the Army is authorized to enter into contracts to supply storage for water and use of outlet facilities from debris-storage reservoirs for domestic and irrigation purposes and power development upon such conditions of delivery, use, and payment as he may approve. Applications of prospective miners were fully investigated by the former California Debris Commission and permits to operate were issued to

those who provide satisfactory debris-restraining basins by construction of suitable dams where necessary or agree to make payment for storage in Government-constructed debris-restraining reservoirs constructed under act of June 19, 1934, as set forth below. For location and description of Government-constructed, debris-restraining reservoirs for general hydraulic mining, see Improvement 2.

Local cooperation. Mineowners bore all expenses incurred in complying with orders of the former Commission for regulation of mining and restraint of debris.

Operations and results during fiscal year. Minor administrative duties were accomplished. Administrative work overlaps that of improvements 2, 3, and 4, hereunder, and that of Sacramento District.

Historical summary. The former Commission received 1,292 applications for hydraulic mining licenses; 1 mine is licensed, but does not use storage behind Government debris dams. Work remaining is, in general, continuation of above or similar operations.

2. SACRAMENTO RIVER AND TRIBUTARIES, CA (DEBRIS CONTROL)

Location. Project reservoirs are to be constructed in watersheds of Yuba, Bear, and American Rivers, CA (See Geological Survey sheets for basin areas, seven in number.)

Existing project. For description of completed North Fork and Harry L. Englebright projects and authorizing act, see Annual Report for 1975. Initial recreation facilities were provided in FY 1959. Recreation areas at Harry L.Englebright Dam are maintained by the Corps. Recreation areas at North Fork Dam are no longer maintained and operated by Auburn Recreation Park and Parkway District, but have been turned over to the Bureau of Reclamation (known as the Water and Power Resources Service between November 6, 1979, and May 18, 1981) on a permit basis. Total Federal cost of new work for construction of these reservoirs was $4,646,872, including $40,000 and $25,000, respectively, for basic recreation facilities at Englebright Dam and North Fork Dam. Reservoir project sites on Middle Fork of American River and on Bear River have been deauthorized and excluded from foregoing cost. The 90-day Congressional project review period, required by Sec. 12, Public Law 93-251, as amended, ended August 5, 1977, and resulted in deauthorization of that portion of the project. Estimated cost of that portion is $1,820,000 (1935).

Local cooperation. Fully complied with. Improvements made to facilities at North Fork Dam by Auburn Recreation Park and Parkway District under a lease agreement with the Secretary of the Army and Auburn Boat Clubs (concessionaire) at an estimated cost of $46,000 since September 1953. On March 1, 1979, lands and waters at North Fork Dam were turned over to the Bureau of Reclamation on a 5-year renewable basis. Permit No. DACW05-4-79-527 was renewed for 5 years on March 1, 1984, March 1, 1989, and on March 1, 1994. Bureau will operate and maintain such use until Auburn project is completed, then a fee transfer will be made. Actual operation and maintenance of the recreation resource is being done by State of California by contract with the Bureau.

Licenses. Under provisions of Contract No. W-1105-eng-2998 with Pacific Gas and Electric Co., (PG&E) (a 1941 contract which expired July 31, 1991) payment was made to Federal Government of $18,000 per year for first 30 years and $48,000 per year for the next 20 years in return for use of head at Englebright Dam and generation of hydroelectric power. Total payment through September 30, 1999, amounts to $1,767,109; these funds are now paid to the Secretary of the Army and deposited for return to the Treasury. PG&E has obtained a new license, Federal Energy Regulatory Commission License No. 1403-004, issued February 11, 1993, for continued operation of Narrows No. 1 Hydroelectric Project and has entered into a new storage agreement and an operation agreement with the Federal Government (Corps). Total payment of $66,070 was received in FY 1994, but only $48,000 was reallocated to the District. In FY 1995, $18,070 was reallocated to the District. Payments under new agreement are effective as of Fiscal Year 1993 and will be 8.2 percent of previous fiscal year's total costs for operation and maintenance. License No. 2246, effective April 9, 1970 (date New Narrows power plant was put in operation) was issued by Federal Power Commission (known as the Federal Energy Regulatory Commission since January 9, 1978) to Yuba County Water Agency for hydroelectric power development of Yuba River by the company upstream from Englebright Dam. Under provisions of Contract No. DA-04-167-CIV-ENG-66-95 with Yuba County Water Agency, payment is to be made to the Federal

Government of $100,000 per year for no more than 50 years. First payment (partial) of $73,151 was made April 1, 1971; total payment through September 30, 1997, amounts to $2,509,066. These funds are paid to Sacramento District and deposited for return to the Treasury.

Operations and results during fiscal year. New work: Maintenance: Maintenance and operation activities continued at Harry L. Englebright Dam at a cost of $1,271,000, including recreation facilities. Dam safety assurance studies at Englebright Dam have been completed.

Historical summary. Construction of dams was initiated in 1937; North Fork project was completed and in use at end of FY 1939, and Harry L. Englebright project was completed in January 1941. The two debris-control structures are in good condition. Public use of these reservoir recreation areas greatly overtaxes present capacities. Dam safety assurance studies were initiated at Englebright Dam in FY 1981 and were completed in FY 1987.

3. TREATMENT OF YUBA RIVER DEBRIS SITUATION-RESTRAINING BARRIERS, CA

Location. Works are on Yuba River between Marysville and where the river emerges from the foothills, near Hammonton, some 10 miles easterly from Marysville, or about 9 miles below the Narrows. (See Geological Survey Topographic map of Sacramento Valley, CA.)

Existing project. For description of completed project and authorizing act, see Annual Report for 1975. Total cost of new work was $723,259, of which $361,482 was U.S. funds and $361,777 required contributed funds by State of California. (For details of project in its original form, see Annual Report, 1917, p. 1810.) In February 1963, center section of dam failed and major rehabilitation of structure was completed in December 1964. Total cost for required rehabilitation was $1,660,000, of which $830,000 was Federal cost and $830,000 required contribution by State of California toward rehabilitation cost. During the December 24, 1964, floodflows on the Yuba River, the rehabilitated Daguerre Point Dam sustained considerable damage. (See 1965 Annual Report, p. 1647 "Operations and results during fiscal year.") The reconstructed portion of the dam completed earlier in December 1964 was undamaged by the flood. Permanent repair of Daguerre Point Dam abutment and fish facilities was completed in October 1965 at a cost of $447,808 with Federal and required State contributed funds on a matching basis.

Local cooperation. Fully complied with for new work and major rehabilitation work. Total first cost to local interests for new work was $361,777 (required contribution by State of California). In addition, training walls were built on each bank below Daguerre Point for 11,250 feet and just above Daguerre Point, on the south bank, for 11,000 linear feet by two gold-dredging companies in connection with their dredging operations. To build these training walls would have cost the United States $450,000 (1902 estimate). Flood channels were also built by gold-dredging companies within confines of project works. Cost to the United States of equally effective works to restrain debris movement would have been more than $776,000 (1926 estimate). Total costs to local interests for initial and permanent major rehabilitation works were $830,000 and $223,904, respectively, (required contribution by State of California). State of California must contribute annually an amount equal to the Federal allotment for maintenance.

Operations and results during fiscal year. Maintenance: Operations consisted of condition and operation studies by hired labor on Yuba River.

Historical summary. Construction of project works was initiated in November 1902. Construction of Daguerre Point Dam was completed in May 1906; diversion of river over dam was completed in 1910; training walls and dikes were completed in 1935. About 149 million cubic yards of debris are held in lower 7 miles of Yuba River between Marysville and downstream end of training walls. About 20 million cubic feet, are confined in river channel by Daguerre Point Dam. Additional millions of yards of loose material are in mine tailing fields adjacent to project training walls in upper 7-mile reach of project. Initial rehabilitation of Daguerre Point Dam begun in July 1963 was completed in December 1964. Contract for permanent rehabilitation of structure was initiated in July and completed in October 1965.

Flood Control

4. SACRAMENTO RIVER, CA

Location. Works covered by this improvement are on Sacramento River and tributaries in north-central California from Collinsville to Ordbend, a distance of 184 miles.

Previous project. For details see page 1815 of Annual Report for 1917, page 1995 of Annual Report for 1938, and page 2262 of Annual Report for 1907.

Existing project. Sacramento River flood control project is a comprehensive plan of flood control for Sacramento River and lower reaches of its principal tributaries. Improvement extends along Sacramento River from Ordbend in Glenn County, CA, 184 miles downstream to its mouth at Collinsville at upper end of Suisun Bay, and comprises a system of levees, overflow weirs, drainage pumping plants, and flood bypass channels or floodways designed to carry surplus floodwaters without inundation of valley lands. About 980 miles of levee construction, with an average height of 15 feet and 98 miles of bank protection are involved in project. For further details, see Annual Report for 1962, page 2115. (See table 35-BB for authorizing legislation.)

Estimated (October 1987) cost for original project (exclusive of supplemental levee improvements), including new work and maintenance, is $163,925,000 of which $68,925,000 is Federal cost and $95 million non-Federal ($90,050,562 for lands and damages and relocations and $4,949,438 required contributed funds for levee construction, bank protection works, and levee setbacks). Of this amount, $4,939,752 was for new work and $9,686 for maintenance. Estimated October 1996 total project cost is $171,950,000, of which $76,322,000 is Federal and $95,628,000 is non-Federal. Total estimate now includes remedial levee work for Yolo Bypass and Cache Slough (Unit 109) and land acquisition for Little Holland Tract as hydraulic and environmental mitigation in potential projects impacting stages of the Sacramento River, but excludes Sacramento Urban Area; Marysville/Yuba City Area; Mid-Valley Area; Lower Sacramento Area; and Upper Sacramento Area Levee Reconstruction Projects. Colusa Basin Drain and Knights Landing (West Levee) are not incrementally economically feasible, but these sites have been transferred to Upper Sacramento Area. Knights Landing (East Levee) has been included with Mid-Valley Area. In addition to project requirements, local interests constructed several pumping plants for drainage of agricultural and urban land protected by project levees. Some channel clearing work was accomplished by State of California and other local interests to supplement project levee construction. Dredging below Cache Slough and reconstruction of Cache Creek settling basin weir are considered deferred and excluded from foregoing cost estimate. Estimated cost (July 1962) of these project units is $2,560,000 and $520,000, respectively, a total of $3,080,000 plus U.S. costs, for construction. Operation and maintenance of completed project will be responsibility of local interests; as units of project are completed, they are transferred to agencies of State of California for operation and maintenance. Existing project was adopted by 1917 Flood Control Act (H. Doc 81, 62d Cong., 1st sess., as modified by Rivers and Harbors Committee Doc. 5, 63d Cong., 1st sess.), 1928 Flood Control Act (S. Doc. 23, 69th Cong., 1st sess.), River and Harbor Act of 1937 (S. Committee print 75th Cong., 1st sess.), and 1941 Flood Control Act (H. Doc. 205, 77th Cong., 1st sess.).

Phase I - Sacramento River Flood Control System Evaluation recommended reconstruction of 32 miles of Sacramento area levees. Report was approved and in March 1989, Sacramento Urban Area Levee Reconstruction project was established under authority of Sacramento River Flood Control Project. New project is located within boundaries of Sacramento River Flood Control System in highly urbanized area around city of Sacramento, near confluence of Sacramento and American Rivers. In includes reconstructing the Left Bank levees of the Sacramento River from the Natomas Cross Canal to the Freeport Bridge by installing 17.1 miles of slurry wall, 5.7 miles of stability berm and drainage blanket, and reconstructing 2.0 miles of flood walls. It also includes reconstructing the Right Bank levees of the Sacramento River from the Barge Canal to Riverview by constructing 2.7 miles of stability berm and drain blanket, restoring levee cross-section for 1.0 mile, and developing about 123 acres of fish and wildlife mitigation. Estimated (October 2003) cost for Sacramento Urban project is $42,900,000 of which $28,215,000 is Federal and $14,685,000 is non-Federal (including a cash contribution of $2,135,000).

Sacramento River Flood Control Project (Glenn-Colusa Irrigation District) (G.C.I.D.) is part of the fishery/irrigation enhancement project being

developed by G.C.I.D. Project is located between River Mile 202 and 206 on Sacramento River near the Glenn-Tehama county line, about 100 miles north of Sacramento, California. The Corps riffle restoration project includes multiple sheet pile revetments coupled with a stone grade to replicate natural riffle and bank protection to restore river hydraulic gradient to pre-1970 conditions. This will stabilize river hydraulics. Estimated (October 2003) project cost is $31,130,000, of which $330,000 is Federal and $7,800,000 is non-Federal. Project was established under authority of the 1917 Sacramento River Flood Control Project (see Energy and Water Development Appropriations Act of 1990 and Water Resources Development Act of 1996 and 1999).

Phase II - Marysville/Yuba City Area Levee Reconstruction. Project is located within boundaries of the Sacramento River Flood Control System in Butte, Sutter and Yuba counties in north-central California. Area includes Feather and Yuba Rivers and their tributaries, Sutter Bypass, cities of Marysville and Yuba City and communities of Linda and Olivehurst. An evaluation of about 134 miles of Sacramento River Flood Control Project levees in Marysville/Yuba City area identified about 30 miles of levees as being structurally unstable. Project consists of reconstructing those levees by installing about 9 miles of slurry cut-off wall, 11 miles of toe drain and stability berm, 1 mile of seepage blanket, 1 mile of relief wells, 6 miles of levee freeboard restoration, 1 mile of irrigation ditch relocation, relocation of drainage pump station, and develop about 76 acres for fish and wildlife mitigation. Estimated (October 2002) project cost is $49,700,000, of which $37,300,000 is Federal and $12,400,000 is non-Federal (including a cash contribution of $4,600,000). Project was established under authority of Sacramento River Flood Control Project.

Phase III - Mid-Valley Area Levee Reconstruction. Project is located within the boundaries of the Sacramento River Flood Control System in Placer, Solano, Sutter, Yolo and Yuba Counties in north-central California. Area includes the Sacramento and Feather Rivers, Knights Landing Ridge Cut, Sutter and Yolo Bypasses and portions of the Bear River including Yankee Slough, Dry, Cache, Putah Creeks and the Natomas Cross Canal. Communities in the area include Knights Landing, Robbins, Davis and Woodland. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 18 miles of levees that are structurally deficient. Project consists of reconstructing about 18 miles of levees by installing about 15.1 miles of slurry walls, replacement of 1.2 miles of unsuitable levee embankment on landside, relocation of drainage ditches, restoration of levee height, and developing about 17 acres of fish and wildlife mitigation. Estimated (October 2002) project cost is $33,400,000, of which $25,110,000 is Federal and $8,290,000 is non-Federal (including a cash contribution of $2,330,000). Project was established under authority of the Sacramento River Flood Control Project.

Phase IV - Lower Sacramento Area Levee Reconstruction. Project is located within the boundaries of the Sacramento River Flood Control System in Sacramento, Solano, and Yolo Counties in north-central California. Area includes the lower Sacramento River and its distributary sloughs and the city of Clarksburg. An evaluation of about 295 miles of the Sacramento River Flood Control Project levees in the Lower Sacramento area identified about 47 miles of levees that are structurally deficient. Project consists of reconstructing about 2.6 miles of levees by installing landside berms with toe drains, backfilling of existing drainage collector systems, slurry cut-off walls, the restoration of levee height, and developing land for about 2 acres of fish and wildlife mitigation. Estimated (October 2002) project cost is $5,190,000, of which $3,930,000 is Federal and $1,260,000 is non-Federal (including a cash contribution of $660,000). Project was established under authority of Sacramento River Flood Control Project.

Phase V - Upper Sacramento Area Levee Reconstruction. Project is located within the boundaries of the Sacramento River Flood System in Colusa, Glenn, Sutter, and Yolo Counties in north-central California. Area includes the upper Sacramento River and its tributaries and the city of Colusa. An evaluation of about 350 miles of the Sacramento River Flood Control Project levees in the Upper Sacramento area identified about 12 miles of levees that are structurally deficient. Project consists of reconstruction of about 3.7 miles of levees by installing landside berms with toe drains, slurry cut-off walls, the restoration of levee height, and developing land for about 1.0 acres of fish and wildlife mitigation. Estimated October 2002 project cost is $10,400,000, of which $7,800,000 is Federal and $2,600,000 is non-Federal (including a cash contribution of $1,340,000). Project was established under authority of Sacramento River Flood Control Project.

Operations and results during fiscal year. New work: (a) Sacramento Urban Area Levee Reconstruction: Construction is complete, however, final payment and contract close-out activities remain. (b) Sacramento River Flood Control Project (Glenn Colusa Irrigation District (G.C.I.D.)): Construction was completed on riffle restoration on Sacramento River including building of multiple sheet piles coupled with stone to replicate natural riffle and bank protection to restore river hydraulic gradient to approximate pre-1970 conditions. Concurrently, GCID, The Bureau of Reclamation and the State of California are designing a project to build new screens near GCID pumping facilities. Subsequent to original authority in FY90 EWDAA, sponsor selected a flat screen design and determined that a larger gradient facility was required for proper operation of the fish screens. As a result, an LRR and ROD for the larger facility was approved in April 1998. Plans and specs were initiated in January 1999. The Project Cooperation Agreement was executed in December 1999. The Gradient Facility construction contract was awarded in February 2000. The mitigation contract was awarded August 2002. (c) Marysville/Yuba City Area Levee Reconstruction: Scheduled construction activities are 90% complete. Design activities associated with extension of Site 7 were completed in May 2003 and the construction contract was awarded in September 2003. (d) Mid-Valley Area Levee Reconstruction: Construction for Area 1 is essentially complete. Engineering continued for the second Project Cooperation Agreement for Areas 2, 3 and 4. (e) Lower Sacramento Area Levee Reconstruction: Engineering continued. LRR updating the economic justification for Sites 2 and 3 was completed in November 2002. Construction of Site 2 was completed in October 2003. (f) Upper Sacramento Area Levee Reconstruction: Engineering continued. In accordance with Section 215 agreement signed September 22, 1997, local sponsor constructed 1,000 lineal feet of seepage/stability berm along the Sacramento River (Site E). LRR updating the economic justification for the project was completed in September 2002. Contract for construction of Site D was awarded September 2002. Contract for first phase of construction at Site E was awarded in September 2003.

Historical summary. Construction of existing project began in FY 1918 and is about 99 percent complete. Channel improvement to date has produced a channel with a capacity of 579,000 cubic feet per second in Sacramento River below Cache Slough. In addition, discharges up to 21,000 cubic feet per second can be diverted from Sacramento River through Georgiana Slough. Completed major project items include about 977 miles of levees; five weirs with a combined discharge capacity of 602,000 cubic feet per second; two cutoff channels; two sets of outfall gates; channel improvement and clearing in Sacramento River, Butte Creek, Putah Creek, and Sutter and Tisdale Bypasses; construction of two main bypasses or floodways and secondary bypasses at Tisdale and Sacramento weirs and at Wadsworth Canal; construction of Knights Landing ridge cut and of Cache Creek settling basin; installation of gauging stations; and enlargement of Sacramento River below Cache Slough. Cutoffs at Collins Eddy and between Wild Irishman and Kinneys Bends were made in 1918 and 1919, respectively. Sacramento weir was completed in 1917, Fremont weir in 1924, Tisdale and Moulton weirs in 1932, and Colusa weir in 1933. Outfall gates at Knights Landing were constructed in 1930 and at mouth of Butte Slough in 1936. Pumping plants on Sutter Bypass were completed in 1944. Work items with reference to clearing, snagging, rectification of channels, and bank protection on Sacramento River and tributaries in Tehama County and from Red Bluff southerly, provided for by 1941 Flood Control Act were accomplished in fiscal years 1947, 1948, 1949, and 1951. Yolo Bypass and Cache Slough (Unit 109) was completed in 1990. Work remaining comprises completion of levee stage construction Mid-Valley Area; Lower Sacramento Area; and Upper Sacramento Area Levees. (See Table 35-CC for total cost of existing project to September 30, 1996.)

TABLE 35-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sept. 30, 2003	
1.	Regulation of Hydraulic Mining and Preparation of Plans	Maint. Approp.	-	-	-	-	821,325	
		Cost	-	-	-	-	821,325	
2.	Sacramento River and Tributaries. CA (Debris Control)	New York Approp.	-	-	-	-	5,093,999	1 2
		Cost	-	-	-	-	5,093,999	1 2
		Maint. Approp.	1,129,739	1,200,800	1,462,649	1,456,707	23,453,471	3
		Cost	1,170,927	1,111,532	1,435,456	1,531,339	23,375,829	4
	(Contributed Funds Other)	New Work Contrib.	-	-	-	-	323,420	5
		Cost	-	-	-	-	315,777	6
3.	Treatment of Yuba River Debris Situation Restraining Barries, CA (Federal Funds)	New York Approp.	-	-	-	-	361,482	7
		Cost	-	-	-	-	361,482	7
		Maint. Approp.	93,000	15,841	48,000	55,000	2,760,372	
		Cost	89,034	15,678	31,218	76,312	2,760,102	
		Rehab. Approp.	-	-	-	-	1,053,904	
		Cost	-	-	-	-	1,053,904	
	(Required Contributed Funds)	New Work Contrib	-	-	-	-	361,777	
		Cost	-	-	-	-	361,777	
		Maint. Contrib.	-	160,000-		-	2,149,338	
		Cost	18,047-		4,322	-	1,887,552	
		Rehab. Approp.	-	-	-	-	1,053,904	
		Cost	-	-	-	-	1,053,904	
	(Contributed Funds, Other)	New York Contrib.	-	-	-	-	36,000	8
		Cost	-	-	-	-	34,000	
4.	Sacramento River, CA including Sacramento River Flood Control Project (Federal Funds)	New York Approp.	-1,500,000		-	-	80,739,471	9
		Cost	-128,138	-1,427	1,817	-	80,739,471	9
		Maint. Approp.	-	-	-	-	1,979,104	
		Cost	-	-	-	-	1,979,104	
	(Contributed	New Work						

TABLE 35-AA (Cont'd) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
	Funds)	Contrib.	-	-	-	-	10,724,085	10
		Cost	-	-	-	-	10,724,085	10
		Maint. Contrib.	-	-	-	-	9,686	11
		Cost	-	-	-	-	9,686	11
	Sacramento Urban Area Levee Reconstruction (Federal Funds)	New Work Approp.	-	-	-	-	28,003,000	
		Cost	-	-	-	70,000	28,001,933	
	(Required Contributed Funds)	New Work Contrib.	-	-	-	60,000	2,217,613	
		Cost	3,852		6,508	102,834	2,179,869	
	(Contributed Funds, Other)	New Work Contrib.	-	-	-	-	5,867,175	
		Cost	-	-	-	-	5,867,175	
	Sacramento River Flood Control (G.C.I.D), CA (Federal Funds)	New Work Approp	8,046,000	3,361,000	424,000	1,378,700	18,435,700	
		Cost	7,905,734	3,407,964	404,779	1,552,354	18,362,377	
			3,900,100	-	-	359,900	4,260,000	
			1,855,071	1,157,741	124,442	753,001	3,890,255	
	Sacramento River Flood Control (Marysville/Yuba City Area levees) CA (Federal Funds) (Required Contributed Funds)	New Work Approp.	-5,000	112,000	704,000	1,310,000	30,903,794	
		Cost	87,826	56,726	793,607	1,300,546	30,846,151	
		New Work Contrib.	-	-293,742	-	684,629	9,102,312	
		Cost	133,729	233,736	-317,269	596,413	6,631,873	
Sacramento	River Flood Control (Mid-Valley Area Levee Reconstruction) (Federal Funds)	New Work Approp.	2,405,000	867,000	300,000	755,800	10,166,800	
		Cost	2,136,419	1,087,662	376,400	746,418	10,132,966	
		New Work Approp.	424,000	246,500	-	-	2,431,000	
		Cost	495,626	298,051	172,687	-324,852	1,145,881	

TABLE 35-AA (Cont′ d) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003
Sacramento River Flood Control (Lower Sacramento Area Levee Reconstruction) (Federal Funds)		New Work Approp.	587,000	552,000	-77,000	285,000	2,982,365
		Cost	414,210	294,602	369,239	251,076	2,926,222
		New Work Contrib.	-	558,615	-	60,385	619,000
		Cost	-	38,974	186,880	314,344	540,198
Sacramento River Flood Control (Upper Sacramento Area Levee Reconstruction) (Federal Funds)		New Work Approp.	510,000	86,000	149,000	670,000	2,563,206
		Cost	330,203	186,319	236,167	649,629	2,494,676
		New Work Contrib.	-	-	309,600	432,987	1,110,987
		Cost	-	90,590	90,996	326,871	512,145

1. Exclusive of $644,503 appropriation and cost on inactive portion of project.

2. Includes $477,127 for recreational facilities at North Fork ($32,473) and Harry L. Englebright ($414,654), Code 710 appropriations and costs.

3. Includes $17,348,051 from regular funds and $1,989,336 from Hydraulic Mining in California funds.

4. Includes $17,339,858 from regular costs and $1,957,614 from Hydraulic Mining in California costs.

5. Includes $12,420 contributed funds, other, from State of California Department of Navigation and Ocean Development for acquisition of a boarding float; and $311,000 funds from State of California Department of Boating and Waterways for refurbishing restrooms and launching facilities at Englebright Dam.

6. Includes $12,420 costs for acquisition of boarding float and $280,317 costs for refurbishing restrooms and launching facilities at Englebright Dam.

7. Includes deferred maintenance funds in amount of $207,500.

8. Miscellaneous engineering and construction accomplished at expense of local interests in connection with rehabilitation of Daguerre Point Dam necessitated by December 1964 floodflows. Includes $2,000 from Yuba County Water Agency in May 1994.

9. Includes appropriation and cost of $680,000 for new work for previous project and $1,486,469 public works funds for new work for existing project.

10. Includes $680,000 required contribution for previous project;$4,939,752 required contributed funds for existing project; and $310,801 voluntary contribution for bank protection for existing project.

11. Includes $9,686 required contributed funds for existing project.

12. Includes contributed funds, other, from the State of California for relocation of utilities, irrigation ditch, access ramps, and miscellaneous small structures in the Natomas, Greenhaven Pocket and West Sacramento areas. (Sacramento Urban Area).

13. Includes $1,328,842 contributed funds, other cost for relocations of utilities, irrigation ditch, access ramps, and miscellaneous small structures in the Natomas, Greenhaven Pocket, and West Sacramento areas.

14. G.C.I.D. construction funds received in FY 1991, but no costs were incurred. Includes $493,000 total funds and costs under General Investigations for Preconstruction Engineering and Design.

15. Not reflected in actual annual accounting records for Marysville/Yuba City are $1,710,000 costs for FY 91 and FY 92 incurred under Sacramento River Flood Control Project for design effort. These costs are considered part of Marysville/Yuba City cost-shared project.

TABLE 35-BB AUTHORIZATION LEGISLATION

See Section in Text	Date of Authorization Act	Project and Work Authorized	Documents
1.		**REGULATION OF HYDRAULIC MINING AND PREPARATION OF PLANS**	
	Mar. 1, 1893	Created California Debris Commission and authorized: (a) Hydraulic mining under its regulation in drainage areas of Sacramento and San Joaquin Rivers, if possible without injury to navigability of these river systems or to lands adjacent thereto; and (b) preparation of plans by Commission for improvement of navigability of these river systems, and flood and debris-control therein.	Ex. Doc. 267, 51st Cong., 2d sess., Ex. Doc. 98, 47th Cong., 1st sess. [1]
	Feb 27, 1907	Authorized California Debris Commission to permit hydraulic mining without construction of impounding works, provided there is no injury to navigability of above river systems or lands adjacent thereto.	(Amendment of sec. 13, Act of Mar. 1, 1893.) [1]
	June 19, 1934	Amended act of Mar. 1, 1893, which provides for construction of debris dams or other restraining works by California Debris Commission and collection of a 3-percent tax on gross proceeds of each mine using such facilities, so as to eliminate this tax and substitute an annual tax per cubic yard mined, obtained by dividing total capital cost of each dam, reservoir, and rights-of-way, by total capacity of reservoir for restraint of debris; and authorized revocation of Commission orders permitting such mining, for failure to pay this annual tax within 30 days after its due date; and also authorized receipt of money advances, from mineowners to aid such construction, to be refunded later from annual payments of yardage taxes on material mined.	
	June 25, 1938	Added at end of sec. 23 of above act, a provision that the Secretary of the Army is authorized to enter into contracts to supply storage for water and use of outlet facilities from debris-storage reservoirs for domestic and irrigation purposes and power development, upon such conditions of delivery, use, and payment as he may approve, these payments are to be deposited to credit of such reservoir project, reducing its capital cost to be repaid by tax on mining operations.	
	Nov. 17, 1986	Abolished the California Debris Commission and	Sec. 1001, 1986 WRDA

TABLE 35-BB (Cont'd) AUTHORIZATION LEGISLATION

See Section in Text	Date of Authorization Act	Project and Work Authorized	Documents
		transferred all authorities, powers, functions, and duties to the Secretary of the Army. Authorized all acquired land and other interests presently under jurisdiction of the Commission to be retained and administered under direction of the Secretary.	
4.			
	Dec. 22, 1944 And May 17, 1950	**SACRAMENTO RIVER, CA** Additional levee construction and reconstruction, Including levee protection of Upper Butte Basin, and multipurpose reservoirs. 2	H. Doc. 649, 78th Cong., 2d sess., and 367, 81st Cong., 1st sess.
	July 3, 1958	Bank protection and incidental channel improvements, Sacramento River from Chico Landing to Red Bluff, and local interests flood plain zoning above Chico Landing. 2	H. Doc. 272, 84th Cong., 2d sess.
	July 14, 1960	Bank protection works at critical locations, Sacramento River. 2	S. Doc. 103, 86th Cong., 2d sess.
	May 24, 1994	Acquiring and permanently restoring Little Holland Tract to tidal lands with seasonal and emergent marshlands would not only have substantial environmental benefits, but measurable flood control benefits as well.	H. Doc. 533, 108th Cong., 2d sess.

1. For latest published map, see Annual Report for 1913, p. 3170, and Rivers and Harbors Committee Document 50, 74th Cong., 1st sess.

2. This supplemental work is reported in detail under Sacramento District, Improvement No. 23.

TABLE 35- CC SACRAMENTO RIVER CA: TOTAL COST EXISTING PROJECT TO SEPTEMBER 30, 2003

Funds	New Work	Maintenance	Total
Regular	$78,571,131	$1,979,104	$80,550,235
Public Works	1,486,469	-	1,486,469
Total U.S.	80,057,600	1,979,104	82,036,704
Contributed Project Work	4,939,752	9,686	4,949,438
Contributed, Other	5,104,333	-	5,104,333
Total All Funds	$90,101,685	1,988,790	$92,090,475

1. Includes $429,671 representing book value of plan purchased with previous project funds and transferred to existing project without reimbursement.
2. Excludes financial information for Sacramento Urban Area Levee Reconstruction, Glenn-Colusa Irrigation District (G.C.I.D.), Marysville/Yuba city Area Levee Reconstruction and Mid-Valley Area Levee Reconstruction, Lower Sacramento Area Levee Reconstruction and the Upper Sacramento Area Levee Reconstruction Projects, all authorized under the Sacramento River Flood Control Project (See Table 35-AA).

Albuquerque, NM, District*

The district comprises the watershed of the Canadian River and its tributaries in New Mexico; the watershed of the Arkansas River and its tributaries in Colorado; the watershed of the Rio Grande and its tributaries, including the Pecos River and its tributaries upstream of Amistad Lake; and the San Juan River Basin in New Mexico; and the watershed of the Gila, San Francisco, and Mimbres Rivers and its tributaries in New Mexico. Note: The district watershed boundaries were revised in June 1986 to include the portion of New Mexico west of the Continental Divide.

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Flood Control

1. ACEQUIAS IRRIGATION SYSTEM, NM

Location. There are about one thousand Acequias throughout the state of New Mexico, most of which are located in north-central New Mexico.

Proposed project. Authorized by the Water Resources Development Act of 1986, Section 1113, the project consists of about one thousand acequias throughout the state of New Mexico. These community ditch systems provide irrigation water to about 160,000 acres on an estimated 12,000 farms.

Acequias have been in existence since the early Spanish Colonization period of the 17th and 18th Centuries, and represent one of the oldest forms of cooperative institutions in the United States. They are an integral part of the culture and heritage of New Mexico. Diversion structures, many of which are constructed of available materials such as rock and brush, are frequently destroyed by flows greater than normal resulting from spring runoff or summer thunderstorms. Disruption of the ditches usually occurs during peak irrigation season and severely impacts crop production. The Water Resources Development Act of 1986 directs the U.S. Army Corps of Engineers to undertake measures, without regard to economic analysis, as are necessary to protect and restore the river diversion structures and associated canals.

Local cooperation. The local sponsor, the State of New Mexico, has a law whereby the State of New Mexico provides 17.5% of the project costs, and low interest loans to the local Acequias for the remaining 7.5%. The State of New Mexico has appropriated, and will appropriate, on an annual basis, the funds necessary to meet the requirements of local sponsorship.

Operations and results during fiscal year. Funds to initiate construction were received in Fiscal Year 1988. Construction contracts have been awarded every year since FY 1988.

Condition at end of fiscal year. There are several projects in various stages of design and construction. Under the Section 215 Program High Rolls, La Joya, El Cerrito Phase II, Abajo and Ancheta Galaz were completed. Farmers Mutual was converted to a 215 and awarded for construction.

2. ALAMOGORDO, NM

Location. The project is located in south-central New Mexico in Otero County, in and near Alamogordo, NM. The city is situated at the foot of the Sacramento Mountains near the eastern edge of the Tularosa Basin.

Proposed project. The authorized project consists of three concrete and riprap-lined diversion channels with 100-year flow capacity, which will intercept flows from the Sacramento Mountains east of the city. For a description of the complete improvement and authorizing legislation, see page 694 of Annual Report for 1966.

Local cooperation. The Water Resources Development Act of 1986 applies.

Condition at end of the fiscal year. Construction of Phase I of the South Diversion Channel was completed in June 2002. Construction of Phase II is scheduled for completion in May 2004 and Phase III is scheduled for construction award in May 2004. A re-evaluation of the North Diversion Channel was initiated at the request of local interest concerned with potential induced flooding along Red Arroyo. The study determined a detention dam was economically feasible and comparative in cost to the proposed channel.

3. ALAMOSA, CO

Location. The project lies in south-central Colorado along the Rio Grande, in the community of Alamosa, CO.

Project. The project consists of a levee system, which will replace and augment the existing spoil bank levees. (See Table 36-B for authorizing legislation).

Local cooperation. The Water Resources Development Act of 1992 applies.

Operation and results during fiscal year. Levee construction activities were completed September 1998. Environmental mitigation was completed May 2001.

Condition at end of the fiscal year. Construction completed. Environmental mitigation is complete.

4. CONCHAS DAM, NM

Location. The dam is located in San Miguel County, NM, on the Canadian River, just below the confluence of the Canadian and Conchas Rivers. (See Geological Survey State Map of New Mexico, scale 1:500,000, and Geological Survey topographic map, Tucumcari quadrangle, scale 1:250,000).

Existing project. The dam consists of a concrete gravity main section 1,250 feet long with a maximum height of 200 feet above streambed, located in the Canadian River canyon together with earth dikes on each side, having an overall length of about 3.7 miles. The main section contains conduits in its base for the release of water from the reservoir, and an overflow ungated spillway 300 feet long. The earth dikes vary in height up to 100 feet and the north dike contains a concrete ogee-type emergency spillway 3,000 feet long. The reservoir has a gross storage capacity of 513,900 acre-feet (198,170 for flood control; 254,200 for water conservation and irrigation; and 61,530 dead storage). The dam controls 7,409 square miles of drainage area. (See pages 17-16 of Annual Report of 1973 for authorizing legislation).

Local cooperation. None needed.

Operations and results during fiscal year. The reservoir was operated for storage of floodwater and releases for irrigation purposes. Sediment damages of $9,600 were prevented during FY 2003. There were no flood damages prevented in FY 2003. Estimated total accumulated flood and sediment damages prevented by the project through FY 2003 are $4,913,900. Estimated irrigation benefits for FY 2003 are $2,500. Estimated total accumulated irrigation benefits through FY 2003 are $11,901,500. The pool elevation at the start of FY 2003 was $4,164.30 feet with corresponding storage of 90,919 acre-feet. Total releases for this reporting period

were 1,213 acre-feet. Releases of 0 acre-feet were made to Arch Hurley Conservancy District, 1,213 acre-feet to Bell Ranch. Sediment deposition during the fiscal year was 86 acre-feet.

5. EL PASO, TX

Location. The project is located at El Paso, El Paso County, TX, which is on the left bank for the Rio Grande in the reach that forms part of the international boundary between the United States and the Republic of Mexico. (Geological Survey Map for El Paso, TX; New Mexico quadrangle, scale 1:250,000).

Existing project. This project consists of a single-purpose flood control system of detention dams, diversion dikes, conduits, and channels to collect, regulate and discharge arroyo runoff into the Rio Grande. Runoff from the tributary arroyos on the eastern, southern, and western slopes of the adjacent Franklin Mountains often inundates sections of the city and its outlying suburban developments. The project is divided up into three independent elements: Northwest area, Central area, and Southeast area. The project plan satisfies the 1933 U.S. and Mexico agreement on limited tributary discharge into the Rio Grande in El Paso, Texas. (See Table 36-B for authorizing legislation).

Local cooperation. Section 2 of the Flood Control Act of June 28, 1938 applied for the Northwest and Central areas. The Local Cooperation Agreement for the Southeast area reflects the cost sharing requirements contained in the Water Resources Development Act of 1986.

Operations and results during fiscal year. Flood control dams in operation during FY 1998 and dates of completion of construction are as follows: Northgate and Range Dams (February 19730; Sunrise and Mountain Park Dams (October 1974); and Pershing Dam (March 1977); Fort Bliss Diversion Channel (November 1978); Oxidation Pond Outlet Conduit (November 1980); Mulberry and Thorn Drive Dams (June 1982); Mesa Dam (September 1982); McKelligon Canyon Dam (October 1982); Keystone Dam (September 1983); Keystone Outlet Conduit (March 1984); Highway Diversion Channel (May 1985); Dam Safety Assurance Program to the existing Range and Northgate Dams (September 1986); Borderland Diversion Channel (September 1986); and Phelps Dodge Basin (January 1990); and Americas Basin (March 1993).

Condition at end of fiscal year. At the end of 2002, all construction work in Central and Northwest areas were complete. Construction was completed on the Phelps Dodge Basin in January 1990; Phelps Dodge Channel, June 1992; Americas Basin, March 1993; and Bluff Channel in October 1998. Construction is ongoing for the Lomaland system.

6. JOHN MARTIN RESERVOIR, CO

Location. The project is located on the Arkansas River in Bent County, 1,159 miles upstream from its mouth, 300 miles downstream from its source and about 18 miles upstream from the city of Lamar, CO. (See Geological Survey maps for Lamar and Las Animas, CO quadrangle, scale 1:125,000).

Existing project. The project consists of a concrete and earth fill structure about 2.6 miles long with a maximum height of 106 feet above streambed, and an overflow, gated spillway 1,174 feet long. Total capacity of the reservoir at the top of flood control is 605,115 acre-feet (259,417 for flood control and 345,698 for conservation and recreation storage). This reservoir controls a contributing drainage area of 18,130 square miles and is operated as a unit of coordinate reservoir system for flood control in the Arkansas River Basin. Public Law 89-298 modified the act of June 22, 1936 (49 Stat. 1570) to authorize 10,000 acre-feet of reservoir flood control storage space for fish and wildlife and recreation purposes. For details of the complete improvement and authorizing legislation, see page 17-16 of Annual Report for FY 1973.

Local cooperation. Section 3 of the Flood Control Act of June 22, 1936 applies.

Operations and results during fiscal year. Operation of the dam and reservoir continued. Regulation of conservation storage continued under rules and regulations of the Arkansas River Compact. Sediment damages of $66,100 were prevented during FY 2003. Estimated total flood and sediment damages prevented by this project through FY 2003 are $139,467,700. Estimated irrigation benefits for FY 2003 are $85,600. Estimated total accumulated irrigation benefits are $29,851,000. Maximum pool elevation of 3,809.65 feet with corresponding storage of 44,933 acre-feet occurred on April 13, 2003. Total releases for FY 2003 were 73,566 acre-feet. Releases attributed to irrigation benefits amounted to 21,782 acre-feet. Sediment deposition was 590 acre-feet in FY 2003.

7. LAS CRUCES, NM

Location. The project is located in Las Cruces, NM 40 miles north of El Paso, Texas.

Proposed project. The project is authorized by the Water Resources Development Act of 1996. The project consists of enlargement and modifications of two existing detention basins and an irrigation ditch in order to provide increased flood protection to the downtown commercial and residential district of Las Cruces. Total project cost is $12,600,000 ($9,450,000 Federal and $3,150,000 non-Federal). Construction of the project was completed in March 2002.

Local cooperation. Water Resources Development Act of 1986 applies. The City of Las Cruces is the non-Federal local sponsor.

Operations and results during the fiscal year. Operation and maintenance responsibilities for the project will become the City's responsibility upon completion.

8. RIO GRANDE BASIN, NM

Location. Improvements are located on the Rio Grande and tributaries in New Mexico. More definitive locations and descriptions of individual projects are in the following paragraphs, and individual reports by projects.

Existing project. The Flood Control Act of 1948 authorized the flood control phase of the comprehensive plan of development of water resources of the Rio Grande Basin in New Mexico (H. Doc 243, 81st Cong., 1st sess.) with the exception of Chinflo Dam and Reservoir and spillway gate structure at Chamita Dam. Although recommended, Chinflo Dam and Reservoir was deleted from the authorized plan. Congress excluded it without prejudice from future consideration. It was requested at that time, by the States of Colorado and Texas, that the project be deferred for re-study regarding required storage and methods of operation. By the same Act, Congress also authorized for the construction irrigation phase of the comprehensive plan as recommended by the Bureau of Reclamation (H. Doc. 653, 81st Cong., 2nd sess.). The Act also stipulated that work should be prosecuted in accordance with a joint agreement approved by the Secretary of the Army and Acting Secretary of the Interior on November 21, 1957. In addition, under that agreement, the Bureau of Reclamation was given responsibility for construction, operation, and maintenance of channel rectification, and drainage rehabilitation and extension phases of the unified plan of improvement. Authority for the Chamita Dam and Reservoir was abrogated when Cochiti Dam and Reservoir was authorized. (See Table 36-B for authorizing legislation and Table 36-F for existing projects).

All operations and costs for projects contained in the authorized plan are reflected in individual reports on the following pages.

8A. ABIQUIU DAM, NM

Location. The project is one unit of the flood control plan for the Rio Grande and tributaries, New Mexico. Abiquiu Dam is located on the Rio Chama near the town of Abiquiu, NM, about 32 miles upstream from the confluence of the Rio Chama and the Rio Grande. (See Geological Survey map for plan and profile of Rio Chama, NM, from mouth to mile 103, sheet 1, and Army Map Service, Aztec, NM; Colorado NJ 13-1, scale 1:250,000).

Existing project. The project consists of an earth fill dam 1,450 feet long, 325 feet high, with a 12-foot diameter controlled outlet, and an uncontrolled spillway in a natural saddle about 1 mile north of the left abutment. The reservoir provides 545,784 acre-feet of flood control and sediment storage. Total capacity at the spillway crest is 1,192,801 acre-feet. For a detailed description of the completed improvements and authorizing legislation, see Annual Report of 1973. A major rehabilitation project was completed in September 1980 and the recreation facilities were completed in FY 1981. The County of Los Alamos completed a non-Federal hydropower plant in 1990. The capacity of this plant is 13.2 MW. Drainage adits were completed in 1990 to alleviate seepage problems in the north and south abutments. In 2001 repairs were initiated to the downstream north abutment of the dam where rock movement had been observed. Work continued through 2003. Removal of rock, cutback, rock bolting and some netting has taken place. A study will determine current slope conditions.

Local cooperation. None required.

Operations and results during fiscal year. Operation of the dam and reservoir continued. Storage and flows were regulated in accordance with Section 203, Flood Control Act of 1960. On October 1, 2002, the pool elevation was 6,174.78 feet. The

maximum pool (6,186.70 feet) and storage (73,064 acre-feet) occurred on August 14, 2003. On September 30, 2003, the pool elevation was 6,183.49 feet with a corresponding storage of 65,039 acre-feet. There were 591 acre-feet of sediment deposition during FY 2003. There was $10,400 in flood damages prevented during FY 2003. Sediment damages prevented were $66,200. Accumulated flood and sediment damages prevented by the project since completion are $391,659,200 through FY 2003.

Condition at end of fiscal year. The project was placed in operation in February 1963. The project structures are in good condition and operational.

8B. COCHITI DAM AND LAKE, NM

Location. The dam is located at river mile 340 on the Rio Grande (river mile 0 being at the intersection of the New Mexico-Texas state line with international boundary at El Paso, TX), near Pueblo de Cochiti, which is about 50 miles upstream from Albuquerque, NM. (See Geological Survey Map, Cochiti Dam, NM quadrangle and Santo Domingo Pueblo, NM quadrangle, scale 1:24,000).

Existing project. This project consists of an earth fill dam about 5.4 miles long with a maximum height of 251 feet above streambed. The project extends generally in an east-west line across the Rio Grande to a point about 2 miles east of the Rio Grande, and then southward across the Santa Fe River. An uncontrolled spillway with a 460 foot-long ogee-weir and a 160-foot notch 10.6 feet deep in the center is part of the embankment on the south side of the Santa Fe River. Operational releases for flood control and irrigation are made through a 3-barrel gated conduit in the left abutment on the Rio Grande. The reservoir has a storage capacity of 582,019 acre-feet at the spillway crest, of which 78,640 acre-feet is dedicated for recreation and sediment control. The project controls flood waters from an 11,695 square-mile drainage area. For more improvement details, see page 17-7 of Annual Report for 1980. See page 17-15 of fiscal year 1981 Annual Report for authorizing legislation.).

Local cooperation. None required.

Operations and results during fiscal year. Operation of the dam and reservoir continued. The project was completed in June 1975. On October 1, 2002, the pool elevation was 5,339.82 feet with a corresponding storage of 48,933 acre-feet. The maximum pool elevation was 5,342.28 feet with a storage of 51,985 acre-feet on April 29, 2003. On September 30, 2003, the pool elevation was 5,339.23 feet with a corresponding storage of 48,255 acre-feet. There were 432 acre-feet of sediment deposition during FY 2003. There were no flood damages prevented during FY 2003. Sediment damages prevented were 48,400. Accumulated total damages prevented are $435,576,800.

Condition at end of fiscal year. The dam and appurtenances were placed in operation in 1975. The Cochiti recreation area was completed in 1976, with the Visitors' Center completed in 1977. The Tetilla Peak recreation area was completed in 1981. Project structures are in good condition and in operation.

8C. GALISTEO DAM, NM

Location. The dam is located at river mile 12 on Galisteo Creek, a tributary of the Rio Grande. The reservoir extends upstream from the dam for about 4 miles, near the village of Waldo, NM (see Geological Survey map, San Pedro 1, NM, quadrangle, scale 1:24,000).

Existing project. This project consists of an earth fill dam 2,820 feet long with a maximum height of 158 feet above streambed. The outlet works consist of a 10-foot diameter uncontrolled outlet with maximum discharge capacity of 4,980 cubic-feet-per-second with a pool at the spillway crest elevation. The dam was raised 7 feet and the spillway was widened 575 feet to provide adequate discharge capacity to accommodate the revised probable maximum flood. The dam safety modification was complete in October 1998. The project has 79,600 acre-feet of sediment space. For more details of completed improvements and authorizing legislation, see page 17-17 of Annual Report for 1973).

Local cooperation. None required.

Operations and results during fiscal year. Operation of the dam and reservoir continued. Operation of the project began on October 11, 1970. The reservoir was empty on October 1, 2002. No storage occurred during FY 2003. Peak inflow was 634 cfs and maximum outflow was 634 cfs. There were 4 acre-feet of sediment deposition during the year, and the reservoir was empty on September 30, 2003. Sediment damages prevented during FY 2003 were $400 and now total $176,900 through FY 2003.

Condition at end of fiscal year. The project was placed in operation in October 1970. The project structures are in good condition and in operation.

8D. JEMEZ CANYON DAM, NM

Location. The project is located in Sandoval County, NM, on the Jemez River, about 2 miles upstream from the confluence of the Jemez River and the Rio Grande, about 5 miles northwest of Bernalillo, NM. (See Geological Survey map for Bernalillo, quadrangle scale 1:125,000).

Existing project. This project consists of an earth fill dam 780 feet-long with maximum height of 146.6 feet above streambed, an off-channel uncontrolled saddle spillway 400 feet wide, and a 13-foot diameter gated outlet in the left abutment with discharge capacity of 8,340 cubic-feet-per-second, with a pool at spillway crest elevation. The dam was raised 14.1 feet and the spillway widened 28 feet in 1986 and 1987 to provide adequate discharge capability to accommodate the revised probable maximum flood. The reservoir has a capacity of 97,425 acre-feet at spillway crest (73,000 acre-feet for flood control and 24,425 acre-feet for sediment control). For more detailed description of completed improvements and authorizing legislation, see page 17-17 of Annual Report for 1973).

Local cooperation. None required.

Operations and results during fiscal year. Jemez Canyon is operated as a dry reservoir, with occasional flood storage. On October 1, 2002, the pool elevation was 5,155.0 feet with a corresponding storage of 0 acre-feet. The maximum pool elevation was 5,155.0 feet with a storage of 0 acre-feet on October 1, 2002. On September 30, 2003, the pool elevation was 5,155.0 feet with a corresponding storage of 0 acre-feet. The reservoir was regulated for sediment control during FY 2003. There was no sediment deposition during FY 2003. There were no flood damages prevented during FY 2003. Sediment benefits during FY 2003 were $0. Estimated total accumulated flood and sediment damages prevented by the project through FY 2003 are $25,184,500.

Condition at end of fiscal year. The project was placed in operation in October 1953. Project structures are in good condition and all structures are in operation.

8E. MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELEN, NM

Location. The project is composed of 45 square miles of floodplain lying along the Rio Grande from the vicinity of Corrales to Belen, NM.

Proposed project. The project was authorized by the Water Resources Development Act of 1986. The project consists of raising and rehabilitating 49.6 miles of levees to provide the 270-year level of protection, and the creation of 75 acres of wetlands from borrow areas within the bosque, and acquisition of 200 acres to satisfy fish and wildlife mitigation requirements. The proposed project will be constructed at an estimated total cost of $62,400,000 ($46,800,00 Federal and $15,600,000 non-Federal) 1 Oct 97 price levels. (See Table 36-B for authorizing legislation).

Local cooperation. Water Resources Development Act of 1986 applies. The Middle Rio Grande Conservancy District is the local sponsor.

Operations and results during fiscal year. Construction of the Corrales Unit was completed in July 1997. A General Reevaluation Report study for the remaining units (Mountainview, Isleta, and Belen), is currently underway. The study will update costs, benefits, and environmental impacts of the 1986 authorized project. The General Reevaluation Report is scheduled for completion in 2005.

8F. RIO GRANDE FLOODWAY, NM

Location. The project is one unit of the flood control phase of the comprehensive plan of improvement for the Rio Grande Basin in New Mexico. It is located on the Rio Grande and covers a section of the river extending from approximately Velarde, New Mexico to Elephant Butte, New Mexico, a distance of approximately 213.

Existing project. This project consists of flood protection and major drainage improvements by channel rectification, levee enlargement and construction, and bank stabilization work where needed to protect the levees. Construction of the project is a joint undertaking by the Bureau of Reclamation and the Corps. Portions to be done by the Corps will consist of levee enlargement,

construction of bank protection work, with channel rectification and drainage rehabilitation work being the responsibility of the Bureau of Reclamation. Levees constructed by local interests exist throughout the reach of the river involved, but are not uniform as to grade, section, or standard of construction, and in many places are threatened by the meandering river. (See Table 32-D on existing project and Table 36-B for authorizing legislation).

Local cooperation. In addition to the usual requirements, local interests are responsible for all highway, bridge, and public utility relocations or replacements required in construction of the project. Local interests will also be required to comply with requirements of Section 221, 1970 Flood Control Act, Section 401, 1986 Water Resources Development Act, and PL 91-646 Uniform Relocation Assistance Act of 1970. Total costs for all requirements for the completed Albuquerque unit under terms of project authorization were $75,000. There were no non-Federal costs in connection with the construction of the Cochiti to Rio Puerco unit of the floodway. The Española Valley unit is in the deferred category. However, by letter dated 10 December 2003 Santa Clara Pueblo expressed their willingness to participate in a feasibility study to address tributary flooding in Española.

Operations and results during fiscal year. There were no flood damages prevented by the completed floodway project during FY 2003. Estimated total accumulated flood damages prevented by the floodway project through FY 2003 amounted to $487,592.00. The peak flow of the Rio Grande through the middle valley was 1,640 cfs at Albuquerque on August 25, 2003. The peak at San Acacia was 3,370 cfs on September 14, 2003.

Condition at end of fiscal year. Construction of the Albuquerque unit of the Rio Grande Floodway project is complete. Construction was completed on the Truth or Consequences unit in FY 1991.

8G. SAN ACACIA TO BOSQUE DEL APACHE UNIT, NM

Location. The authorized project is located along the middle Rio Grande's west bank, extending from the upper end of the Rio Grande low-flow conveyance channel at the San Acacia diversion works to the head of Elephant Butte Reservoir.

Proposed project. The project was authorized by the Flood Control Act of 1948 and consists of the reconstruction of 42 miles of existing spoil bank levee that separates the Rio Grande low-flow conveyance channel from the river floodway and the San Marcial railroad bridge. The proposed project's estimated total cost is $71,200,000 ($62,300,000 Federal and $8,900,000 non-Federal) 1 Oct 93 price levels. (See Table 36-B for authorizing legislation).

Local cooperation. The Water Resources Development Act of 1986 and the Water Resources Development Act of 1992 apply. The Water Resources Development Act of 1992 modified the local sponsor's required contribution.

Condition at end of fiscal year. The draft LRR/SEIS (dated May 99) was sent forward to higher authority for review and approval. Responses to headquarters review comments and action items concerning the draft LRR/SEIS were completed in May 2003. Pending headquarters approval, the final report will be completed in May 2005 with construction starting in late 2007 on the San Marcial railroad bridge.

9. SANTA ROSA DAM AND LAKE, NM

Location. The project is located in Guadalupe County on the Pecos River, at river mile 766.4, approximately 7 miles north of Santa Rosa, NM (see Geological Survey map, Corazon, NM, sheet, scale 1:125,000).

Existing project. Operation of the project began in November 1979. It consists of an earth and rock fill dam 1,950 feet long and 212 feet maximum height above the streambed. The purposes of this project are flood control, irrigation, and sediment retention. An unlined, open rock cut about 1,000 feet back from the left abutment serves as an uncontrolled spillway. The outlet works, located in the left abutment, consists of a control tower, intake structure with gates, and a 10-foot diameter concrete-lined tunnel with a terminal flip bucket energy dissipater. Storage capacity at the spillway crest is 439,860 acre-feet, which includes 82,860 acre-feet sediment reserve, 200,000 acre-feet irrigation, and 167,000 acre-feet flood control storage. The surface area of the reservoir at the spillway crest is 10,594 acres. The contributing drainage area at the dam site is 2,434 square miles.

For a more detailed report of the authorized project, including the modification to existing Sumner Lake, see page 17-8 of FY 1981 Annual Report. For authorizing legislation, see page 17-14 of FY 1981 Annual Report.

Local cooperation. In addition to first costs, operation and maintenance of both reservoirs is the responsibility of the Federal Government; however, the Carlsbad Irrigation District is required to contribute to operation and maintenance costs an amount equal to what they now pay toward Sumner Lake. The Carlsbad Irrigation District (CID) also agreed to use Sumner Lake for flood control. Because the CID realizes equivalent benefits from storage capacity in Santa Rosa Lake, they will continue to fulfill their repayment obligation. The New Mexico Division of State Parks manages the recreation facilities. Activities include camping, picnicking, boating, and hiking.

For more requirements and details on final approval in 1974 for transfer of irrigation storage from Sumner Lake to Santa Rosa Dam and Lake (formerly Los Esteros Lake), see page 17-5 of Annual Report for 1980.

Operations and results during fiscal year. Operation of the dam and reservoir continued. Pool elevation at the start of the fiscal year was 4,703.28 feet with storage of 11,919 acre-feet. Total releases for the fiscal year were 19,792 acre-feet. Pool elevation on September 30, 2003 was 4,687.04 feet with storage of 3,733 acre-feet. The maximum elevation was 4,712.99 feet with storage of 21,475 acre-feet on June 10, 2003. There were 80 acre-feet of sediment deposition during the fiscal year. Sediment damages prevented during the fiscal year were $9,000. Accumulated flood and sediment damages prevented by the project since completion are $5,488,100 through FY 2003. Releases attributed to irrigation benefits were $65,600 with an accumulative total of $4,013,500 through FY 2003.

Condition at end of fiscal year. The project was complete in late 1979 and reservoir operation for irrigation was started in March 1980. Construction of the recreation area was completed in October 1980. Design studies for spillway modification were initiated in FY 1970, and construction was completed in FY 1982. The project structures are in good condition and in operation.

10. TRINIDAD LAKE, CO

Location. This project is located on the Purgatorie River about 161 miles above its junction with the Arkansas River. The project is about 4 miles upstream from the city of Trinidad, CO. (See Geological Survey map, Trinidad, CO, quadrangle, scale 1:24,000).

Existing project. The project consists of an earth fill dam 6,620 feet long with a maximum height of 200 feet above streambed, an uncontrolled spillway 1,000 feet wide in the left abutment, and a 10-foot diameter gate-controlled conduit in the right abutment with discharge capability of 5,800 cubic-feet-per-second with a water surface at top of the flood control pool. In 1985, a 3-foot high parapet wall on top of the upstream face of the dam and a supplemental 700 foot-wide rock cut emergency spillway located on the right abutment were constructed to provide adequate discharge capability and freeboard allowance to accommodate the revised probable maximum flood. In 1989, the recreation pool was increased from 4,500 to 15,967 acre-feet, utilizing some originally unallocated space in the project. The reservoir provides for storage of 51,000 acre-feet for flood control, 35,045 acre-feet for sediment, 20,000 acre-feet for irrigation, and 17,179 acre-feet for recreation, a total of 123,224 acre-feet. The reservoir controls a drainage area of 671 square miles and is operated for flood and sediment control, irrigation, and recreation purposes. For authorizing legislation, see page 17-14 of FY 1981 Annual Report.

Local cooperation. Assurances of local cooperation received from the City of Trinidad and Purgatorie River Water Conservancy District were formally accepted May 11, 1967, after execution of an irrigation repayment contract. For complete details of requirements and costs pertaining to the execution of the irrigation repayment contract and the addition of permanent storage for recreation facilities, see page 17-9 of Fiscal Year 1980 Annual Report.

Operations and results during fiscal year. Operation of the dam and reservoir continued. On October 1, 2002, the pool elevation was 6,168.69 feet with a corresponding storage of 13,242 acre-feet. The maximum pool elevation was 6,180.16 feet with a corresponding storage of 20,011 acre-feet on May 5, 2003. On September 30, 2003, the pool elevation was 6,164.57 feet with a corresponding storage of 11,245 acre-feet. Sediment deposition during FY 2003 was 100 acre-feet. Sediment damages prevented during FY 2003 was $37,400. Accrued sediment benefits are $2,806,300. Irrigation benefits for FY 2003 were $41,800. Accrued irrigation benefits through FY 2003are $2,424,300. Irrigation benefit releases for the year were 10,626 acre-feet.

Conditions at end of fiscal year. The project was placed in operation in 1977. The recreation facilities were completed in 1980. The Dam Safety Assurance

contract was completed in May 1983. The project structures are good and in operation.

11. TWO RIVERS DAM, NM

Location. The project is located about 14 miles southwest of Roswell, NM on the Rio Hondo and the Rocky Arroyo. The Rio Hondo is formed at the confluence of the Rio Ruidoso and the Rio Bonito, near the village of Hondo, NM, in the foothill region east of Sierra Blanca in the southeastern part of Lincoln County, NM, and flows generally easterly to its confluence with the Pecos River near Roswell, NM. (See Geological Survey map, Hondo Reservoir quadrangle, scale 1:24,000).

Existing project. The Two Rivers project consists of two dams: Diamond "A" and Rocky. The Diamond "A" Dam is an earth fill structure, 4,885 feet long and 98 feet high, with a gated outlet. The Rocky Dam is an earth fill structure 2,940 feet long and 118 feet high with an uncontrolled outlet. No provision is made for water storage, except for flood control. Flood releases are controlled so that flows through Roswell will not exceed the Rio Hondo channel capacity, which are about 600 cubic-feet-per-second. A Dam Safety Reconnaissance Report, approved in June 1996, identified the need to increase the size of the spillway on the left abutment of the Rocky Dam by 1,170 feet in order to accommodate the revised Probable Maximum Flood flows for the Dam. The spillway was widened 1,170 feet in 1998 to provide adequate discharge capability to accommodate the revised probable maximum flood. The capacity of the Two Rivers Reservoir at its spillway crest is 163,773 acre-feet of which 13,775 acre-feet are provided for sediment reserve. Together, these dams regulate runoff from 1,027 square miles of drainage area. For details of completed improvement and authorizing legislation, see page 17-18 of Annual Report for 1973.

Local cooperation. Section 2 Flood Control Act of 1938 applies and compliance is satisfactory.

Operations and results during fiscal year. Operation of the dam and reservoir continued. The reservoir was empty on October 1, 2002. There were no flood damages prevented during FY 2003. There was $100 in sediment damages prevented during FY 2003. Estimated total accumulated flood and sediment damages prevented through FY 2003 are $190,605,300. There was 1 acre-foot of sediment deposition during FY 2003. The accrued sediment benefits through FY 2003 are $1,108,100.

12. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Included under this heading is inspection of completed flood control projects transferred to local interests for operation and maintenance. Projects in Texas, Colorado, and New Mexico were inspected. Federal costs for FY 2003 were $247,003.98.

13 SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS.

Pursuant to Section 7, Flood Control Act of 1944, five projects are operated by others for flood control. These projects are Platoro, Pueblo, Sumner, Navajo, and Brantley Dams.

Platoro Dam on the Conejos River above the town of Platoro, Conejos County, CO, controls runoff from 40 square miles of high mountain area. The authorized purposes are irrigation storage and flood control. The Conejos Water Conservancy District operates Platoro. Total storage is 59,571 acre-feet with the top 6,000 acre-feet solely for flood control. The 53,571 acre-feet is joint-use storage with flood control on a forecast basis during spring runoff. Platoro Dam was authorized by the Interior Appropriation Act of 1941. (See H. Doc. 693, 76th Cong. 3rd Sess.). The Bureau of Reclamation completed construction of this project in 1952.

On October 1, 2002, storage in Platoro Reservoir was 10,506 acre-feet at elevation 9,964.07 feet. Maximum storage of 13,473 acre-feet at elevation 9,970.51 occurred on October 1, 2002. On September 30, 2003, storage was 7,811 acre-feet at elevation 9,957.63 feet. There were no flood damages prevented by this project during FY 2003. Total flood damages prevented to date are $6,094,200.

Pueblo Dam is part of the Fryingpan-Arkansas project that was authorized under Public Law 98-590, 87th Congress, HR 2206 on August 16, 1962. The project was completed in August 1975. Pueblo is operated by the Bureau of Reclamation and is located at river mile 1,293.7 on the Arkansas River in Pueblo County, CO. Pueblo Reservoir has a total capacity of 349,940 acre-feet at the top of the flood pool with 27,000 acre-feet exclusive flood space and 66,000 acre-feet joint use space.

Operation of Pueblo Reservoir began on February 10, 1974. Storage on October 1, 2002 was 78,076

acre-feet, elevation 4,826.27 feet. Maximum storage during the year was 114,211 acre-feet at elevation 4,840.70 on March 19, 2003. Storage on September 30, 2003 was 66,192 acre-feet at elevation 4,820.66 feet. There were no flood damages prevented in FY 2003. Total flood damages prevented to date are $11,316,700.

Sumner Dam is located on the Pecos River at river mile 710.8 in De Baca County, New Mexico. Sumner Dam was authorized as Alamogordo Dam by the Secretary of the Interior under a Finding of Feasibility approved by the President of the United States on November 6, 1935, under the Federal Reclamation laws. The original project was completed in 1937. Modification work of raising the dam 16 feet, adding a spillway and limiting the service spillway floor to 56,000 cubic-feet-per-second, was completed in 1957. A twenty-four inch bypass line was installed in 1977 to pass flows less than 100 cfs.

The Carlsbad Irrigation District operates Sumner Dam. Storage on October 1, 2002 was 3,938 acre-feet at elevation 4,235.17 feet. Maximum storage for FY 2003 was 14,723 acre-feet at elevation 4,248.87 on February 17, 2003. Storage on September 30, 2003 was 2,833 acre-feet at elevation 4,232.45 feet.

Navajo Dam and Reservoir is located on the San Juan River at river mile 298.6 in San Juan County, New Mexico. Navajo Dam was authorized as part of a Colorado River Storage Project by an act of the 84th Congress, 11 April 1956 (PL 485). The Bureau of Reclamation constructed and is responsible for operation of the project. Construction was initiated in June 1958, and the project was completed and placed in operation in March 1963. Total capacity at spillway crest is 1,708,600 acre-feet. The project controls a drainage area of 3,230 square miles.

Storage on October 1, 2002 was 871,700 acre-feet, elevation 6,015.62 feet. Maximum storage for FY 2003 was 901,000 acre-feet, elevation 6,018.83 feet on October 1, 2002. Storage on September 30, 2003 was 734,400 acre-feet, elevation 5,999.45 feet.

Brantley Dam, on the Pecos River, above the town of Carlsbad in Eddy County, NM, controls runoff from 13,208 square miles of uncontrolled area. The authorized purposes are irrigation, flood control, fish and wildlife, recreation, and the elimination of the hazards of failure of the McMillan and the Avalon Dams. The total storage is 348,544 acre-feet with 189,700 acre-feet for flood control. Public Law 92-514 authorized Brantley Dam for construction on 20 October 1972, with the cost ceiling raised for the project in October 1980 by Public Law 96-375. On September 6, 1988, the conduits were closed and Brantley Dam started its initial filling. On September 30, 2003, the storage was 2,804 acre-feet at elevation 3,229.53 feet.

14. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 36-D

15. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (pre-authorization)

Total Federal costs for Section 205 projects during FY 2003 were $342,837.85. Individual costs per project were: Little Puerco River, Gallup, NM $140,244.90; Section 205 Coordination Account $13,774.31; Hobbs, NM $29,278.83; Unnamed Arroyo, Hernandez, NM $1,670.45; Columbus, NM $92.99; Cheyenne Creek, Colorado Springs, CO $10,192.28; Raton Creek, Raton, NM $371.20; Oak Creek, Florence, CO $56,358.22; Arroyo de la Manteca, Las Vegas, NM $2,324.18; Estancia, NM $11,702.76; North Valley, Bernalillo County, NM $21,871.34; Hatch, NM $29,789.89; N. Albuquerque Acres, Bernalillo County, NM $11,306.36; Northeast Canon City, CO $13,860.14.

Emergency flood control activities; repair, flood fighting, and rescue work. (Public Law 99, 84th Cong., and antecedent legislation.)

There were no Federal costs in FY 2003 for advance preparation, none for flood emergency operations, and there were no repair and restoration costs.

Emergency bank protection (Sec. 14, 1946 Flood Control Act, Public Law 526, 79th Cong.)

Total Federal costs for Section 14 projects for FY 2003 were $200,194.62. Individually, the costs were as follows: Section 14 Coordination Account $12,575.49; Isidro Road, Santa Fe, NM $1,022.84; Rio Puerco River, I-40 Bridge, Gallup, NM $30,03.84; Unnamed Arroyo, Highway 371, near Crownpoint, NM $95.69; Paseo del Norte, Albuquerque, NM $1,359.77; Powers Blvd.,

Colorado Springs, CO $59,933.08; Chelton Road Bridge over Sand Creek, Colorado Springs, CO $36,433.12; 27th Street Bridge, Glenwood Springs, CO $57,394.23; Elephant Mountain, TX $688.28; Avondale Water Supply, CO $688.28.

Snagging and Clearing for Flood Control (Section 208 of the 1954 Flood Control Act, 83rd Cong.)

There were no costs in FY 2003.

ENVIRONMENTAL INFRASTRUCTURE

16. CENTRAL, NM

Location. Central, NM is defined as Bernalillo, Sandoval, and Valencia counties in central New Mexico.

Proposed project. Section 593 of the Water Resources Development Act of 1999 authorized the Corps of Engineers to provide assistance to non-Federal sponsors in the form of design and construction for water-related environmental infrastructure and resource protection and development of publicly-owned projects, including projects for wastewater treatment and related facilities, water supply, conservation and related facilities, stormwater retention and remediation, environmental restoration, and surface water resource protection and development.

Local cooperation. Local sponsors of the projects are responsible for 25% of the costs associated with each project. The Federal share is 75%.

Condition at the end of the fiscal year. To date, seven Project Cooperation Agreements (PCA) have been signed. Of those seven, three projects have been completed, two are under construction, and the remaining projects are in various stages of design. At least two more PCAs are scheduled for signature during fiscal year 2004.

General Investigations
17. SURVEYS

Costs for the fiscal year were $1,550,059.93 of which 313,437.88 was for flood damage prevention studies, $449,517.77 for special studies; $723,415.64 for watershed/comprehensive studies; $39,914.66 for miscellaneous activities; $23,773.98 for coordination with other Federal agencies and non-Federal interests.

18. COLLECTION AND STUDY OF BASIC DATA

Fiscal year costs were $199,228.51 for floodplain management and technical services.

Hydrological studies involving collection and study of basic data, such as stream flow data, collection of suspended sediment samples, recording rain gage data, special studies, hydro-meteorological studies, sedimentation studies, and environmental data studies continued. Costs during the fiscal year were $5,327.84.

19. ENVIRONMENTAL DATA STUDIES

There were no Environmental Data Studies for FY 2003.

20. PRECONSTRUCTION ENGINEERING AND DESIGN

There were no Continuation of Engineering and Design Costs in FY 2003.

21. OTHER WORK UNDER SPECIAL AUTHORITY

Modifications to Structures and Operations of Constructed Corps Projects to Improve the Quality of the Environment, Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as amended.

Federal cost for Section 1135 was $1,740,181.73 of which $22,203.62 was for coordination account funds; $366.89 was for preliminary restoration plans; $827,175.66 for Riparian/Wetland Restoration, Pueblo of Santa Ana, NM; $321,003.63 for Albuquerque Biological Park Wetland Restoration; $350.78 for Rio Grande Silvery Minnow Habitat Restoration; $62,152.44 for Pecos River Restoration, Chaves County; $117,630.20 for Aquatic Habitat Restoration at Pueblo of Santa Ana; $343,488.39 for Ecosystem Revitalization at Route 66, Albuquerque, NM; $7,459.25 for Santa Fe, Pojoaque, Rio Grande, NM; $1,501.41 for East Rio Arriba, Rio Grande, NM; $2,646.22 Coronado, Rio Grande, NM; $5,452.66 for Valencia, Rio Grande, NM; $6,277.69

Cuidad, Rio Grande, NM; $4,422.49 Carlsbad, Pecos River, NM; $7,682.08 Canon City Environmental Restoration; $7,911.68 Upper Hondo Restoration; $739.46 Pecos Ecosystem Restoration, NM; $977.72 Lamar Ecosystem, NM; and $739.46 DeBaca-Guadalupe Ecosystem Restoration, NM.

Aquatic Ecosystem Restoration pursuant to Section 206 of the Water Resources Development Act of 1986.

Federal cost for Section 206 was $937,790.61 of which $21,024.77 was for Coordination Account funds; $326.35 was for Preliminary Restoration Plans; $1,415.67 for Rio Grande Wetland Restoration; $540,461.80 for Arkansas River Fisheries Habitat Restoration; $176,676.58 for Jemez River Aquatic and Riparian Habitat Restoration; $14,313.03 for Confluence Park Restoration; $34,192.03 for Las Cruces Wetland Restoration; $139,247.58 for Bottomless Lakes State Park; $723.28 for El Paso, TX, and $9,409.52 for Rocky Ford Wetland Restoration.

TABLE 36-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
1.	Acequias Irrigation System, NM	New Work					
		Approp.	550,000	1,369,000	4,495,000	1,549,000	19,907,000[1]
		Cost	802,924	1,115,112	3,273,020	1,031,713	17,762,495[1]
	(Contributed Funds)	Approp.	-	337,500	-	454,000	4,013,119
		Cost	-	163,928	320,788	50,273	3,011,294
2.	Alamogordo, NM	New Work					
		Approp.	700,000	2,289,000	2,656,000	1,803,000	12,352,997[2]
		Cost	758,867	1,953,469	2,924,001	1,903,483	12,504,323[2]
	(Contributed Funds)	Approp.	-	1,725,000	595,000	500,000	2,820,000
		Cost	-	25,801	2,259,877	120,059	2,405,738
3.	Alamosa, CO	New Work					
		Approp.	30,000	-	-	-	5,630,000[3]
		Cost	55,835	4,285	43,999	-	5,395,331[3]
	(Contributed Funds)	Approp.	-	-	-	-	440,000
		Cost	14,743	-	-	-	436,927
4.	Conchas, NM	New Work					
		Approp.	-	-	-	-	13,821,499[4]
		Cost	-	-	-	-	13,821,499[4]
		Maint					
		Approp.	1,372,500	1,030,820	1,444,707	1,423,734	31,221,350
		Cost	1,372,305	1,037,043	1,341,527	1,504,425	31,184,665
5.	El Paso, TX	New Work					
		Approp.	2,776,000	4,358,000	2,622,000	3,816,798	118,346,861
		Cost	3,987,235	4,577,844	2,348,261	4,091,332	118,228,683
	(Contributed Funds)	Approp.	-	1,633,000	249,000	165,000	5,891,104
		Cost	-	195,619	1,669,224	182,159	5,891,103
6.	John Martin Reservoir, CO	New Work					
		Approp.	-	-	-	-	15,555,358[5]
		Cost	-	-	-	-	15,555,358[5]
		Maint					
		Approp.	2,016,748	3,008,370	4,549,077	2,494,888	49,831,703
		Cost	1,949,323	3,091,583	3,588,445	3,474,347	49,826,465
7.	Las Cruces, NM	New Work					
		Approp.	2,913,000	3,580,000	300,000	-29,000	8,456,009[6]
		Cost	1,965,936	4,295,249	706,732	11,159	8,453,093[6]
	(Contributed Funds)	Approp.	1,000,000	1,094,156	-	-	2,094,156
		Cost	543,090	642,067	908,731	200	2,094,088
8A.	Abiquiu Dam, NM	New Work					
		Approp.	100,000	-	-	-	34,054,028
		Cost	422,849	-	-	-	33,823,528
		Maint					
		Approp.	1,470,574	1,727,360	2,572,652	2,949,342	47,107,181
		Cost	1,466,183	1,715,049	2,504,269	2,805,923	46,870,025

TABLE 36-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
8B.	Cochiti Lake, NM	New Work					
		Approp.	-	-	-	-	96,956,559
		Cost	-	-	-	-	96,956,559
		Maint					
		Approp.	3,151,643	2,223,426	3,172,994	1,681,802	40,888,851
		Cost	3,013,894	2,173,010	2,503,671	2,427,711	40,879,460
8C.	Galisteo Dam, NM	New Work					
		Approp.	476,000	-	-	-	18,283,053
		Cost	674,146	-	-	-	18,213,168
		Maint					
		Approp.	261,564	282,564	292,287	382,054	5,263,802
		Cost	256,764	288,060	284,056	390,668	5,263,755
8D.	Jemez Canyon Dam, NM	New Work					
		Approp.	-	-	-	-	6,293,972
		Cost	-	-	-	-	6,293,972
		Maint					
		Approp.	586,700	3,330,721	1,964,220	3,219,218	20,189,211
		Cost	569,144	3,347,130	1,884,377	3,300,320	20,188,468
8E.	Middle Rio Grande Flood Protection, NM Bernalillo to Belen, NM (Contributed Funds)	Approp.	515,000	393,000	229,000	371,202	10,399,202[7]
		Cost	448,369	387,135	304,053	377,396	10,360,778[7]
		Approp.	-	-	-	-	2,149,750
		Cost	-	-	-	-	2,109,494
8F.	Rio Grande Floodway, NM	Approp.	-	-	-	-	4,794,868[8]
		Cost	-	-	-	-	4,794,868[8]
8G.	Rio Grande Floodway, San Acacia to Bosque del Apache, NM	Approp.	515,000	73,000	162,000	642.000	5,942,000[9]
		Cost	400,084	233,727	132,460	619,371	5,876,646[9]
9.	Santa Rosa Dam, NM	New Work					
		Approp.	-	-	-	-	41,039,741
		Cost	-	-	-	-	41,039,056
		Maint					
		Approp.	852,295	855,514	1,223,151	967,966	16,916,682
		Cost	850,637	860,392	1,130,117	1,047,573	16,873,526

TABLE 36-A (Continued) **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
10.	Trinidad Lake, NM	New Work					
		Approp.	-	-	-	-	55,774,758
		Cost	-	-	-	-	55,774,758
		Maint					
		Approp.	599,977	577,924	1,051,458	550,859	13,296,916
		Cost	601,525	580,793	739,079	859,396	13,292,506
11.	Two Rivers Dam, NM	New Work					
		Approp.	(20,000)	-	-	-	6,759,244
		Cost	54,973	-	-	-	6,757,619
		Maint					
		Approp.	253,459	317,553	276,932	336,557	7,017,366
		Cost	251,444	319,857	272,834	340,538	7,017,226
16.	Central, NM	New Work					
		Approp.	-	2,514,000	596,000	4,892,000	8,002,000
		Cost	-	263,349	1,529,324	3,862.597	3,862,597
	(Contributed Funds)	Approp.	-	-	545,521	117,500	1,070,521
		Cost	-	-	329,259	311,377	640,637

[1] Includes $200,000 PED funds.

[2] Includes $1,186,000 PED funds.

[3] Includes $734,000 PED funds.

[4] Includes $3,492,696 maintenance and improvement costs and $869,978 for emergency relief, excludes $2,279,326 cost of initiating project under the authority of Emergency Relief Appropriations Act of 1935, and $222,669, the cost for work performed with funds transferred to the Corps under Public Works Acceleration Act of 1962.

[5] Excludes $59,977 emergency relief funds for new work. Includes $30,000 for Code 710.

[6] Includes $591,009 PED funds.

[7] Includes $1,187,000 PED funds.

[8] Includes funds for pre-construction planning of Española Valley unit. Excludes $1,000,011 appropriated funds transferred to Bureau of Reclamation under memorandum of agreement between that agency and the Corps.

[9] Includes $1,658,000 PED funds.

TABLE 36-B AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
1.	Nov. 17, 1986	**ACEQUIAS IRRIGATION SYSTEM** An irrigation system dating back to the eighteenth century with significant engineering work in the settlement and development of the western portion of the United States. Restoration and of this system has a cultural and historical value to the region. Measures are necessary to restore and protect the river division structures and associated costs.	Public Law 662, 99th Cong., 2nd sess. (Sec.1113)
	Oct. 12, 1996	Except that the Federal share of reconnaissance studies carried out by the Secretary under this section shall be 100%.	Public Law 104-30 104th Cong., (Sec. 101)
3.	Oct. 31, 1992	**ALAMOSA, COLORADO** Authorized a flood control project for Alamosa, CO.	Public Law 102-580 102d Cong., (Sec. 101)
5.	Oct. 27, 1965	**EL PASO, TEXAS** A single-purpose flood control system of detention dams, diversion dikes and channels to collect, regulate, and discharge arroyo runoff in the Rio Grande. Consists offour independent units (NW Area, Central Area, and two units, Copper system and Bluff Channel of the SE Area).	H. Doc. 207, 89th Cong. 1st sess.[1]
7.	Oct. 12, 1996	**LAS CRUCES, NEW MEXICO** The project for flood control, Las Cruces, NM; Report of the Chief of Engineers, dated June 24, 1996, at total of $8,278,000, with an estimated Federal cost of $5,494,000 and an estimated non-Federal cost of $2,784,000.	Public Law 104-303 104th Cong., (Sec.)
8.	Jun. 30, 1948	**RIO GRANDE BASIN, NEW MEXICO** Authorized to be appropriated $3,500,000 to be expended by the Dept. of the Army for partial accomplishment of approved general comprehensive plan for the Rio Grande Basin in NM and Colorado.	H. Doc. 243, 81st Cong., 1st sess.
	May 17, 1950	Authorized to be appropriated and additional $39,000,000 for Department of the Army for prosecution of comprehensive for the Rio Grande Basin.	Public Law 516, 81st Cong., 2nd Sess.
	Jul. 14, 1960	Authorized Cochiti Dam on Rio Grande and Galisteo Dam on Galisteo Creek as additions to authorized comprehensive plan for Rio Grande Basin (Cochiti Dam was authorized in lieu of Low Chamita Dam of Chamita Dam Reservoir Project on Rio Chama under "substitute plan"). Also authorized to be appropriated an additional $58,300,000 for Dept. of the Army for an addition to comprehensive plan for the Rio Grande Basin.	S. Doc. 94, 86th Cong.
	Nov. 17, 1986	Authorized legislation of the Abiquiu Dam Emergency Gates by the Water Resources Development Act of 1986 (PL 99-662).	Public Law 662, 99th Cong., 2nd sess.
	Sep. 30, 1997	The emergency gate construction project for Abiquiu Dam, NM, Authorized by Section 1112 of the Water Resources Development Act of 1986 (PL 99-662, 100 Stat. 4232) is modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to Construct the project at an estimated cost of $7,000,000. The non-Federal share of the project shall be 25 percent of those costs of the project attributable to an increase in flood protection as a result of the installation of such gates.	

TABLE 36-B AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
8E.	Nov. 17, 1986	**MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELEN, NM** Authorized project for flood control, Middle Rio Grande Flood Protection, Bernalillo to Belen, NM. Authorized increase of flood protection through the dredging of the bed of the Rio Grande in the vicinity of Albuquerque, NM, to an elevation lower than existed on the date of enactment of this Act. The project shall include the establishment of 75 acres of wetlands for fish and wildlife habitat and the acquisition of 200 acres of land for mitigation of fish and wildlife losses.	Public Law 662, 99th Cong., 2nd sess.
8F.	Jun. 30, 1948 and May 17, 1950	**RIO GRANDE FLOODWAY, NM** Channel rectification, levee enlargement and construction, and bank stabilization on Rio Grande between river mile 123 and 394 (San Acacia to Bosque del Apache Unit).	Con., 1st Sess.[1] and Public Law 516, 81st Cong., 2nd sess.
8G.	Oct. 31, 1992	**RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE UNIT, NM** Modified the cost sharing to more equitably reflect the non-Federal contribution for the project by that percentage of benefits which is attributable to the Federal properties; except that, for purposes of this subsection, Federal property benefits may not exceed 50 percent of the total project benefits.	Public Law 102-580 102d Cong., (Sec. 102(e)).
16.	Aug. 17, 1999	**CENTRAL, NM** Design and construction assistance for water-related environmental infrastructure and resource protection and development projects to include wastewater treatment and related facilities, water supply, conservation and related facilities, stormwater retention and remediation, environmental restoration, and surface water resource protection and development. Federal costs under each local cooperation agreement shall be 75 percent in the form of grants or reimbursements. The non-Federal share of operation and maintenance costs shall be 100 percent. Authorized appropriation is $25,000,000 available FY 2000 and remain available until expended.	Public Law 106-53, 106th Cong., (Sec. 593)

TABLE 36-D OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report, See Annual For	Construction	Cost to September 30, 2003 Operation & Maintenance
Alamogordo Diversion Channel, Tularosa (closed) Basin, NM	1996	$ 189,356	-
Albuquerque Diversion Channels	1998	19,348,480	-
Alpine, Texas	1977	130,488	-
Cibolo Creek, Texas[1]	1983	829,500	-
Cochiti Wetfields, New Mexico	1994	13,921,290	-
Colorado Springs, Fountain que Bouille River, Colorado (Templeton Gap Floodway) [1]	1959	881,262	-
Creede, Willow Creek, Pueblo, Colorado[1]	1952	219,875	-
Fountain Creek, Pueblo, Colorado[1]	1993	6,564,399	-
Highway 12, Colorado[1]	1985	120,500	-
Holly, Colorado[1]	1985	2,021,400	-
Las Animas, Colorado[2]	1980	4,956,000	-
Las Cruces, New Mexico[2]	1980	5,521,968	-
Pecos, Texas[3]	1977	480,273	-
Piñon Canyon Dam, Trinidad, Colorado (Sec. 212)[1]	-	130,678	-
Pueblo, Arkansas River, Colorado (floodway levee extension)[1]	1954	201,958	-
Puerco River, Gallup, New Mexico[1]	1993	4,971,394	-
Rio Grande Floodway, T or C Unit, New Mexico[1]	1994	12,955,052	-
Santa Fe River and Arroyo Mascaras, New Mexico[1]	1983	1,136,250	-
Smith Creek, Colorado[1]	1985	219,000	-
Socorro Diversion Channel, Tributaries of Rio Grande, NM	1965	2,259,328	-

[1] Completed [2] Responsibility of Local Interests [3] Inactive [4] Deferred

TABLE 36-F RIO GRANDE BASIN, NM
RIO GRANDE BASIN, NM: EXISTING PROJECT
(See Section 8 of Text)

Project	River	Miles Above Mouth	Nearest Town	Drainage Area (square miles)	Description	Total Estimated Cost
Abiquiu Dam	Rio Chama	32	Española, NM	2,147 1,212,000 af cap.	Earthfill 325 feet high	$30,901,028[3]
Jemez Canyon	Jemez Creek	2	Bernalillo, NM	1,034 106,100 af cap.	Earthfill 136 feet high	$ 6,293,000
Rio Grande Floodway	Rio Grande	123 to 394	-		Channel rectification, levee enlargement & construction	$25,744,000[2]
Cochiti Lake	Rio Grande	340[1]	Cochiti, NM	11,695 596,300 af cap.	Earthfill 158 feet high	$96,956,559
Galisteo Dam	Galisteo Creek	8	Waldo, NM	596 89,000 af cap.	Earthfill 158 feet high	$17,807,053

[1] River mile 0 is at intersection of New Mexico-Texas state line with international boundary at El Paso, Texas.

[2] Does not include non-Federal costs.

[3] Includes $5,383,000 major rehabilitation, $138,900 for recreation facilities, and $3,600,000 for emergency gates.

LITTLE ROCK, ARKANSAS

The civil works portion of this District covers an area of approximately 36,414 square miles in northern, western, and southwestern Arkansas and a portion of Missouri. This area is within the Arkansas River, Little River, and White River basins. In the Arkansas River Basin, the District is responsible for planning, design, construction, operation, and maintenance of the navigation portion of the McClellan-Kerr Arkansas River Navigation System (MCKARNS). The District is also responsible for the areas included in the Arkansas River drainage basin from above Pine Bluff, AR, to below the mouth of the Poteau River, near Fort Smith, AR. In Little River Basin, the District is responsible for the portion of the Little River and its tributaries that are in the state of Arkansas above its mouth near Fulton, AR. In the White River Basin, the District is responsible for those portions in southern Missouri and northern and eastern Arkansas in the White River drainage basin and its tributaries above Peach Orchard Bluff, AR. The Memphis District is responsible for navigation maintenance on the White River below Newport, AR, to the mouth of Wild Goose Bayou, in Arkansas County, AR. The White River downstream from the mouth of Wild Goose Bayou is part of MCKARNS.

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Navigation

1. ARKANSAS RIVER BASIN, AR, OK, AND KS

Location. The headwaters for the Arkansas River are in the Rocky Mountains near Leadville, CO. The river flows southeastward 1,396 miles through Colorado, Kansas, Oklahoma, and Arkansas to join the Mississippi River 599 miles above Head of Passes, LA.

Previous projects. For details see page 1066, Annual Report for 1932, and pages 744, 864, and 881, Annual Report for 1943.

Existing project. The MCKARNS provides navigation, hydroelectric power, flood control, water supply, sediment control, recreation, and fish and wildlife propagation improvements in the Arkansas River Basin. The MCKARNS provides a navigation channel 9 feet deep and 444.8 miles long. The channel begins at the mouth of the White River, which enters the Mississippi River 599 miles above Head of Passes, LA, thence 9.8 miles upstream to the mouth of Wild Goose Bayou; thence 9.2 miles by a land cut, designated as Arkansas Post Canal to mile 42 (1943 survey) on the Arkansas River; thence 376.0 miles to the mouth of the Verdigris River at navigation mile 395.0; thence 49.8 miles up the Verdigris River to the head of navigation at Catoosa, OK.

The waterway is canalized throughout its length by 17 locks and dams with a total lift of 420 feet. Dardanelle, Ozark-Jeta Taylor, Robert S. Kerr, and Webbers Falls are multiple purpose projects that include hydropower. Lock chambers are 110 by 600 feet. A minimum channel width of 150 feet is provided for the Verdigris River, 225 feet for San Bois Creek, 250 feet for the Arkansas River, and 300 feet for Arkansas Post Canal and White River Entrance Channel.

Other coordinated developments consist of 15 lakes, of which 13 are in Tulsa District, in the states of Kansas and Oklahoma, and two are in the Little Rock District. Pertinent data and estimated Federal cost are summarized in Tables 37-H and 37-I, Navigation: Arkansas River Basin, AR, OK, and KS.

Local cooperation. For MCKARNS, local interests must provide adequate terminal and transfer facilities and bear the increased costs of maintenance and operation of all altered rail and highway routes, including bridges and appurtenances, utilities, and other existing improvements, other than federally owned. For lakes see requirements for each individual lake.

Terminal facilities. Public port facilities are in operation at Pine Bluff (Jefferson County), Little Rock, and Fort Smith, AR, and Muskogee and Catoosa (Tulsa-Rogers County), OK. Port authorities have been organized to develop public facilities at North Little Rock, Dardanelle-Russellville, Morrilton, Clarksville, Ozark, and Van Buren, AR, and Sallisaw, OK. Terminal facilities are in operation or being built at 35 locations in Arkansas and at 25 locations in Oklahoma along the improved waterways.

Operations and results during fiscal year.

Flood damages prevented by Little Rock District levee projects in the Arkansas River Basin during FY03 are estimated at $1,006,900; flood losses prevented through FY03 are estimated at $814,288,200.

Approximately 12.4 million tons of commerce was moved on the Arkansas portion of the MCKARNS during calendar year 2002. Details of the MCKARNS and lakes in Arkansas are shown on the following pages.

Withdrawals for water supply purposes were the city of Plainview, AR, 90.25 acre-feet from Nimrod Lake.

Condition at end of fiscal year. *(See Tables 37-H and 37-1, Navigation: Arkansas River Basin; AR, OK, and KS, for status for individual items, navigation projects, lakes, and basin plan.)* Work continues on the Arkansas River project in this District including construction of the Montgomery Point Lock & Dam, a meander cutoff levee between the Arkansas and White Rivers, and land acquisition studies.

Installation of tow haulage equipment was completed at David D. Terry Lock and Dam (No. 6), Lock and Dam No. 5, Emmett Sanders Lock and Dam (No. 4), and Joe Hardin Lock and Dam (No. 3) in 1994, at Norrell Lock (Lock 1) and Lock No. 2 in 1997, and Murray Lock (No. 7) in 1998. Tow haulage was installed on Toad Suck Lock and Dam (No. 8), Ormond Lock and Dam (No. 9), Dardanelle Lock and Dam (No. 10), Ozark Lock and Dam (No. 11), and Trimble Lock and Dam (No. 13), in FY 99-FY00.

2. ARTHUR V. ORMOND LOCK & DAM (NO.9), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. Rockefeller Lake (pool 9) has four developed parks that in FY03 experienced public visitation exceeding 0.61 million visitor-hours.

Condition at end of fiscal year. Construction began in April 1965 and the lock and dam was placed in operation in July 1969. Construction of Holla Bend closure structure (fish and wildlife mitigation) began in July 1986 and was completed in September 1987. Construction of a non-Federal hydropower project, under the authority provided by the Federal Energy Regulatory Commission, was completed and placed into operation in August 1993. Construction of a widened downstream entrance was completed in 1998. Installation of tow haulage equipment was complete in 1999.

3. DAVID D. TERRY LOCK AND DAM (NO. 6), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Condition at end of fiscal year. Construction began in January 1965 and the lock and dam project was placed in operation in August 1968. Tow haulage equipment was added in June 1993. Currently, the project has two developed parks, which in FY 03 experienced public visitation exceeding 2.8 million visitor-hours.

4. EMMETT SANDERS LOCK AND DAM (NO. 4), AR

Location, existing project, local cooperation and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. Pool 4 has two developed parks, which in FY03 experienced public visitation exceeding 0.7 million visitor-hours.

Condition at end of fiscal year. Construction began in May 1964 and the lock and dam project was placed in operation in December 1968. Construction of a 40-foot wide, 9,600-foot long highway bridge crossing the lock and dam was completed in July 1995. The Corps of Engineers, as the Federal agency, has jurisdiction and custody of the dam (23 U.S.C. 320 [Public Law 2810]). The project was 100 percent funded by the Arkansas State Highway and Transportation Department. Tow haulage equipment was placed into operation in June 1993.

5. JAMES W. TRIMBLE LOCK AND DAM (NO. 13), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. In FY03, the project's three developed parks experienced public visitation exceeding 0.9 million visitor-hours.

Condition at end of fiscal year Construction began in October 1965 and the lock and dam were placed in operation in April 1969. The bridge across the dam was completed in July 1968. Construction of a non-Federal hydropower facility at the project was completed in November 1988 under the authority provided by the Federal Energy Regulatory Commission. The contract to install tow haulage equipment was awarded in December 1998.

6. LOCK NO. 2 AND WILBUR D. MILLS (NO. 2), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Operation and maintenance continued. Wilbur D. Mills has five developed parks, which in FY03 experienced public visitation exceeding 3.2 million visitor-hours.

Condition at end of fiscal year. Construction began in May 1963. The lock was placed in operation in March 1968. Emergency repairs to the scour protection features and tainter gates at the dam that resulted from a barge accident in December 1982 were completed in FY85. The barges that clogged the dam gates during the December 1982 flood showed that, with a certain set of circumstances (higher than normal head combined with the clogged gates resulted in high current velocity that caused both upstream and downstream scouring), the structure could fail. This condition exists primarily because the structure was constructed on piling and designed for all of the gates to operate in unison.

A model study by the Waterways Experiment Station determined the most feasible solution to this problem is to extend the stilling basin downstream. A contract to extend the stilling basin was awarded in June 1990 and completed in FY94. Project costs are estimated at $21.6 million. A contract was awarded in September 1995 to add tow haulage equipment at Lock No. 2. Construction of a non-Federal hydropower project, under the authority provided by the Federal Energy Regulatory Commission is complete and was placed into operation in December 1999.

7. JOE HARDIN LOCK AND DAM (NO. 3) AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. Pool 3 has three developed parks which in FY03 experienced public visitation exceeding 0.4 million visitor-hours.

Condition at end of fiscal year. Construction began in May 1963 and the lock and dam were placed in operation in December 1968. Tow haulage equipment was installed and operational in 1993.

8. LOCK AND DAM NO. 5, AR

Location, existing project, local cooperation and terminal facilities. *(See section 1.)*

Operation and results during fiscal year. Continued operation and maintenance. Pool 5 has two developed parks which in FY03 experienced public visitation exceeding 0.7 million visitor-hours.

Condition at end of fiscal year Construction began in November 1964 and the lock and dam were placed in operation in December 1968. Tow haulage equipment was installed in June 1993.

9. MURRAY LOCK AND DAM (NO. 7), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Operation and maintenance continued. Murray has five developed parks, which in FY03 experienced public visitation exceeding 3.2 million visitor-hours. The Corps initiated design of a pedestrian-bicycle bridge that would be constructed across the lock and dam under the Support for Others program. The sponsor is Pulaski County, Arkansas.

Condition at end of fiscal year. Construction began in November 1964 and the lock and dam was placed in operation in October 1969. Construction of a non-Federal hydropower facility at the project was completed in May 1988 under the authority provided by the Federal Energy Regulatory Commission.

10. NORRELL LOCK AND DAM (NO. 1) AND ENTRANCE CHANNEL, AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Recommended modification. The White River Entrance Channel is the first reach in the MCKARNS project. This is the only reach in the navigation system where the minimum stage is controlled by the stages of the Mississippi River and not by a downstream dam. Water surface elevations on the Mississippi River have been declining for years due to changed hydraulic conditions and riverbed elevations, resulting in inadequate navigation depths in the White River Entrance Channel.

Construction of the Montgomery Point Lock and Dam would eliminate the navigation restrictions. The new lock and dam will include "bottom" operated gates and a lock chamber of 600 feet by 110 feet with miter gates. The navigation pass over the dam (gates down) will be approximately 77 percent of the time for present conditions and 64 percent of the time for future conditions.

Operations and results during fiscal year. Operation and maintenance continued. The project currently has one developed park which in FY03 experienced public visitation exceeding 00.5 million visitor-hours.

Condition at end of fiscal year. Construction began in May 1963, and the lock and dam were placed in operation in June 1967. A contract to add tow haulage equipment to the lock was completed in 1997.

11. TOAD SUCK FERRY LOCK AND DAM (NO. 8), AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. In FY03, the project's five developed parks experienced public visitation exceeding 0.9 million visitor-hours.

Condition at end of fiscal year. Construction began in July 1965 and the lock and dam was placed in operation in November 1969. The Conway water supply project was completed and transferred to the city for operation and maintenance in July 1983. Installation of tow haulage equipment was complete in 1999.

12. MAINTENANCE AND REPAIR FLEET AND MARINE TERMINALS, AR

Location, existing project, local cooperation, and terminal facilities. *(See section 1.)*

Operations and results during fiscal year. Operation and maintenance continued.

Condition at end of fiscal year. Construction of Pine Bluff Marine Terminal began March 1968 and was placed in operation in April 1969. Construction of the Dardanelle Marine Terminal began June 1968 and it was placed in operation in November 1969.

13. OTHER AUTHORIZED NAVIGATION PROJECTS

(See Table 37-C for other authorized navigation projects.)

14. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Preauthorization studies under the small project continuing authorities program, navigation activities, Section 107, Public Law 86-645, as amended. Expenditures for Sec. 107 activities in FY03 totaled $221,821. Coordination account, $10,029; Russellville Harbor, Arkansas River, AR; $189,968; Ft. Chaffee Port, Ft Smith, AR $21,821.

Flood Control

15. BLUE MOUNTAIN LAKE, AR

Location. *(See Table 37-1: Arkansas River Basin, AR, OK, and KS: Lakes.)*

Existing project. Construction cost was approximately $5.1 million. For further information see pages 906 and 907 of the 1962 Annual Report.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations and results during fiscal year. Operation and maintenance of project continued. Flood damages prevented during FY03 are estimated at $75,100; cumulative benefits through September 30, 2003, are estimated at $30,528,300. The project's five developed parks experienced public visitation exceeding 1.6 million visitor-hours during FY03.

Condition at end of fiscal year. Project is complete except for additional recreational sanitary facilities. Construction of the project began in May 1940 and it was placed in operation in March 1947.

16. CLEARWATER LAKE, MO

Location. *(See Table 37-K: White River Basin, AR & MO: Lakes.)*

Existing project. Construction of the outlet works for the dam was initiated in May 1940 and completed in March 1942. Due to work stoppage during World War II, the earth embankment and uncontrolled spillway were not completed until December 1948. The spillway weir was completed in 1951. Cost of construction was approximately $9,715,000. For further information, see pages 897 and 898 of 1962 Annual Report.

Major rehabilitation. Construction of an upstream seepage berm, a grout curtain on the right abutments, a parapet wall along the dam, and widening of the spillway from 190 feet to 370 feet was completed in December 1988 at a cost of approximately $11,620,000.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations and results during fiscal year. Operation and maintenance continued. Flood damages prevented during FY03 are estimated at $39,600; cumulative benefits through September 2003 are estimated at $202,184,500. Project currently has 6 developed parks, which in FY03 experienced public visitation exceeding 4.1 million visitor-hours.

Condition at end of fiscal year. Project is complete except for improvements to the sanitary facilities in the recreation areas. Construction of the project began in June 1940 and was ready for beneficial use in March 1948. A new water control plan is being considered that better meets the needs of the interests in the basin. Objections by the Arkansas Game & Fish Commission during the review of the Draft Environmental Assessment have delayed progress on implementation of the proposed plan. In January 2003, a sinkhole developed in the upstream face of the dam. Investigations were conducted that indicate seepage through the bedrock is the likely causative mechanism for the sinkhole. A drilling and grouting project was awarded in the approximate amount of $2.1M. A major rehabilitation study was initiated in FY03 to develop a long-term solution for seepage, which is expected to lead to a new construction start in FY05.

17. DEQUEEN LAKE, AR

Location. On Rolling Fork River, RM 22.8, a tributary of the Little River, in Sevier County, about 4 miles northwest of DeQueen, AR.

Existing project. An earth-fill dam, 2,360 feet long, constructed to 160 feet above streambed. An uncontrolled spillway, 200 feet wide, is about 1,400 feet east of main embankment. Outlet works consist of a gated conduit, 12 feet in diameter.

The lake controls 169 square miles of drainage area and provides a total storage of 136,100 acre-feet (101,200 acre-feet for flood control storage, 25,500 acre-feet for conservation storage, and 9,400 acre-feet for sedimentation reserve). Federal cost of the project is estimated at $19,623,752.

Local cooperation. Section 2, Flood Control Act of 1938, and Section 301, Water Supply Act of 1958, as amended, apply.

Operations and results during fiscal year. Routine operation and maintenance continued. Flood damages prevented during FY03 are estimated at $50,400; cumulative benefits through September 2003 are estimated at $10,578,100. In FY03, the project's six developed parks experienced public visitation exceeding 1.4 million visitor-hours.

Condition at end of fiscal year. Construction began April 1966. Project was placed in useful operation in August 1977.

18. DIERKS LAKE, AR

Location. On Saline River, RM 56.6, a tributary of the Little River, about 5 miles northwest of Dierks, Howard County, AR.

Existing project. An earth-fill dam, 2,760 feet long, and about 153 feet above the streambed. An uncontrolled spillway 800 feet wide is in a saddle at the west end of the dam. Outlet works consisting of a gated 6- by 9-foot oblong conduit, one 24 -inch low-flow pipe, and one 30-inch water supply pipe are provided. The lake controls a drainage area of 114 square miles and provides for storage of 67,100 acre-feet for flood control and 29,700 acre-feet for water supply, conservation, and sedimentation reserve, a total of 96,800 acre-feet. The Federal cost of the project was $16,002,903.

Local cooperation. Section 2, Flood Control Act of 1938, and Water Supply Act of 1958, as amended, apply.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $16,800; cumulative benefits through September 2003 are estimated at $6,252,900. Currently have three developed parks, which in FY03 experienced 1.2 million visitor-hours.

Condition at end of fiscal year. Construction began in June 1968. In May 1975, the embankment closure was completed and the project was placed in useful operation.

19. FOURCHE BAYOU BASIN, LITTLE ROCK, AR

Location. On Fourche, Rock and Grassy Flat Creeks in the vicinity of Little Rock, Pulaski County, AR.

Existing project. This flood control project, consisting of 11.6 miles of channel improvement with railroad and road bridge widening (estimated cost of $30.7 million), was turned over to the city of Little Rock for operation and maintenance. The project authorization included the acquisition of 1,750 acres of bottomlands (for flood storage and environmental preservation) with nature appreciation facilities; this work has yet to be accomplished. A Limited Reevaluation Report (scheduled to be complete in 2004) is for the ASA (CW) to decide if acquisition of the bottomlands should be budgeted.

Local cooperation. The city of Little Rock, the project sponsor, signed the local cooperation agreement in August 1987.

20. GILLHAM LAKE, AR

Location. Dam site is on the Cossatot River, RM 49.0, in Howard County, about 5 miles northeast of Gillham in Sevier County, AR.

Existing project. Federal cost of the project was $17,827,111.

Local cooperation. Section 2, Flood Control Act of 1938, and Section 301, Water Supply Act of 1958, as amended, apply. Tri-Lakes Water District furnished a resolution of intent to repay costs allocated to water supply storage.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $96,500; total cumulative flood damages prevented are estimated at $14,384,700. In FY03, the project's four developed parks experienced public visitation exceeding 1.5 million visitor-hours.

Condition at end of fiscal year. Construction began in June 1968. The embankment closure was completed in May 1975, and the project was placed in useful operation.

21. LITTLE RIVER BASIN, AR

Location. Improvements are on the Little River and tributaries in Arkansas. More definite locations of individual items are shown in Table 37-J.

Existing project. A six-lake system for flood control and other purposes in the Little River Basin. The system consists of four lakes in Arkansas: Millwood on the main stem, Dierks on the Saline River, DeQueen on the Rolling Fork River, and Gillham on the Cossatot River; and two lakes in Oklahoma: Broken Bow on the Mountain Fork River and Pine Creek on the Little River. Under a District boundary change, effective in October 1980, the four projects in this system in Arkansas were

reassigned from the Tulsa District to the Little Rock District.

Local cooperation. Section 2, Flood Control Act of 1938, and Section 301, Water Supply Act of 1958, as amended, apply. Tri-Lakes Water District (DeQueen, Gillham, and Dierks) furnished a resolution of intent to repay costs allocated to water supply storage. The Southwest Arkansas Water District is currently repaying costs allocated to water supply storage at Millwood Lake.

Operations and results during fiscal year. Operation and maintenance of projects continued. See individual projects for details. Flood damages prevented by the Little River Basin reservoirs during FY03 are estimated at $163,900; cumulative benefits through September 2003, are estimated at $44,828,100.

Withdrawals for water supply purposes were approximately: Tri-Lakes Water District, AR, 1,301.87 acre-feet from Gillham Lake; Tri-Lakes Water District, AR, 351.83 acre-feet from Dierks Lake; Tri-Lakes Water District, AR, 490.16 acre-feet from DeQueen Lake, and Southwest Arkansas Water District, AR, 74,841.09 acre-feet from Millwood Lake.

Condition at end of fiscal year. Millwood, DeQueen, Gillham, and Dierks Lakes are complete and in operation.

22. MILLWOOD LAKE, AR

Location. On the Little River, RM 16.0, approximately 7 miles east of Ashdown, Little River County, AR, and about 2 miles northeast of Millwood, Little River County, AR.

Existing project. The Federal cost of the project was $46,087,382.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations and results during fiscal year. Routine operation and maintenance continued. Flood damages prevented during FY03 are estimated at $200; cumulative benefits through September 2003 are estimated at $13,612,400. Millwood Lake has 12 developed parks, which in FY03 experienced public visitation exceeding 4.0 million visitor-hours.

Condition at end of fiscal year. Construction began in September 1961 and the project was placed in full flood control operation in August 1966.

23. NIMROD LAKE, AR

Existing project. Estimated cost is $4,092,825. For further information see pages 908 and 909 of 1962 Annual Report.

Local cooperation. Section 2 of the 1938 Flood Control Act applies.

Operations and results during fiscal year. Operation and maintenance of project continued. Addition and improvement to existing recreation sanitary facilities continued. In FY03, seven parks experienced public visitation exceeding 1.5 million visitor-hours. During FY03, flood damages prevented are estimated at $970,400; cumulative benefits through September 2003 are estimated at $22,384,300.

Condition at end of fiscal year. Project is complete.

24. WHITE RIVER BASIN (LITTLE ROCK DISTRICT), AR & MO

Location. Improvements are on the White River and tributaries, Arkansas and Missouri. More definite location of individual items is shown in Table 37-K: White River Basin.

Existing project. A general comprehensive plan for flood control and other purposes in the White River Basin. The plan includes seven lakes; two are flood control only projects and five are multiple-purpose projects. Beaver, Table Rock, Bull Shoals, Norfork, Clearwater, Greers Ferry and Bell Foley lakes were selected and approved for construction by the Chief of Engineers, and individual reports on six of these seven lakes are presented on subsequent pages. The Bell Foley project, the remaining unbuilt authorized project, was reevaluated in FY 89; the project continues to have a favorable benefit-to-cost ratio since its formulation in 1968. The lakes in the plan are listed in Table 37-K: White River Basin.

Local cooperation. Section 2, Flood Control Act of 1938 applies, Water Supply Act of 1958, as amended, applies to Beaver, Greers Ferry, and Norfork projects.

Operations and results during fiscal year. Operation and maintenance of projects continued. Flood damages prevented by the White River Basin reservoirs during FY03 are estimated at $3,268,700; cumulative benefits through September 2003, are estimated at $593,055,200. Flood damages prevented by the White River Basin levees during FY03 are estimated at $1,496,500; cumulative benefits through September 2003, are estimated at $94,151,500.

Electric energy delivered to Southwestern Power Administration for marketing during FY03 totaled 2.8 billion kilowatt-hours.

FY03 water releases for fish hatcheries were: 28,959 acre-feet from Norfork Lake for Fish and Wildlife Service trout hatchery; 14,479 acre-feet from Table Rock Lake for Missouri Conservation Commission trout hatchery; and, 14,479 acre-feet from Greers Ferry Lake for U.S. Fish and Wildlife Service trout hatchery.

Withdrawals for water supply purposes were: Beaver Water District, AR, 47,064.01 acre-feet, and Carroll-Boone Water District, AR, 7,845.53 acre-feet, from Beaver Lake; Madison County Water District, AR, 3,678.55 acre-feet, and Benton-Washington Counties Water District, AR, 7,151.76 ac-ft, from Beaver Lake; Kings River Country Club, 00 ac-ft, from Table Rock Lake; Marion County Regional Water District, AR, 897.13 acre-feet from Bull Shoals Lake; Water and Sewer Improvement District No.3 of Mountain Home, AR, 3,480.43 acre-feet from Norfork Lake; and the city of Clinton, AR, 2,455.94 acre-feet; Higden., AR, 4,481.12 acre-feet; Red Apple Inn, AR, 64.68 acre-ft; Thunderbird Country Club, AR, 21.85 acre-ft, and, Tannenbaum, AR, 150.78 acre-ft from Greers Ferry Lake.

Condition at end of fiscal year. Beaver, Table Rock, Bull Shoals, Norfork, Clearwater, and Greers Ferry lakes are complete and in operation. Progress on these lakes is shown in individual reports. Water Valley and Lone Rock lakes have been deauthorized. A new water control plan was approved and implemented in December 1998. This plan was developed in close coordination with the basins various interests and was recommended as their preferred plan of operation.

25. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Approved regulations for operation and maintenance of flood control works, Part 208 of Title 33, Code of Federal Regulations, provide for periodic inspection of completed projects transferred to local interests for operation and maintenance. Inspections of local flood protection projects were made to determine extent of compliance with approved regulations for maintenance and operation of these projects. Responsible officials of improvement districts concerned were advised of inadequacies in maintenance and operation of local flood protection works under their jurisdiction where appropriate. Costs for FY03 were $236,841.

26. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 37-E: Other Authorized Flood Control Projects.)

27. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

(1) Emergency bank protection, Section 14, 1946 Flood Control Act. FY03 costs, $338,423; Section 14, Coordination Account, $15,122; Route A @ Sinking Creek, Shannon County, Federal $53,715; Little Rock Slackwater Harbor, AR, $4,115; and Arkansas River @ I-430 Bridge, North Little Rock, AR, $182,259; Old Grand Glaise, Jackson County, AR, $18,208; US Highway 71 Bridge, Red River, $20,230; US Highway 164 Bridge, Little Piney Creek, $19,751; Batesville Wastewater Treatment, $25,023.

(2) Snagging and clearing, Section 208, 1954 Flood Control Act. Fiscal year costs: None..

(3) Flood control activities, Section 205, 1948 Flood Control Act. FY03 costs, $297,551: Section 205 Coordination Account, $15,064; White River, Batesville, AR, $1,865; Mill Creek, AR $95,632; Jam Up Creek, Mountain View, MO, $28,468; Johnson Creek & Tributaries, Y-City, AR, $12,025; Otter Creek & Tributaries, Shannon Hills, AR, $9,489; Town Branch Creek, Clinton, AR, $39,924; High School Branch, Neosho, MO, 15,233; Archey Fork Creek, Clinton, AR, $7,433; Cox Creek, Lavaca, AR, $7,167; Crooked Creek, Saline County, AR, $$8,635; Prairie Creek, Russellville, AR, $11,108; Hidden Valley, Needmore Branch, $45,508.

Multiple-Purpose Projects Including Power

28. BEAVER LAKE, AR

Location. *(See Table 37-K: White River Basin.)*

Existing project. Estimated cost is $50,797,000. For further information see 788 and 789 of 1966 Annual Report. *(For authorization see Table 37-B)*

Major rehabilitation. Since the dam was constructed there has been a seepage problem below Dike No. 1. Based on detailed investigation, it was determined that the limestone foundation under Dike 1 and 200 feet of the north end of the main dam embankment is the main problem. The plan of improvement was a concrete seepage cutoff in Dike 1 and the north end of the main dam. A $16.9-million contract to construct a concrete cutoff wall was awarded in June 1989; the notice to proceed was issued in October 1989. The contract period was estimated to be 760 days. However, the contractor ceased productive work due to inability to excavate rock and was been placed in default. An $18.8 reprocurement contract was awarded in April 1992. Work began in May 1992 and all work was completed in Nov 1995. Project cost is estimated at $26,588,000 million.

The Beaver Dam Safety Assurance study was completed with FY 97 expenditures of $1,359.61.

Water Quality Enhancement. Congress directed the Corps to implement best management practices (BMP's) in the Beaver Lake watershed and monitor the effects of these practices on water quality. A study was completed and a project report was approved in July 1989. The BMP's and water quality monitoring were concurrently implemented over a 5-year period, which began in May 1991 with a project completion date of July 1997.

The BMP's were implemented under the terms of a memorandum of agreement between the Corps and the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, with the assistance of the Agricultural Stabilization and Conservation Service. The water quality monitoring was implemented under terms of a local cost-sharing agreement with the Arkansas Soil and Water Conservation Commission. Water quality monitoring was performed in consultation with the Environmental Protection Agency by a Corps administered contract. The water quality-monitoring contract was awarded on January 29, 1992. Water quality sampling began in May 1992 and was completed on July 1, 1996. BMP implementation was completed August 31,1995. Cost in FY98 was $67,897.93 Federal, and $1,434.58 non-Federal. Total project cost was $6,878,775.15

Environmental Infrastructure Assistance. The Water Resources Development Act of 1992 authorized the Corps of Engineers to provide design and construction assistance to appropriate non-Federal interests for a water transmission line from the northern part of Beaver Lake, Arkansas, into Benton and Washington Counties. This project is part of a $40 million project, which includes a water intake, treatment and storage facilities, and transmission lines. The project sponsor is the Benton/Washington County Water Association, and the primary source of funding is the Rural Economic and Community Development Service (formerly the Farmers Home Administration, U.S. Department of Agriculture). The Little Rock District and the project sponsor executed a Memorandum of Agreement in June 1997. The Little Rock District then transferred $3 million to the sponsor for construction of a segment of the water transmission line.

Local cooperation. Section 2 of the 1938 Flood Control Act, and the 1958 Water Supply Act, as amended, apply.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $246,900; cumulative benefits are estimated at $42,428,300. During the year 105,798,100 kilowatt-hours of electrical energy were delivered to the Southwestern Power Administration for marketing. The project has eleven developed parks, which in FY03 experienced public visitation exceeding 23.0 million visitor-hours. An agreement to provide 21,972.14 acre-feet of storage at no charge to the Arkansas Game and Fish Commission for fish production facilities was sent to HQ for approval in July 2000.

Condition at end of fiscal year. Project is complete. Alterations to existing parks to enhance fee collections, improve efficiency, and reduce the maintenance effort or rehabilitate the 26-year old park operation through operation and maintenance and SRUF funds, as appropriate. Construction of the project began in October 1959 and was placed in operation for flood control in December 1963, hydroelectric power generation with both units in May 1965, and water supply in January 1966. Work on a dam seepage problem is complete.

29. BULL SHOALS LAKE, AR

Location. *(See table 37-K: White River Basin, AR & MO.)*

Existing project. Cost with eight generating units was $88,858,711. For further information see pages 725 and 726 of 1965 Annual Report. *(For authorization see table 37-B.)*

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $1,360,900; total cumulative flood damages prevented are estimated at $158,540,900. During the year, more than 419,962,000 kilowatt-hours of electrical energy were delivered to Southwestern Power Administration for marketing. The project has eighteen developed parks, which in FY03 experienced public visitation exceeding 24.5 million visitor-hours.

Condition at end of fiscal year. Project is complete. Alterations to existing parks are needed to enhance fee collections, to improve efficiency, to reduce maintenance effort or to rehabilitate the 37-year-old park facilities through operations and maintenance or SRUF funds, as appropriate. Low dissolved oxygen readings in the downstream area of Bull Shoals Dam in October 1990 have resulted in ongoing studies to be undertaken to minimize harmful effects on the trout fishing of the White River.

Unguaranteed short-term solutions to the problem, consisting of limiting generation, will sustain the existing fishery, but long-term guaranteed changes will require congressional authorization. Construction of the project began in April 1946 and was ready for beneficial flood control use in June 1951 and generation of electrical energy in September 1952. Units 1 through 8 were placed in operation September 1952, December 1952, June 1953, January 1962, February 1962, August 1963, and September 1963, respectively.

Major rehabilitation (Powerhouse). A major rehabilitation study was initiated in October 1995. The study was to investigate a solution to the environmentally induced reliability problem (low dissolved oxygen) of these units. Potential solutions include new auto-venting turbines, a down stream weir, turbine venting, or forced-air. Following preliminary study results, the turbines were modified in 1997 to increase downstream aeration. The study has been suspended while the effects of these modifications are evaluated.

30. DARDANELLE LOCK AND DAM (NO. 10), AR

Location. *(See Table 37-H: Arkansas River Basin; AR, OK, and KS: Navigation.)*

Existing project. Project is a unit of MCKARNS. Dam is 2,683 feet long and 68 feet high. It has a spillway with 20 tainter gates 50 feet long and 39 feet high. Navigation lock is 110 by 600 feet with a lift of 54 feet. Powerhouse originally contained four 31,000-kilowatt generators. Lake has a storage capacity of 486,200 acre-feet. Estimated cost was $84,270,124.

Local cooperation. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. Power generation continued. During FY03, about 548,568,000 kilowatt-hours of electrical energy were delivered to the Southwestern Power Administration for marketing. In FY03, the project's thirteen developed parks experienced public visitation exceeding 6.3 million visitor-hours.

Condition at end of fiscal year. Project is complete. Construction began June 1957. Power units were placed on line in April, May, and September 1965, and January 1966. The lock became operable in December 1969. The Visitors Center and resident office were completed in May 1985. The contract to install tow haulage equipment was awarded in December 1998.

Major rehabilitation. Major Rehabilitation of the power plant was completed in August 2000. Turbines were replaced and generators were rewound to increase plant capacity by 13 percent. Cost of the Major Rehabilitation was $28.8 million.

31. GREERS FERRY LAKE, AR

Location.*(See Table 37-K: White River, AR & MO.)*

Existing project. Estimated cost is $55,125,000. For further information see page 740 of 1964 Annual Report.

Local cooperation. Section 2, 1938 Flood Control Act and 1988 Water Supply Act, as amended, apply.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $544,100; total cumulative flood damages prevented are estimated at $31,638,200. In FY03, 124,485,000 kilowatt-hours of electrical energy were delivered to the Southwestern Power Administration for marketing. The project has seventeen developed parks, which in FY03 experienced public visitation exceeding 33.9 million visitor-hours. The project's operational management plan provides means by which the natural resources, including water quality, aesthetic value, forestry, fish and wildlife are managed and protected for future generations. An all-volunteer environmental program (annual cleanup) has been most successful and serves as a model for the Nation. During the past 27 years the program has won more than 26 national awards.

Condition at end of fiscal year. Project is complete. Construction of the project began in June 1957 and was ready for beneficial flood control use in January 1962. Power units 1 and 2 were operable in March and May 1964, and water supply was operable in April 1971. The Visitors Center was completed in June 1983 at a cost of $813,000.

32. NORFORK LAKE, AR

Location. *(See Table 37-K: White River Basin, AR & MO.)*

Existing project. The total estimated cost is $70,701,629, including highway bridge construction. This does not include an estimate for the addition of power units 3 and 4, which were authorized, but never built. For further information see page 896 of 1962 Annual Report.

Local cooperation. Section 2, Flood Control Act of 1938 and Water Supply Act of 1958, as amended, applies.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $475,200; total cumulative flood damages prevented through September 2003, are estimated at $51,571,300. During the year, more than 115,702,000 kilowatt-hours of electrical energy were delivered to the Southwestern Power Administration for marketing. The project's 18 developed parks experienced public visitation exceeding 18.2 million visitor-hours during FY03.

Condition at end of fiscal year. Construction of project began in October 1940, ready for beneficial flood control use in June 1943, and for generation of electrical energy with one unit in June 1944. Second unit was added in February 1950. Water supply was added as a purpose in December 1969. Construction of two highway bridges over Norfork Lake to replace ferries was completed in November 1982. The bridges were transferred to the Arkansas Highway and Transportation Department for operation and maintenance in July 1984.

33. OZARK-JETA TAYLOR LOCK AND DAM (NO. 12), AR

Location. *(See Table 37-H: Arkansas River Basin, AR, OK, and KS: Navigation.)*

Existing project. Project is a unit of MCKARNS. The dam is 2,480 feet long and 58 feet above streambed; spillway has 15 tainter gates, each 50 feet long and 46 feet high. Navigation lock is 110 by 600 feet with a lift of 34 feet. Powerhouse contains five 20,000 kilowatt generators. Lake has a storage capacity of 148,400 acre-feet. In addition, one foot of power pondage is provided in Pool 13 between elevations 391.0 and 392.0. Cost was $85,629,412. *(For authorization see table 37-B.)*

Local cooperation. *(See section 1.)*

Operations and results during fiscal year. Continued operation and maintenance. Delivered 279,743,000 kilowatt-hours of electrical energy to Southwestern Power Administration for marketing. Ozark Lake has 10 developed parks, which in FY03 experienced public visitation exceeding 1.3 -million visitor-hours.

Condition at end of fiscal year. Construction began in December 1964. Project is complete. Lock and dam was placed in operation in November 1969. Power units were placed on line as follows: unit 1, November 1972; unit 2, August 1973; unit 3, October 1973; unit 4, December 1973; and unit 5, May 1974.

A major rehabilitation study was initiated in October 1996. The power plant has experienced numerous mechanical problems and major repair requirements since its construction. The study describes the condition of the power plant and reviews alternative solutions. The Rehabilitation Study Report was submitted in March 1999. Little Rock received Construction General funding in FY03 to start construction on the Major Rehabilitation Project.

34. TABLE ROCK LAKE, MO

Location. *(See Table 37-K: White River Basin, AR & MO.)*

Existing project. Cost was $119,491.90. For further information see page 893 of 1962 Annual Report. *(For authorization see table 37-B.)*

Dam Safety (Assurance). Table Rock Dam, about eight miles upstream from Branson, Mo, does not have adequate capacity and can safely pass only 65 percent of the Probably Maximum Flood. Studies indicate the PMF would overtop the dam by more than five feet and would breach the earthen embankment portion of the dam, causing catastrophic losses in downstream areas including Branson. The project includes construction of a dam, auxiliary gated spillway, bridge over the spillway, relocation of recreational facilities destroyed by the project, and major rehabilitation of the existing spillway. The total estimated project cost is $73.4 million.

Local cooperation. Section 2 of the 1938 Flood Control Act applies.

Operations and results during fiscal year. Continued operation and maintenance. Flood damages prevented during FY03 are estimated at $602,000; total cumulative flood damages prevented are estimated at $106,692,000. During the year, about 297,799,000 kilowatt-hours of electrical energy were delivered to the Southwestern Power Administration for marketing. The District and the Waterways Experiment Station are investigating the possibilities of improving the quality of Table Rock releases with a hypolimnetic oxygenation system. Table Rock Lake has fifteen developed parks, which in FY03 experienced public visitation exceeding 18.1 million visitor-hours. This project's operational management plan provides means by which the natural resources, including forestry, fish and wildlife, are managed and protected for future generations.

Condition at end of fiscal year. Project is complete except for construction of the auxiliary spillway. Construction of project began in October 1954. The project was ready for beneficial flood control use in November 1958, and for generation of electrical energy with units

1 and 2 in May 1959. Units 3 and 4 were added in April and June 1961.

General Investigations

35. ARKANSAS RIVER NAVIGATION STUDY, AR AND OK

The study area includes the entire McClellan-Kerr Arkansas River Navigation System in Arkansas and Oklahoma. The feasibility study is being conducted in two phases. Phase I is investigating flow management to improve the overall economic benefits for navigation on the system by reducing the impacts of high flows from the upper reaches of the Arkansas River. Phase II is investigating deepening the navigation channel up to twelve feet over the entire length and widening the Verdigris River in Oklahoma. The estimated cost of phase I is $4,000,000 and the estimated cost of phase II is $3,420,000. In Aug. 2003 a draft feasibility report and E.I.S. on phase I was completed. Implementation of the recommended plan of the phase I report is within Southwestern Division's authority. Work on feasibility report and E.I.S. for phase II continued during FY 03.

36. SURVEYS

Expenditures for surveys in FY03 totaled $1,896,644.

(1) Navigation studies, FY03 Arkansas River Navigation Study, Ft. Smith, AR, $1,353,926.

(2) Flood damage prevention studies, FY03 expenditures, 55,543: May Branch, Ft. Smith, AR, Feasibility Study, FY03, Federal funds expenditures were $55,543.

(3) Ecosystem Restoration Reconnaissance Studies, FY03 expenditures, $310,027: Southwest AR, $14,050; White River Minimum Flow Study, AR, $250,574; Springfield, MO, $45,403.

(4) Miscellaneous activities. FY03 expenditures, $37,238: Special investigations, $17,853; Review of FERC Licenses, $6,092; Interagency Water Resource Development, $10,503.

(5) Coordination with Other Agencies and Non-Federal Interests, FY03 expenditures, $139,910; Total PAS for FY03 expenditures, $137,576; PAS Expenditures include; Little Red River, AR Water Supply, $42,233; Hurricane Lake, $85,651.

37. COLLECTION AND STUDY OF BASIC DATA

Total expenditures for Collection and Study of Basic Data in FY03 were $227,117.

(1) Flood Plain Management Services (FPMS): Expenditures for FPMS activities in FY03 totaled $25,065. Technical Services, $82,336; SS-Ozark, MO, $74,641; and Branson, MO, $44,777.

The authority for the Flood Plain Management Services program is Section 206 of the 1960 Flood Control Act, PL 86-645, as amended. Under the authority of Section 321 of the Water Resources Development Act of 1990, PL 101-640, technical services and planning assistance are (1) provided to states and local governments without charge and (2) offered to Federal agencies and private persons on a cost recovery basis. Through these technical services and planning guidance, the program encourages comprehensive flood plain management planning at all levels to reduce the potential for losses to life and property from floods.

Federal and non-Federal agencies and the private sector are assisted with planning and development information for flood hazard areas. This assistance is in the form of local flood plain regulations, Federal Insurance Program requirements, and Executive Order 11988 guidelines. Such assistance may include factual flood information (available or determined) and interpretation of flood frequencies, extent of flooding, floodwater velocity, duration of flooding and floodway limits.

(2) Hydrologic Data Collection: During FY03, 180 stations were operated; 71 cooperatively with USGS, 74 cooperatively with the NWS, and 35 by the Corps.

38. PRECONSTRUCTION ENGINEERING & DESIGN (PED)

Total PED expenditures in FY03 were $236,841.

(1) Local Protection: Total Local Protection expenditures for FY03 were $136,819; This includes FY03 expenditures for North Little Rock, AR, Dark Hollow $130,508; and Arkansas River Levees $6,311.

(2) Reservoirs: FY03 expenditures for Pine Mountain Lake, AR, were $100,022.

39. WHITE RIVER MINIMUM FLOWS, AR

The Water Resources Development Act of 1999 (WRDA 99), Section 374, and WRDA 00, Section 304, modifies the operation of the White River lakes to include specific amounts of project storage for the tail water trout fisheries; before this, water management decisions affecting lake levels and downstream flows were based primarily on flood control and hydropower needs. The act directs the Corps to reallocate the following amounts of storage: Beaver Lake, 1.5 feet; Table Rock Lake, 2 feet; Bull Shoals Lake, 5 feet; Norfork Lake, 3.5 feet; and Greers Ferry Lake, 3 feet. The stored water will be used to make releases during periods when hydropower is not being generated. These minimum flows are intended to sustain the trout fishery. These changes cannot be carried out until this study determines that they are technically sound, environmentally acceptable, and economically justified. The Corps reprogrammed $100,000 of operations and maintenance funding to initiate the study effort in FY00. The Corps used these funds to conduct public involvement activities including several public workshops and agency meetings to notify interested parties of the proposed study and receive their comments. Conducted AFB in November 2003, waiting for HQUSACE guidance memorandum. We are continuing the reallocation study effort including an Environmental Impact Study of the proposed plans.

40. MAY BRANCH, FORT SMITH, AR

May Branch, a tributary of the Arkansas River, frequently floods a portion of Fort Smith. A Feasibility Cost Sharing Agreement between the Corps and the City of Fort Smith was signed on 13 November 1998 to determine the measures and cost of a flood reduction project. The $1.5 million, 50-50 cost-shared study is scheduled to be completed in 2004.

41. NORTH LITTLE ROCK (DARK HOLLOW), AR

The proposed project is a flood tunnel project including replacement of the existing tunnel under Redwood Street. Section 576 of the Water Resources Development Act of 1999 directed the Corps to review the plans and determine if the project is economically justified, technically sound, and environmentally acceptable and if so, construct the project. The design cost-sharing agreement was executed with the City of North Little Rock on 30
May 2000. The Limited Reevaluation Study was initiated 26 June 2000. Currently studying 12' tunnel design and construction technique. Upon completion of the Limited Reevaluation Study and pending report approval, plans and specifications for the project will be initiated.

42. SPRINGFIELD, MISSOURI

A $100,000 urban flood control and ecosystem restoration reconnaissance study of the Jordan Creek watershed was approved 31 Jan 2003. A project management plan was developed for a $3,000,000 feasibility study. The feasibility agreement with the City of Springfield, the sponsor, is expected to be signed in April 2004.

43. SOUTHWEST ARKANSAS STUDY

The study area includes parts or all of four counties in Southwest Arkansas in the Red River and Little River basins. Four Corps lakes (Millwood, Dierks, DeQueen, and Gillham) provide flood control and are the primary drinking water supplies for the region. Construction of the four projects resulted in the loss of 25,000 acres of bottomland wildlife habitat. About 9,000 acres of wetlands were lost due to reservoir operations. There is a significant opportunity to reallocate storage to increase flood reduction benefits and to restore fish and wildlife habitat. Water releases from the four lakes could aid navigation on the Red River, which has been extended to Shreveport/Bossier City. Important economic factors are agriculture, poultry, and livestock operations. Accelerated runoff, sedimentation, and possible water quality problems need to be addressed. Water supply storage could be used to make releases, especially out of Dierks and Gillham lakes, for kayaking with a resulting growth in recreational businesses. The watershed study would evaluate flooding, irrigation, restoration of fish and wildlife habitat, water quality, recreation and water releases for navigation. The Reconnaissance study will identify the federal interest and non-federal sponsors willing to participate in feasibility-level studies in their respective areas of concern.

44. PINE MOUNTAIN LAKE, AR

The project was authorized in the Flood Control Act of 1965, for a dam site at mile 35.7 on Lee Creek 12 miles north of Van Buren, Arkansas, in Crawford County. Existing authorization provides for construction of a lake for flood control, water supply, recreation and fish and wildlife enhancement. The lake would control runoff from 168 square miles with a capacity of 261,000 acre-feet.

Initial reconnaissance-level studies were completed that indicated a continued federal interest and a willing local sponsor. The FY 2004 funds are being used to initiate General Reevaluations under the Preconstruction Engineering and Design (PED) phase. The PED estimate

includes updating previous PED work including additional planning, design and EIS activities, and scoping for design effort.

The River Valley Regional Water District, the local sponsor, is expressing strong support and is willing to cost share during construction.

Construction General

45. MONTGOMERY POINT LOCK AND DAM, AR

MPLD is being constructed one-half mile upstream from the Mississippi River, in the White River Entrance Channel (WREC), the first reach in the McClellan-Kerr Arkansas River Navigation system. Construction of MPLD will allow control of the water level in the entrance channel, which will maintain the reliability of the navigation system during periods of low water. Placement of structural concrete began in July 2000 and continues. Through January 2004 the contractor has placed approximately 241,000 cubic yards of concrete. The only major concrete placements remaining are in monoliths R-24 and L-1. The contractor has completed the rewatering of the cofferdam and started removing the cells on 24 Feb 04. As of 23 March 04, seven cells had been removed. Mechanical and electrical work is continuing in the control tower. The contractor is also installing the elevator in the control tower. Other major work that remains is final dredging of the channel, completing revetment 2.OR and the closure of the diversion channel. Construction is approximately 93% complete and is scheduled to be complete in Aug 04. The dedication ceremony is scheduled for 16 July 04.

46. BEAVER TAILWATER RESTORATION, BEAVER LAKE, AR

Location: The project area is located immediately below Beaver Dam along the White River in Carroll County, Arkansas.

Existing Project. The proposed modification con sists of restoring 2 miles of channel and banks of the upper White River damaged by high flows from releases in Beaver Lake. The modification consists of constructing and placing in the river channel, 60 in-stream habitat structures, three log crib retaining walls, and one stone weir deflection structure. The project cost was $120,000 and was cost-shared 75% Federal and 25% with the local sponsor, the Arkansas Game and Fish Commission (AGFC), or $90,000 and $30,000 respectively. AGFC provided their contribution of $11,800 in cash and $18,200 in work-in-kind services that include boulders and logs for the in-stream habitat structures, cedar trees and logs for the retaining walls, and boulders for the stone weir. Contract award was November 14, 2000. construction was completed February 27,2001, and the project was officially transferred to AGFC on March 20, 2001.

47. ARKANSAS/WHITE CUTOFF CONTAINMENT STRUCTURE, AR

The Arkansas/White Cutoff Containment Structure is located between the Arkansas and White River in Arkansas County, Arkansas. The structure is comprised of approximately 17,300 feet of containment levee, a controlled overflow section, and one headcut structure, known as the Melinda Headcut Structure. After completion of the Arkansas River McClellan-Kerr Navigation Project, numerous hydraulic events occurred in the area resulting in significant scour through a series of old river lakes. A study was initiated in FY 1998 to determine the best viable alternatives to the comprehensive cutoff problem in the area. Interim repairs of the Melinda Headcut Structure were required in FY 2000 at a cost of $400,000. The AE completed the first phase of the initial feasibility study, existing conditions. The study was reviewed by Waterways Experiment Station (WES) in FY 2001. The District is continuing the study with cooperation from several environmental resource agencies. During FY03, agency and public scoping meetings were held and alternatives for a long-term solution were developed. Hydraulic modeling for existing conditions and alternatives began. Because of erosion during high water in 2002, a $1.7M construction project was awarded in FY03 to make repairs in Jim Smith Lake. The project was developed in conjunction with the environmental resource agencies to assure an environmentally acceptable solution, using bioengineering techniques.

48. GREERS FERRY LAKE WATER LINE

Subject to HQ's approval, a study will be initiated to determine the feasibility of constructing water intake facilities on Greers Ferry Lake, Arkansas, for the Community Water System. The Community Water System (CWS) is a major water supply user for central Arkansas and is currently paying for 8,284 acre-feet of storage in Greers Ferry Lake. Their desire is for the Corps to pro-

vide funds to help pay for construction of the water intake structure. This project consists of constructing a water intake structure and appurtenant works to relieve the long-term reliance on the rapidly diminishing ground water supply.

Section 117, PL 106-554, directs the Corps to "…construct intake facilities for the benefit of Lonoke and White Counties, Arkansas". HDR Engineering Inc. was awarded a task order on a contract out of Tulsa District for work requested to review the initial designs provided by Community Water System, conduct engineering feasibility analysis of the site, and prepare a report detailing possible future involvement by the Little Rock District. The draft report was completed in August 2002. The final report was completed in November 2002. Copies of the final report were sent to HQ in May 2003. Although the final report does indicate some Federal interest (i.e. the intake structure would be located on Federal lands adjacent to the Greers Ferry reservoir), this project does not meet Corps priorities for funding. No further work is expected from Little Rock District.

49. OZARK LOCK AND DAM, JETA TAYLOR POWERHOUSE MAJOR REHABILITATION, AR

The project is located on the Arkansas River at Ozark, Arkansas. The Ozark powerhouse was constructed in 1972-74. The five 20 MW slant-axis turbines have experienced numerous failures and require repair and replacement to maintain hydropower generation. This project consists of redesigning and replacing the turbines as well as rehabilitation of the speed increasing gearboxes, rehabilitation of the powerhouse cranes, and replacement and rehabilitation of supporting systems and equipment. Although the turbines are being replaced with state of the art turbines, there will be no increase in rating capacity. Activities in FY03 included completion of design effort and advertisement of the crane and turbine rehabilitation contracts.

CAP

Section 14

50. LITTLE ROCK SLACKWATER HARBOR

The purpose of this project was to eliminate streambank erosion that was threatening the Little Rock Port facilities and navigation on the McClellan-Kerr Arkansas River Navigation System. Approximately 34,000 tons of quarry run stone was placed on the bank to eliminate the streambank erosion.

The Little Rock Port provides service for many facilities in and around the industrial park. To accommodate the growth in the industrial area, the Little Rock Port Authority is in the process of planning and constructing for future improvements to the ports infrastructure. The Port Authority has begun construction for Phase I and Phase II of a rail system to connect to an existing railroad approximately 3,600 feet northwest of the Slackwater Harbor. The new railroad under construction runs parallel to the Slackwater harbor and continues approximately 2,500 feet west toward the Arkansas River. The proposed north loop (Phase III) of the rail system, which is parallel to the streambank of the Arkansas River, could not have continued due to the streambank erosion that was encroaching on the Little Rock Port Industrial Park.

51. ROUTE A @ SINKING CREEK, SHANNON COUNTY, MO

The Missouri Department of Transportation (MoDot) requested the Little Rock District to investigate an existing erosion problem with bridge #A-4565 @ Sinking Creek located in Shannon County Missouri. The project is classified under the Continuing Authorities Program and is authorized under Section 14 of the 1946 Flood Control Act (Public Law 80-858), as amended. MoDOT will serve as the non-Federal sponsor. Funds in the amount of $40K were allocated in January 2002 to begin the study. The project delivery team was established when FY03 funds were made available in May 2003. The PDT conducted a site visit and team meeting with the non-Federal sponsor in July 2003. Survey work was completed in late fall of 2003. H&H has begun the H&H report.

52. LITTLE PINEY CREEK, HIGHWAY 164

Hwy 164 Bridge over the Little Piney near Hagarville is the location of sever erosion on the banks of the Little Piney and are in fact compromising the structural integrity of Arkansas Highway Transportation Department (AHTD) Highway 164 bridge. The Little Rock District has been requested to study the 1500 ft. eroding section of the streambank upstream and downstream of the Highway 164 Bridge on the Little Piney Creek. Continued erosion will compromise the integrity of the bridge by washing out the right abutment. If the right abutment is compromised, the AHTD will close the

bridge resulting in adverse impacts to the local economy due to detoured traffic.

53. HIGHWAY 71 @ RED RIVER, OGDEN, AR

The Arkansas Highway Transportation Department (AHTD) requested the Little Rock District to investigate an existing erosion problem with the Highway 71 Bridge near Ogden, Arkansas. The Highway 71 Bridge is in danger of having its support piers compromised, thus making the bridge unsafe to cross. A scour hole has formed on the right descending bank approximately 200 feet upstream of the Highway 71 Bridge and has advanced to within approximately 100 feet of the bridge piers. The Project Delivery Team will investigate the existing conditions of the U.S. Highway 71 Bridge and right ascending bank of the Red River to determine if there is a solution to the current conditions. The PDT will conduct an investigation and summarize the findings in a technical report. The project is classified under the Continuing Authorities Program and is authorized under Section 14 of the 1946 Flood Control Act (Public Law 80-858), as amended. AHTD will serve as the non-Federal sponsor. Funds in the amount of $50K were allocated in May 2003 to begin the study. Additional funds, $15K, were requested in March 2004 to complete the study. The study is approximately 3/4 through the PDA phase. The PDA phase is expected to be completed in FY04.

54. BATESVILLE WASTEWATER TREATMENT PLANT, BATESVILLE, AR

Batesville Water Utilities requested the Little Rock District to conduct a streambank study on the North bank of the White River (approximately river mile 299.5 to rm 298.5). The treatment plant is experiencing erosion issues during high flow near their aeration ponds. The project is classified under the Continuing Authorities Program and is authorized under Section 14 of the 1946 Flood Control Act (Public Law 80-858), as amended. Batesville Water Utilities will serve as the non-Federal sponsor. Funds were received in May 03 to initiate the project study. Survey work has been completed. Hydrology and Hydraulics draft report for the proposed project has been completed.

Section 107

55. SLACK WATER HARBOR, RUSSELLVILLE, AR

Location. The project area is located along the McClellan-Kerr Navigation System approximately 75 miles northwest of Little Rock. The local sponsor is the River Valley Regional Inter-model Facility Authority.

Existing Project. The recommended plan in the Detailed Project Report, dated May 2001, consisted of a slack water harbor located on the left descending bank of the Arkansas River at navigation mile 202.5 downstream of Dardanelle Dam in Pope County. The report was approved in November 2001. The local sponsor is the River Valley Regional Inter-model Facility Authority. HQ/s formally transmitted the approval memo along with further instructions limiting project funds and items included in the PCA on October 4, 2002. The plans and specifications were initiated in October 2002 and were put on hold in September 2003 at the 50% design. The sponsor requested the plans and specs be put on hold until the EIS for their intermodal facility was completed which is expected to be about 2 years

The total cost to implement the harbor was estimated at $4,884,000, and the benefit-to-cost ratio was 1.2 to 1. The total federal share was estimated at $3,351,000 and the total non-federal share was estimated at $1,533000. However, due to the $2500,000 federal limit on this project, the total non-federal share will be $2,384,000, which includes local service facilities and berthing areas estimated to cost $610,100 and LERRD's estimated to cost $551,000..

56. FT. CHAFFEE PORT

The Fort Chaffee Redevelopment Authority (FCRA) requested the Little Rock District to study the viability of a port on the McClellan-Kerr Navigation System near Barling, Arkansas on the eastern boundary of the city of Ft. Smith. Federal funds in the amount of $50,000 were allocated to complete a preliminary study (Milestone Report) to determine federal interest to proceed in the feasibility phase. If the report is scheduled for completion in April 2004 and if it determines federal interest, funds will be requested immediately afterwards.

Section 205

57. JAM UP CREEK, MOUNTAIN VIEW, MO

A feasibility study was started in February 2001 for Jam Up Creek in Mountain View, Missouri. The study is estimated to take 2 years and cost $190,000. Jam Up Creek floods the airport, a portion of the business district (including city buildings) and several residences. Likely solutions to the flooding problem are channel and

bridge widening. Current cost sharing requirements for the project would be 35 percent non-Federal and 65 percent Federal.

58. ARCHEY CREEK, CLINTON, AR

Clinton, Arkansas is located approximately 75 miles north of Little Rock, Arkansas. The community has concerns about Archey Fork Creek flooding after severe rains. Frequent flooding damage occurs to homes, businesses, and other public facilities along Archey Fork Creek. Should a large event occur, 117 structures in the downtown area would experience up to 12 feet of flooding. The cities municipal airport is approximately 250 feet from the eroding bank at several locations. Also, a 1600-feet section of stream bank below the State Highway Bridge 65 is eroding. A city owned 8-inch main waterline with is within 30 feet of the eroding west bank. A local telephone company fiber optic line is within 5 feet to 20 feet from being adversely impacted by the erosion problem. The possibility exists for prolonged damages to the integrity of the cities municipal airport, waterline and a telephone line serving northern Van Buren County.

59. HIGH SCHOOL BRANCH, NEOSHO, MO

High School Branch is located in Neosho, Missouri, approximately 17 miles south of Joplin, Missouri. The drainage basin upstream of the flood-damaged area is approximately 4 to 5 square miles. Frequent flooding damages occur to homes, businesses, and public facilities along High School Branch. The Milestone Report is scheduled for competion in April 2004. The proposed plan will most likely include channel modifications and culvert replacement.

60. TOWN BRANCH, CLINTON, AR

Clinton, Arkansas is located approximately 75 miles north of Little Rock, Arkansas. The community has concerns about Town Branch Creek flooding after severe rains. Significant logging activity in the headwaters has caused smaller rain events to produce higher flood events. The stream channel appears to be in good condition. No economically justified solution was identified and the study was terminated.

61. PRAIRIE CREEK, RUSSELLVILLE, AR

The city of Russellville, Arkansas has requested Little Rock District to reduce the flooding on Prairie Creek flowing through the city and emptying into the Arkansas River by a pump station that is operated by the Little Rock District. Flooding has occurred to homes, businesses, and public facilities along the channel. Likely alternative plans will include channel modifications, acquisition and/or relocation of properties, and recreation area development in the channel corridor while improving wildlife habitat.

62. MILL CREEK, FORT SMITH, AR

Location. In Southwest Fort Smith, Sebastian County, AR.

Existing project. The project was constructed under Section 205 of the Continuing Authority Program. The project included improvements on 3.9 miles of the Mill Creek channel and modifications on three bridges. Project construction was completed in November 1992. A design deficiency correction to stabilize the bank at Jenny Lind Road was constructed along the flood control channel. It was completed in April 2003.

Local cooperation. The city of Fort Smith, the local sponsor, signed the local cooperation agreement in November 1988. The city assumed project operation and maintenance on 17 June 1993. A supplemental PCA was signed 5 August 2002. The project cost was $9.2 million with a non_Federl share of $4.2 million.

63. WHITE RIVER, BATESVILLE, AR

Location. On the White River, within the city of Batesville, Independence County, AR.

Existing project. Construction of a levee and floodwall to protect the industrial area was done under Section 205 of the 1948 Flood Control Act. The project includes 4,855 feet of levee/floodwall, 9 stoplog structures, 6 drainage structures, a stoplog storage area, 3 sewer line control gates, and a two-gage automated warning system. The levee/floodwall construction contract was awarded in July 1995 and completed in Dec 1996. The levee/floodwall was transferred to the city of Batesville for operation and maintenance March 14, 1997. However, in Aug. 1999, it was determined that erosion to the bank and at two drainage structure culverts required a design deficiency correction. Construction on the erosion correction started in May 2001 and was completed in September 2001. Estimated cost of the project is $3,896,105 with a 25 percent cost share provided by the city of Batesville, Arkansas, the sponsor. The operation and maintenance manual is scheduled to be given to the sponsor in 2004.

64. HIDDEN VALLEY, NEEDMORE BRANCH, GREENE CO, MO

The FY03 Omnibus Bill earmarked $500,000 to initiate a Section 205 project for the Hidden Valley subdivision in Greene County. The feasibility study was started in May 2003 to consider channelization and detention ponds to reduce flooding.

Section 206

65. HENRY GREY HURRICANE LAKE WILDLIFE MANAGEMENT AREA, AR

The proposed project will increase waterfowl habitat in the Hurricane Lake Wildlife Management Area by increasing and ensuring timely placement of water during the migration period. The recommended action includes adding two pumps. This should result in a net increase of approximately 1300 acres of waterfowl habitat in addition to the 7000 – 8000 acres that are currently flooded from existing conditions, gates, and levees. Existing and additional gates and levees will be used to maintain the water during the critical migratory period from October to March. We are completing an Environmental Restoration Report at this time, to determine the most environmentally effective alternative.

66. BULL SHOALS AQUATIC MACROPHYTE RESTORATION, AR

The Arkansas Game and Fish Commission (AGFC) has requested that Little Rock District investigate the feasibility of planting aquatic plants (macrophytes) within the conservation pool of Bull Shoals Lake to improve fish habitat. The project is classified under the Continuing Authorities Program and is authorized as Aquatic Ecosystem Restoration under Section 206 of the Water Resources Development Act of 1996 (PL 104-303). The AGFC is the non-federal sponsor and will be responsible for 35 percent of the total project cost. The entire 35% will be done as work-in-kind during the construction phase of the project. On 11 October 2002, Col (P) Crear signed a memo approving construction of the project. On 16 December 2002, a Project Cooperation Agreement (PCA) was signed between the AGFC and the Little Rock District. Project implementation began in May 2003. The project is scheduled for implementation through September 2004.

67. GALLA CREEK, AR

Galla Creek Green Tree Reservoir is located 0.5 miles north of the Arkansas River and 3.3 miles Southeast of Pottsville Plop County, Arkansas.

The recommended plan consists of modifying and restoring 6286 linear feet of channel upstream, 3763 linear feet of channel downstream, lowering an existing steel spillway structure 2 feet, removing an existing concrete pad as an option, adding four stop-logs to an existing structure, and re-establishing approximately 400 acres of bottomland hardwoods. The channel will be a 20-foot bottom with a 4H to 1V side slope on the upstream side of the structure. The downstream side will be a 10-foot bottom with a 5 to 1 side slope. The spoil will be discarded on either side of the channel not to interfere with the current drainage. The spillway will be lowered 2 feet to allow better drainage of the wildlife management area and four additional weir openings with stop logs will be added. Reforestation of 400 acres is needed to get a jump-start on certain preferred wildlife tree species, preferably Overcup Oaks and Willows. The project would restore the Galla Creek Green Tree Reservoir, consisting of 400 acres of bottomland hardwoods.

The estimated cost to implement the project is $1,404,900 and would be cost-shared 65% Federal and 35% AG&FC, or $913,200 and $491,700 respectively. AG&FC's share of the project will consist of the following: $225,800 in lands, $144,000 in work-in-kind consisting of providing material and labor for the revegetation of 400 acres, and $121,900 in cash. Operation and maintenance (O&M) of the proposed project would be the responsibility of AG&FC and would primarily consist of operating, inspecting and maintaining the drainage structure and is estimated at $1,000 per year.

68. ROCKAWAY BEACH AQUATIC HABITAT RESTORATION, MO

The project improves the quality of water around in Lake Taneycomo near the City of Rockaway Beach, Missouri. The project included replacing one culvert under the causeway to a City Park with three opening flow-paths upstream and downstream of the causeway; installing two submersible aerators upstream of the causeway and four floating aerators downstream of the causeway. Construction was completed in 2003

69. FOURCHE CREEK AT HINDMAN PARK

The City of Little Rock, the Audubon Society and the Arkansas Game and Fish Commission have requested that the Little Rock District Corps of Engineers initiate a Section 206 ecosystem restoration study on Fourche Creek in the area of Hindman Park in southwest Little Rock. The stream in this area is experiencing bank erosion problems probably as a result of altered hydrology caused by development in the upstream watershed. In FY03, $10,000 was allocated for development of a Preliminary Restoration Plan (PRP). The sponsors along with the Corps are currently working on defining the scope of the project since much of the upstream watershed is in private ownership. The PRP will be completed in summer 2004. The Arkansas Highway Department and Federal Highway Administration have also expressed an interest in purchasing mitigation property adjacent to Fourche Creek in this area for added restoration and enhancement.

70. SHIREY BAY-RAINEY BRAKE WILDLIFE MANAGEMENT AREA (WMA)

The WMA is a 10,500-acre tract set between the Strawberry and Black Rivers in Lawrence County, Arkansas. The Arkansas Game and Fish Commission requested an ecosystem restoration study to address the impacts to wintering waterfowl associated with riverbank erosion and water level management within a green tree reservoir. Bank erosion is threatening a portion of the levee system. In FY03, $10,000 was allocated for development of a PRP which will be completed in summer 2004.

Section 1135

71. COLLINS CREEK, AR

The project consists of a pipeline from the Greers Ferry Dam to Collins Creek to provide continuous cold water at a rate of 1.5 cfs to enhance the trout habitat in the creek. The sponsor, Arkansas Game & Fish Commission (AG&FC), will construct bank stabilization, k-dams, and a trail along the creek to complete the project and serve as their work-in-kind portion of the project. Pipeline construction was started in August 2001 and was completed in the summer of 2002. Trout are swimming upstream and spawning. In-stream work by AGFC continues.

72. BULL SHOALS NURSERY POND, AR

Diamond City, Arkansas, and the Arkansas Game and Fish Commission requested that Little Rock District investigate the feasibility of constructing a nursery pond within the flood pool of Bull Shoals Lake. AGFC is the sponsor and will be responsible for 25 percent of costs. The project is classified under the Continuing Authorities Program and is authorized under Section 1135(b) of the Water Resources Development Act of 1986. The Environmental Assessment (EA) was finalized in November 2002 and Colonel Butler signed a Finding of No Significant Impact (FONSI) on 20 December 2002. The project was given construction approval by Southwestern Division in April 2003; a Project Cooperation Agreement between the Arkansas Game and Fish Commission and the Little Rock District was signed on 28 April 2003. The project is currently going through the construction contract process.

73. TAYLOR BAY, AR

The Taylor Bay area is located 60 miles northeast of Little Rock, Arkansas, in the White River floodplain between the cities of Newport and Augusta. It is a 9-mile long meandering slough that turns into a backwater bay along the left descending bank of the White River at river mile 201.8 near Augusta, Arkansas. The Village Creek, White River and Mayberry Levee is 20 miles long and protects 51 square miles of the northern part of the watershed. Years ago Taylor Bay supported a healthy fishery, but the fishery has shown a steady decline throughout the 1980's and 90's. The primary cause for the decline has been identified as sedimentation due to change in surrounding land use from forest to agriculture and operation of a pumping station that removed water from the farm land upstream of the levee. The pumping station is no longer in operation. The Arkansas Game and Fish Commission is the sponsor and has identified the need for aquatic resource restoration in the form of restoring the hydrology and correcting chronic lake level declines, siltation, and sedimentation as a Section 1135 project. The Little Rock District has studied the problems at Taylor Bay as recently as 1992. During FY02, $10,000 was allocated for the development of a Preliminary Restoration Plan (PRP). The PRP was completed in FY03 and the project is currently waiting for funds to begin the detailed Project Report Phase.

74. BULL SHOALS TAILWATER RESTORATION

This project consists of trout habitat structures built with boulder clusters and bank stabilization habitat structures using log cribs, tree revetments, riprap, and root wads at selected locations along the White River

downstream from Bull Shoals Dam. The three restoration areas total approximately 5.1 river miles or about 240 acres. While the actual restoration work will be limited to approximately 5.1 miles of the White River, positive habitat impacts are expected throughout the river above and below the restoration areas. These improvements are needed in order to restore Rainbow and Brown Trout habitat that has been gradually degraded and lost due to project releases. The estimated habitat output gains are an increase of 192 habitat units for Brown Trout and 156 habitat units for Rainbow Trout. The estimated construction cost for the project is $1.6M. The estimated annual operations and maintenance (OMRR&R) is $25,000. The Arkansas Game and Fish Commission (AGFC) is the non-Federal sponsor.

75. ROCK CREEK AT BOYLE PARK

The City of Little Rock, the Arkansas Audubon Society and the Arkansas Game and Fish Commission have requested the Little Rock District Corps of Engineers to initiate a Section 1135 ecosystem restoration study on Rock Creek, focusing in on the Boyle Park area. The area of concern on Rock Creek is located in and surrounding the vicinity of Boyle Park. The park is an approximately 250-acre tract of largely unimproved wood and donated to the city by Dr. John F. Boyle in 1929. The area is a mix of residential and commercial activity. It was determined by the project delivery team that the study area should encompass the area between Kanis Park and 36th street in Little Rock, AR., roughly 2 miles. Over the course of the community's expansion, including the development of a rock levee in the Boyle Park vicinity by the Little Rock District Corps

76. NORFORK TAILWATER RESTORATION

The Arkansas Game and Fish Commission requested an ecosystem restoration study to address the impacts to the tailwater trout fishery below Norfork dam. The timing, duration and magnitude of hydropower releases from Norfork Dam has caused increased stream bank erosion and degraded the fish habitat components. This project will improve aquatic habitat, improve water quality (reduce sedimentation), and increase productivity of the biological community. These improvements are needed in order to restore Rainbow and Brown Trout habitat that has been degraded and lost due to project releases. In FY03, $10,000 was allocated for development of a PRP, which will be completed in spring 2004.

77. ARKANSAS RIVER ENVIRONMENTAL RESTORATION

This project would consist of restoring approximately 200 acres of waterfowl habitat by placing water control structures at either two or three locations along the backwaters of the Arkansas River between Russellville and Fort Smith, Arkansas. The Little Rock District Corps of Engineers made an initial site visit in August 2003, and is currently preparing the Preliminary Restoration Plan. The Preliminary Restoration Plan is submitted to Southwestern Division to determine whether or not there is a Federal interest in pursuing construction of the project. While the actual restoration work will be limited to the areas between Russellville and Fort Smith along the Arkansas River, positive habitat impacts are expected throughout the river above and below the restoration areas. These improvements are needed in order to restore waterfowl habitat that has been degraded and lost due to changes of the flooding regime caused by construction of the navigation channel in the river. A project cost estimate has not been developed at this point in the Preliminary Restoration Plan, but it is expected to be in the order of $2 million based upon similar projects.

Table 37-A

Cost And Financial Statement

See Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
4.	McClellan—Kerr Arkansas River Navigation Locks & Dams, AR	New Work Approp.	6,320,000	2,766,000	3,571,000	4,480,000	624,587,000
		Cost	5,622,282	3,875,394	3,670,185	4,518,000	624,429,000
		Maint. Approp.	19,810,093	20,780,690	20,755,593	20,466,180	—
		Cost	20,013,159	19,439,805	22,107,290	20,330,124	—
		New Work Contrib.	—	485,332	500,000	269,863	7,568,164
		Cost	—	38,299	279,461	116,578	6,747,307
2.	Montgomery Point Lock & Dam	New Work Approp.	25,294,000	32,433,000	35,309,000	26,985,000	219,770,000
		Cost	28,383,939	37,062,095	35,367,213	26,781,000	219,338,000
See Section 16 of FY 2002 Annual Report	Black River Poplar Bluff, MO	New Work Approp.	5,400	0	0	0	504,000
		Cost	6,459	3,237	0	0	503,999
		New work Contrib.	0	0	0	0	56,688
		Cost	636	0	0	0	56,688
22.	Blue Mountain Lake, AR	New Work Approp.	—	—	0	0	5,069,974
		Cost	—	—	0	0	5,069,974
		Maint. Approp.	1,199,783	1,144,336	1,376,464	1,119,311	—
		Cost	1,189,722	1,123,449	1,407,094	1,119,717	—
See Section 18 of FY 1998 Annual Report	Cato Springs Branch, Fayetteville, AR	New Work Approp.	—	0	0	0	235,700
		Cost	—	0	0	0	235,700
		New Work Contrib.	0	0	0	-1	36,899
		Cost	35	0	0	0	36,899
23.	Clearwater Lake, MO	New Work Approp.	—	—	—	0	10,406,300
		Cost	—	—	—	0	10,406,300
		Maint. Approp.	2,812,770	4,568,853	3,827,756	3,524,755	—
		Cost	2,825,092	4,090,295	4,338,626	3,517,378	—
		Major Rehab. Approp.	—	—	—	0	12,087,910
		Cost	—	—	—	0	12,087,910
24.	DeQueen Lake Little River Basin, AR	New Work Approp.	—	—	—	0	19,629,753
		Cost	—	—	—	0	19,629,752
		Maint. Approp.	1,130,434	1,439,745	1,001,022	949,173	—
		Cost	1,130,987	1,193,340	1,247,818	949,173	—

Table 37-A (Continued)

Cost And Financial Statement

See Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
25.	Dierks Lake, Little River Basin, AR	New Work Approp.	—	—	—	—	16,002,903
		Cost	—	—	—	—	16,002,781
		Maint. Approp.	1,108,654	1,337,964	982,188	885,507	—
		Cost	1,108,814	1,087,517	1,232,962	885,507	—
See Section 22 of FY 1998 Annual Report	Dry Jordon Creek, Harrison, AR	New Work Approp.	—	0	0	0	157,500
		Cost	—	0	0	0	157,500
		New Work Contrib.	—	—	—	—	—
		Cost	—	—	—	—	—
26.	Fourche Bayou Basin, Little Rock, AR	New Work Approp.	25,000	300,000	1,000	158,000	21,389,000
		Cost	9,498	50,425	139,544	184,004	21,281,633
		New Work Contrib.	—	—		0	1,731,678
		Cost	—	—		330	1,718,098
27.	Gillham Lake, Little River Basin, AR	New Work Approp.	—	—	—	0	17,827,111
		Cost	—	—	—	0	17,827,111
		Maint. Approp.	941,336	1,066,166	949,290	874,604	—
		Cost	940,757	978,545	1,037,599	874,604	—
29.	Mill Creek, Fort Smith, AR	New Work Approp.	—	64,000	11,600	66,400	5,042,001
		Cost	—	20,802	32,646	95,632	4,913,499
		New Work Contrib.	—	0	0	60,600	359,861
		Cost	—	0	0	32,190	331,451
30.	Millwood Lake, Little River Basin, AR	New Work Approp.	—	—	—	0	46,087,382
		Cost	—	—	—	0	46,087,382
		Maint. Approp.	2,019,659	3,078,700	1,705,487	1,484,805	—
		Cost	2,019,168	2,259,687	2,525,299	1,485,447	—
31.	Nimrod Lake, AR	New Work Approp.	—	—	—	0	4,092,826
		Cost	—	—	—	0	4,092,826
		Maint. Approp.	1,696,196	1,432,537	1,346,443	1,337,891	—
		Cost	1,683,745	1,339,776	1,451,443	1,338,353	—

Table 37-A (Continued)

Cost And Financial Statement

See Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
33.	White River, Batesville, AR	New Work Approp.	80,000	266,000	-4,600	0	3,089,409
		Cost	87,593	241,419	44,908	1,865	3,088,498
		New Work Contrib.	—	48,200	-39,542	0	217,903
		Cost	—	74,977	-20,956	619	217,511
34.	White River, Jacksonport, AR	New Work Approp.	—	0	0	0	92,691
		Cost	—	0	0	0	92,691
		New Work Contrib.	—	0	0	0	233,027
		Cost	—	0	0	0	233,027
38.	Beaver Lake, AR	New Work Approp.	—	—	—	0	46,183,033
		Cost	—	—	—	0	46,183,033
		Maint. Approp.	4,374,228	4,712,346	5,499,048	3,887,012	—
		Cost	4,376,412	4,484,414	4,629,157	4,307,633	—
		New Work Contrib.		406,500	-376,946	750	30,304
		Cost		14,026	15,528	750	30,304
		Major Rehab. Approp.	—	0	0	0	33,570,853
		Cost	—	0	0	0	33,570,853
38.	Beaver Lake, Water Quality	New Work Approp.		0		0	4,304,000
		Cost		0		0	4,282,000
		New Work Contrib.	—	0		0	557,406
		Cost	—	0		0	540,123
38.	Beaver Lake, Infrastructure	New Work Approp.		—		0	3,000,000
		Cost		—	43	0	3,000,000
		New Work Contrib.	—	—	—	—	—
		Cost	—	—	—	—	—
39.	Bull Shoals Lake, AR	New Work Approp.	—	—	—	0	88,857,611
		Cost	—	—	—	0	88,857,611
		Maint. Approp.	5,212,919	6,240,895	5,831,709	4,410,800	—
		Cost	5,235,347	5,570,819	5,036,382	4,629,666	—
40.	Dardanelle Lock & Dam (No. 10) AR	New Work Approp.	—	—	—	0	84,270,124
		Cost	—	—	—	0	84,261,240
		Maint. Approp.	4,895,415	6,104,802	5,374,116	6,716,132	—
		Cost	4,910,219	4,696,786	6,800,665	4,896,692	—

Table 37-A (Continued)

Cost And Financial Statement

See Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sept. 30, 2003
40. (cont.)	Dardanelle Lock & Dam (No. 10), AR	Major Rehab. Approp.	3,523,000	1,400,000	400,000	0	29,111,000
		Cost	3,127,132	1,731,861	698,173	27,413	29,105,934
41.	Greers Ferry Lake, AR	New Work Approp.	—	—	252,000	-130,000	48,987,512
		Cost	—	—	91,541	17,796	48,974,849
		Maint. Approp.	5,222,125	5,991,422	5,308,774	5,969,721	—
		Cost	5,280,626	5,685,683	5,616,012	4,918,076	—
42.	Norfork Lake, AR	New Work Approp.	—	—	—	0	74,578,929
		Cost	—	—	—	0	74,578,929
		Maint. Approp.	3,983,896	4,179,760	5,220,161	3,130,922	—
		Cost	3,979,112	3,410,106	3,755,634	4,221,638	—
43.	Ozark—Jeta Taylor Lock & Dam (No. 12),	New Work Approp.	—	—	—	0	85,629,412
		Cost	—	—	—	0	85,629,412
		New Work Contrib.	—	581,500	563,500	1,590,992	5,242,992
		Cost	—	949,157	1,163,887	798,851	3,006,153
		Major Rehab Approp.				208,000	208,000
		Cost				120,741	120,741
	AR	Maint. Approp.	4,337,900	4,101,982	3,415,854	3,518,007	—
		Cost	4,349,453	3,396,494	4,141,823	3,524,262	—
44.	Table Rock Lake, MO	New Work Approp.	7,654,000	21,661,000	20,610,000	10,054,000	132,086,875
		Cost	7,294,854	22,423,849	20,736,261	10,106,289	132,059,913
		New Work Contrib.	0	1,753,000	1,490,000	-130,649	3,168,351
		Cost	0	137,496	1,166,746	1,365,417	2,692,754
		Maint. Approp.	5,553,013	5,742,356	9,804,021	7,220,376	—
		Cost	5,553,096	5,739,383	7,882,085	8,241,418	—
45.	Nimrod Waterfowl Levee	New Work Approp.	—	0	0	0	72,200
		Cost	—	0	0	0	72,200
		New Work Contrib.	0	0	0	0	24,100
		Cost	57	0	0	0	24,100
47.	Morgan Point Bendway Closure Structure, Arkansas River	New Work Approp.	-128,000	0	0	0	2,782,000
		Cost	121,911	3,610	21,057	9,466	2,776,278
		New Work Contrib.	—	0	0	0	270,700
		Cost	—	0	0	0	270,700

1. For more details on project funds, see text for individual projects.
2. Includes total project cost, including study cost.

Table 37-B Authorizing Legislation

Date of Authorizing Act	Project and Work Authorized	Documents
	ARKANSAS RIVER BASIN, AR, OK, & KS (See Section 1 of text)	
June 28, 1938	Approved General comprehensive plan: Mannford Reservoir, OK Oologah Lake, OK Canton Lake, OK Tenkiller Ferry Lake, OK Wister Lake, OK Blue Mountain Lake, AR Nimrod Lake, AR	Flood Control Com. Doc. 1, 75th Cong., 1st sess.
August 18, 1941	Modified comprehensive plan to include reservoirs in Grand (Neosho) River Basin, OK, and Mo, and in Verdigris River Basin: Markham Ferry Reservoir, OK Fort Gibson Lake, OK Pensacola Reservoir Lake O' The Cherokees, OK Fall River Lake, KS Elk City Lake, KS Toronto Lake, KS Neodosha Lake, KS	H. Doc. 107 and 440, 76th Con., 1st sess.
July 24, 1946	Authorized Chief of Engineers to provide in the Canton Lake 69,000 acre-feet of irrigation storage, subject to certain conditions.	H. Doc 758, 79th Cong. 2d sess.
July 24, 1946	Approved multiple-purpose plan: Oologah Lake, OK Markham Ferry Reservoir, OK Fort Gibson Lake, OK Blackburn Reservoir, OK Mannford Reservoir, OK Taft Reservoir, OK Bank stabilization Dardanelle Lock and Dam, AR Eufaula Lake, OK Navigation locks and dams Ozark Lock and Dam, AR Short Mountain Lock and Dam, OK Webbers Falls Lock and Dam, OK Tenkiller Ferry Lake, OK	H. Doc 758, 79th Cong. 2d sess.
June 30, 1948	Modified Arkansas River navigation comprehensive plan to include bank protection works at Bradens Bend, OK.	H. Doc 758, 79th Cong., 2d sess.

Table 37-B (Continued) Authorizing Legislation

Date of Authorizing Act	Project and Work Authorized	Documents
May 17, 1950	Modified comprehensive plan authorized in 1938 Flood Control Act and multiple-purpose plan authorized in River and Harbor Act of 1946 to provide for substituting Keystone Lake Mannford, Blackburn and Taft Reservoirs.	
July 14, 1960	Authorized incorporation of River and Harbor and Flood Control plans into a single plan of development and made all pervious authorizations applicable to combined plan of development.	
November 17, 1986	Fourche Bayou Basin, Little Rock, AR (See Section 26 of text.)	Water Resources Development Act of 1986, P.L. 99-662, Sec. 401.
June 10, 1948	Mill Creek, Fort Smith, AR (See Section 30 of text.)	Section 205, P.L. 80-858. Authorized by Asst. Sec. of the Army (CW), 10/14/88.
	RED RIVER BELOW DENISON DAM INCLUDING LITTLE RIVER BASIN, OK AND AR (See Section 26 of text)	
July 24, 1946	Construct Boswell, Hugo, and Millwood Lakes, and Bank Stabilization	H. Doc. 602, 79th Cong., 2d sess.
July 3, 1958	Modified Millwood: Construct Pine Creek, Lukfata, Broken Bow, DeQueen, Gillham, Dierks Lakes	H. Doc. 170, 85th Cong., 1st sess.
July 24, 1946	Emergency streambank erosion protection, Red River, Little River Co., AR	Section 14, PL 79-526
	WHITE RIVER BASIN (LITTLE ROCK DISTRICT) (See Section 34 of text)	
June 28, 1938	Approved comprehensive plan for White River Basin: Lone Rock Lake, AR, Norfork Lake, AR, Clearwater Lake, MO, Water Valley Lake, AR, Bell Foley Lake, AR, Greers Ferry Lake, AR, and White River emergency.	Flood Control Com. Doc 1, 75th Cong., 1st sess.
August 18, 1941	Modified comprehensive plan to include Bull Shoals Lake, AR, and MO, Table Rock Lake, MO, and AR, and Norfork Lake, AR, and MO (power).	H. Doc. 917, 76th Cong., 3d sess. H. Doc. 290, 77th Cong., 1st sess.
September 3, 1954	Authorized power in Greers Ferry Reservoir and added Beaver Lake to the plan.	H. Doc. 499, 83d Cong., 2d sess.
October 23, 1962	Authorizing clearing and straightening of channel for Village Creek, Jackson and Lawrence Counties.	H. Doc 352, 87th Cong., 2d sess.

Table 37-B (Continued) Authorizing Legislation

Date of Authorizing Act	Project and Work Authorized	Documents
March 1, 1974	Authorizing highway bridge construction across Norfork Lake	Flood Control Com. Doc. 1, 75th Cong., 1st sess.
May 11, 1962	Environmental restoration of wetlands and fish and wild-life resources in the White River Basin. AR and MO. (See Section 33 of text.)	Senate Report 1O2-344; Energy & Water Development Appropriations Act, 1993, PL 102-377
October 22, 1976	White River Fish Hatchery, Arkansas provides for trout production facilities downstream from Beaver Dam.	Water Resources Development Act of 1976, P.L. 94-587, Sec. 105.
June 30, 1948	White River, Batesville, AR. (See Section 35 of text.)	Section 205, P.L. 80-858, construction be approved by ASA (CW).

TABLE 37-C Other Authorized Navigation Projects

Project	For Last Full Report See Annual Report For	Federal Cost thru Sept. 30, 2003	
		Construction	Operation and Maintenance
Arkansas River, Little Rock Slackwater Harbor, AR	1988	$743,984	—
Black River, AR and MO [1]	1950	80,000	$930,324
Current River, AR and MO [1]	1964	17,000[3]	132,178
Upper White River, AR [2, 3]	1952	83,197	1,788,374
White River, AR (above Peach Orchard Bluff)[1, 3]	1950	—	785,666
White River, Jacksonport, AR[4]	1984	43,110	—

1. Channel adequate for existing commerce; completion not contemplated .
2. Federal operation and maintenance terminated June 30, 1952, due to lack of commerce. Facilities at Locks and Dams Nos. 1,2, and 3 disposed of in accordance with authority in Public Law 996, 84th Congress.
3. Completed.
4. Responsibility for maintenance of project downstream from Newport, AR; transferred to Memphis District in FY 62.

TABLE 37-E Other Authorized Flood Control Projects

Project	Status	For Last Full Report See Annual Report For	Cost to Sept. 30, 2003 Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Black River, Butler County Road 607, MO	Completed	1985	44,500	—
Black River, Poplar Bluff, MO, to Knobel, AR	Completed	1958	84,315	—
Butler County Drainage District 3, MO	Completed	1983	42,172	—
Carden's Bottom Drainage District No. 2, Arkansas River, AR	Completed	1951	919,955	—
Cato Springs, Fayetteville, AR	Completed.	1996	426,000	—
Clarksville, AR	Completed	1962	271,717	—
Conway County Drainage and Levee District District No. 1, Arkansas River, AR	Completed	1959	187,440	—
Conway County Levee Districts Nos. 1, 2, and 8, Arkansas River, AR	Completed	1952	1,018,840	—
Conway County Levee District No. 6, Arkansas River, AR	Completed	1952	390,952	—
Crawford County Levee District, AR	Completed	1983	53,506	—
Crawford County Levee District, Arkansas River, AR	Completed	1954	2,001,820	—
Crooked Creek, Harrison, AR	Completed	1995	1,245,000	—
Curia Creek Drainage District, Independence County, AR	Completed	1983	117,898	—
East Poplar Bluff and Poplar Bluff, MO	Completed	1958	304,699	—
Faulkner County Levee District No. 1, Arkansas River, AR	Completed	1941	99,511	—
Fort Smith, Arkansas River, AR	Completed	1951	1,077,546	—
From North Little Rock to Gillett, AR (above Plum Bayou)	Completed	1954	845,300	—
Fourche Creek, Little Rock, AR[1]	Cancelled	1973	22,890	—
Jackson County Levee District 2 White River, AR	Completed	1986	131,699	—
Little Massard Creek, Fort Smith, AR	Completed	1983	198,096	—
Little Red River District 1, AR	Completed	1988	28,968	—
Little Red River, White County Road Bridge, Judsonia, AR	Completed	1983	63,355	—
Little Rock Levee, AR, East End Fourche Bayou, AR	Completed	1975	1,901,899	—
McLean Bottom Levee District No. 3, Arkansas River, AR	Completed	1950	422,549	—
Near Dardanelle, Arkansas River, AR	Completed	1953	198,069	—
Newport, White River, AR	Completed	1941	314,276	—
North Little Rock, Arkansas River, AR	Completed	1958	512,001	—
Otter Creek and Tributaries Shannon Hills, AR	Completed	1987	162,204	—
Petit Jean River, AR	Completed	1966	84,350	—
Petit Jean River, AR	Completed	1991	88,379	—
Pine Mountain Lake, AR3	PED	1985	1,432,331	—
Point Remove Levee and Drainage District, Conway County, AR	Completed	1983	86,943	—
Red River, I-30, Little River Co., AR	Completed	1992	119,897	—
Red River, Hwy. 31, Little River Co., AR	Completed	1992	144,828	—
Roland Drainage District, Arkansas River, AR	Completed	1950	269,907	—
Rolling Fork River, Sevier County, AR	Completed	1983	64,500	—

TABLE 37-E (Cont.) Other Authorized Flood Control Projects

Project	Status	For Last Full Report See Annual Report For	Cost to Sept. 30, 2003 Construction	Cost to Sept. 30, 2003 Operation and Maintenance
Skaggs Ferry, Black River, AR	Completed	1941	81,023	—
South Bank, Arkansas River (Head Fourche Island to Pennington Bayou), AR	Completed	1964	1,404,852	—
South Bank, Arkansas River, Little Rock to Pine Bluff, AR, Tucker Lakes	Completed	1961	409,115	—
Swan Creek Bank Stab., Taney County, MO	Completed	1986	76,800	—
Van Buren, Arkansas River, AR	Completed	1952	438,222	—
Village Creek, White River, and Mayberry Levee Districts, AR[2]	Completed	1972	1,567,156	—
West of Morrilton, Arkansas River, AR	Completed	1962	1,269,959	—
White River, at Hwy 14, ¼ mile east of Oil Trough, AR	Completed	1981	214,308	—
White River Bank Stab., Batesville, AR	Completed	1986	101,100	—
White River, Batesville Water TowerSec 14, AR	Completed	1999	473,000	—
White River, Jacksonport, AR[3]	Completed	1987	293,567	—
White River, Newport, AR	Completed	1989	93,929	—
White River, St. Paul, AR	Completed	1990	22,400	—

1. Construction of project cancelled because local interests failed to provide right-of-way for construction and maintenance.
2. See H Doc 577.87th Cong for description.
3. Design deficiency correction to be completed 30 December 1996.

TABLE 37-G Deauthorized Projects

Project	For Last Full Report See Annual Report For	Authority	Date Deauthorized	Funds Expended Federal Funds	Funds Expended Contributed Funds
Crooked Creek Lake & Levee, AR	1969		1990	—	—
Lone Rock, Buffalo River, AR	1959		1977	$130,653	—
Prosperity Lake, MO	—		1989	864,000	—
Water Valley, Eleven Point River, AR & MO	1959		1977	414,011	—
Bell Foley Lake, White River, Arkansas	1975		2002	1,432,116	
Village Creek, Jackson and Lawrence Counties, AR	1977		2002	510,217	

TABLE **ARKANSAS RIVER BASIN; AR, OK, AND KS:**
(See Section 1 of

Featur	Miles Up-strea fro Mout	Miles Nearest	Lock Dimensi (feet	Lif (feet	Elevatio Upper (feet MSL	Depth on Sill Uppe (feet	Depth on Sill Lowe (feet	Character Foundatio	Kind Da	Type Constru tion	Yea Opened Naviga tion	Total Estimate Cos
LITTLE ROCK												
Norrell Lock and No.		8 east of Post,	110 by	30	142	16	15				196	$22,472,00
Entrance		First 10.3 of	—	—	—	—	—				—	$
Lock No.		6 east of Post,	110 by	20 28	162	18	14				196	$
Wilbur D. Mills (No.		3 southeast AR Post,	—	—	—	—	—				196	—
Joe Hardin Lock Dam		5 north Grady,	110 by	20	182	18	14				196	$
Emmett Sanders and Dam		7 east of Bluff,	110 by	14	196	18	14				196	$
Lock and Dam		4 southeast Redfield,	110 by	17	213	18	14				196	$
David D. Terry and Dam		12 southeast Little Rock,	110 by	18	231	18	14				196	$
Murray Lock and (No.		6 northwest Little Rock,	110 by	18	249	18	14				196	$
Toad Suck Lock and Dam		6 west Conway,	110 by	16	265	18	14				196	$58,568,0
Arthur V. Lock and Dam		3 southwest Morrilton,	110 by	19	284	18	14				196	$41,061,0
Dardanelle Lock Dam (No.		2 northwest Dardanelle,	110 by	54	338	18	14				196	$84,270,1
Lock and Dam		Delete	—	—	—	—	—				—	—

TABLE 37-H **ARKANSAS RIVER BASIN; AR, OK, AND KS:**

(See Section 1 of

Featur	Miles Up-strea fro	Miles Neares Tow	Lock Dimensio (feet)	Lif (feet	Elevatio Upper (feet,	Depth on Miter Uppe (feet	Depth on Miter Lowe (feet	Character of Foundatio	Kind of Dam	Type of Construc tion	Year Opened to Naviga-tion	Total Cos
Ozark-Jeta Lock and (No.		1 east Ozark AR	110 600	34	372	18	15				196	$85,629,412.
James W. Lock and (No.		7 east Fort Smith AR	110 600	20	392	18	14				196	$65,080,000.
TULSA												
W. D. Mayo and Dam (No.		4 east Redlan OK	110 600	20	412	14	15				197	$32,655,000.
Robert S. Kerr and Dam (No.		1 north Cowlin on,	110 600	48	460	18	14				197	$94,578,237.
Webbers Falls and Dam		1 northwes of Gore,	110 600	30	490	19	16				197	$83,738,277.
Chouteau Lock Dam (No.		4 northwes of Okay OK	110 600	21	511	15	14				197	$31,619,000.
Newt Graham and Dam		8 southwes of Inola, OK	110 600	21	532	15	14				197	$44,355,000.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL W

TABLE 37-H **ARKANSAS RIVER BASIN; AR, OK, AND KS: NAVIGATION**

(See Section 1 of

Additional features entering into cost of project

Little Rock		**Upstream**	
Bank stabilization and channel rectification, mile Arkansas-White Cutoff, 100 percent	$119,300,1	Oologah, 90.2 miles upstream from mouth,	$ 46,722,3
Maintenance and repair fleet and	10,247,0	Keystone, 638.8 miles upstream from mouth,	123,170,7
Total, Little Rock	814,362,7	Eufaula, 27 miles upstream from mouth,	124,130,7
Navigation aids (U.S. Coast	2,268,00		294,023,8
Tulsa			
Bank stabilization and channel rectification, to Fort Smith,	12,700,0	Total, Tulsa	603,277,4
Maintenance and repair fleet and	2,750,00	Total Project Cost 96 percent	$1,419,908,1
	$309,253,5		

1. Navigation mileage from mouth of White River, except Dam No. 2, is 40.5 miles above mouth of
2. Details in Tulsa District

TABLE 37-

ARKANSAS RIVER BASIN; AR, OK, AND KS: LAKES

(See Section 1 of

Lake and	Rive	Miles Abov Mout	Nearest	Drainag Are (sq	Heigh of (feet	Typ	Reservoi Capacit (acre-	Power Developm (kilowatt	Year Percen Comple	Total Cos
Blue Mountain,	Petit	74.	Paris,	488	115	Earthfi	257,90	-	194	$ 5,069,97
Canton,	North	384.	Canton,	12,48	68	Earthfi	383,30	-	194	11,209,8
Elk City, (Table	Elk	8.7		634	107	Earthfi	284,30	-	196	19,052,9
Eufaula,	Canadia	27.	Eufaula,	47,52	114	Earthfi	3,798,00	90,00	196	123,795,9
Fall River,	Fall	54.	Fall River,	585	94	Earthfi	256,40	-	194	10,550,8
Fort Gibson,	Grand	7.7	Fort Gibson,	12,49	110	Concret	1,284,40	45,00	195	43,821,4
Keystone,	Arkans	538.	Sand Springs,	74,50	121	gravit	1,836,50	70,00	196	123,171,1
Markham Ferry,	Grand	47.	Pryor,	11,53	90	Earthfi	444,50	100,00	196	6,908,75
Neodesha,	Verdigr	222.	Neodesha,	1,15	74	Earthfi	90,00	-	0	97,91
Nimrod,	Fourche La	62.	Plainview,	680	103	Earthfi	336,01	-	194	4,092,82
Oologah,	Verdigr	90.	Claremore,	4,33	137	Concret	1,519,00	-	197	37,029,9
Pensacola.	Grand	77.	Disney,	10,29	147	gravit	2,197,00	86,40	194	52,12
Tenkiller Ferry,	Illinoi	12.	Gore,	1,61	197	Earthfi	1,230,80	34,00	195	25,963,5
Toronto,	Verdigr	271.	Toronto,	730	90	Concrete	199,70	-	196	13,896,3
Wister,	Potea	60.	Wister,	993	99	Earthfi	427,90	-	194	10,687,4
Subtotal, exclusive of Eufaula, Keystone,										151,403,9
Arkansas River Basin; AR, OK and KS; Navigation										1,419,908,1
Total, Arkansas River Basin, 96										1,571,312,1

1.Project includes facilities for production of hydroelectric
2.Cost included in navigation
3.Details in Tulsa District
4.Constructed by State of Oklahoma under the name of Robert S. Kerr Dam (Lake Hudson). Estimate shown is for Federal
5.Inactive. Estimate is based on 1954 price
6.Constructed by State of Oklahoma under the name Grand River Dam (Lake O The Cherokees). Estimate shown is for Federal

TABLE 37-J

LITTLE RIVER BASIN, AR: LAKES

(See Section 26 of Text)

Project	River	Site	Nearest Town
DeQueen Lake	Rolling Fork River	22.8	DeQueen, AR
Gillham Lake	Cossatot River	49	Gillham, AR
Dierks Lake	Saline River	56.6	Dierks, AR
Millwood Lake	Little River	16	Millwood, AR

1. Project is reported separately herein.

TABLE 37-K

WHITE RIVER BASIN; AR, AND MO: LAKES

(See Section 34 of

Lak	Rive	Miles Abov Mout	Nearest	Drainag Are (sq	Heigh of (feet	Typ	Reservoi Capacit (acre-	Power Developm (kilowatt	Total Cos
Beav [1]	Whit	609	Eureka Springs,	1,18	228	Concrete-gravity &	1,952,00	112,00	$ 52,631,4
Bull [1]	Whit	418.	Mountain Home,	6,03	258	Concrete-	5,408,00	340,00	96,356,0
Clearwat [1]	Blac	257.	Piedmont,	898	154	Earthfi	413,00	---	22,462,5
Greers [1]	Little	79.	Heber Springs,	1,14	243	Concrete-	1,844,00	96,00	55,125,0
Norfor [1]	North	4.8	Norfork,	1,80	216	Concrete-	1,983,00	80,55	111,624,0
Table [1]	Whit	523.	Branson,	4,02	252	Concrete-gravity &	3,462,00	200,00	71,233,0
Tota							15,062,0	828,55	409,432,0

1. For details see individual
2. Inactive - placed in a deferred status in May 1985. Estimate based on 1983

TULSA, OKLAHOMA, DISTRICT

The civil works boundary of the Tulsa District includes an area of approximately 160,000 square miles covering Oklahoma and parts of Kansas and Texas within the Arkansas and Red River Basins. The District's responsibilities within the Arkansas River Basin cover southern Kansas, northern Oklahoma, and the Texas Panhandle. These areas are included in the drainage basin of the Arkansas River and its tributaries above the mouth of the Poteau River, extending to the Kansas-Colorado State line, exclusive of that portion of the South Canadian River Basin and its tributaries west of the Texas-New Mexico State line. The District's responsibilities within the Red River Basin cover the northern portion of Texas, and the southern portion of Oklahoma. These areas are embraced in the drainage basin of the Red River and its tributaries above Index Arkansas.

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Navigation

1. McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM (Tulsa District Portion), OK

Location. The Tulsa District portion of the McClellan-Kerr Arkansas River Navigation System provides a navigation route up the Arkansas River from the Oklahoma-Arkansas State line to the head of navigation at Catoosa, OK, near Tulsa, OK. The total length of the Tulsa District portion of the system is 137 navigation miles. Descriptions and costs for the entire navigation system can be found in Little Rock District's entry in this Annual Report.

Existing projects. The McClellan-Kerr Arkansas River navigation project is a component of the multiple-purpose plan for the Arkansas River Basin, which provides for the improvement of the basin through the construction of coordinated developments for navigation, hydroelectric power, flood control, water supply, water quality control, sediment control, recreation, and fish and wildlife propagation. The McClellan-Kerr project also includes bank stabilization, channel straightening, and cutoffs as required. The navigation channel has a minimum depth of 9 feet and minimum widths of 250 feet on the Arkansas River and 150 feet on the Verdigris River. The Tulsa District portion of the navigation system consists of Arkansas River Bank Stabilization and Channel Rectification, Chouteau Lock and Dam, Newt Graham Lock and Dam, Robert S. Kerr Lock and Dam and Reservoir, Robert S. Kerr Marine Terminal, Sans Bois Navigation Channel, W.D. Mayo Lock and Dam, Webbers Falls Lock and Dam, and the pool in Oklahoma which was created by Lock and Dam 13 in Arkansas. The other parts of the multiple-purpose plan for the Arkansas River Basin are listed in Table 29-H.

Local cooperation. Fully complied with.

Terminal facilities. Public port facilities are in operation at Muskogee and Catoosa, OK, and Fort Smith, AR. Other private commercial port facilities are complete and in operation at eight Oklahoma locations.

Operations and results during fiscal year. Routine operation and maintenance continued.

2. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 38-C.

Flood Control

3. ARCADIA LAKE, OK

Location. On the Deep Fork River, at river mile 218.3, in the metropolitan area of Oklahoma City and Edmond, OK, about 1.5 miles west of Arcadia, in Oklahoma County, OK. (See Arcadia, OK, Geological Survey map, scale 1:24,000.)

Existing project. The plan of improvement provides for flood control, water supply, and recreation by construction of an earth fill dam approximately 102 feet high and 5,250 feet long with a high-level uncontrolled spillway. Outlet works consist of a gated tower and conduit. The lake has a total capacity of 92,000 acre-feet (27,380 for conservation, 64,430 for flood control, and 190 for sedimentation reserve), and controls a 105-square-mile drainage area. Construction began in October 1980, and the project became operational for flood control in November 1986.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

4. ARKANSAS CITY, KS

Location. Arkansas City is located approximately 4 miles north of the Kansas-Oklahoma state line at the crossroads of U.S. Highway's 77 and 166, in Cowley County, KS, immediately northwest of the confluence of the Arkansas and Walnut Rivers.

Existing project. The project consists of raising and extending approximately 6 miles of levee along the Arkansas and Walnut Rivers, and rechanneling approximately 2-1/2 miles of the Walnut River. Structural steel gates will be constructed at two railroad/river crossings and stop log structures will be constructed at two U.S. Highway/river crossings.

Local cooperation. A Project Cooperation Agreement was signed on September 4, 1996. The city of Arkansas City, the local sponsor, is currently fulfilling their requirements.

Operations and results during fiscal year. Phase II was completed. Phase III is under construction.

5. ARKANSAS-RED RIVER BASINS CHLORIDE CONTROL PROJECTS, KS, OK, AND TX

Location. On certain tributary streams of the Arkansas and Red Rivers in the western half of the Tulsa District.

Existing project. The project was initiated as a result of studies involving the control of water pollution caused by 15 natural salt sources identified in 1957 by the U.S. Public Health Service. The Arkansas and Red Rivers are major national and regional water resources, which are severely limited due to poor water quality primarily caused by the natural pollutant, sodium chloride. The Arkansas River is polluted by five naturally occurring salt sources located in northwestern Oklahoma and southwestern Kansas. The Red River Basin is polluted by 10 naturally occurring salt sources located in northwestern Texas and southwestern Oklahoma. Preliminary Feasibility Studies included the construction and subsequent maintenance of an injection well and a ring dike used for data collection. Preauthorization studies completed in 1966 and 1970 recommended construction of project features at 13 of the 15 chloride emission areas. For a detailed discussion of the chloride control projects, see page 19-4 of the Annual Report for 1983. The Water Resources Development Act (WRDA) of 1986 (PL 99-662) authorized the Red River Basin and the Arkansas River Basin as separate projects with separate authority under Section 203 of the Flood Control Act of 1966. The Arkansas River portion of the project was deferred in 1982 (not economically justified).

5a. AREA V, ESTELLINE SPRINGS, TX

Location. Chloride Control Area V is located about 0.5 miles east of Estelline, TX, on the Prairie Dog Town Fork of the Red River.

Existing project. For a description of the completed improvement, see the Annual Report for 1987. Construction started in 1963, and the structure was completed in 1964.

Local cooperation. Descriptive text concerning local cooperation requirements is given on page 19-5 of the Annual Report for 1983.

Operations and results during fiscal year. Routine operation and maintenance continued.

5b. AREA VIII, TX

Location. Chloride Control Area VIII is located at river mile 74.9, of the South Fork of the Wichita River, in King County, TX, about 5 miles east of Guthrie, TX.

Existing project. The plan of improvement consists of a low-flow brine collection dam (the Bateman Low-Flow Dam) with attendant pumping station and pipeline facilities. The collected brine is pumped to the storage reservoir behind the Truscott Brine Dam. This brine dam, located at river mile 3.6 on Bluff Creek (a tributary of the North Fork of the Wichita River) about 3 miles northwest of Truscott, TX, contains collected brine from Area VIII and will contain brine collected in the future from Area X. Construction was initiated at Area VIII and Truscott Brine Dam in 1976. The Bateman Low-Flow Dam was completed and put into full operation in May 1987.

Local cooperation. Descriptive text concerning local cooperation requirements is given on page 19-5 of the Annual Report for 1983.

Operations and results during fiscal year. Routine operation and maintenance continued.

5c. RED RIVER BASIN CHLORIDE CONTROL, TX & OK

Location. The project is located in Cottle, Hall, and King Counties, TX, and Harmon County, OK, along the Wichita and Red Rivers. Area VI is located on the Elm Fork of the Red River in Harmon County, OK; Area VII is on the North Fork of the Wichita River, Cottle County, TX; Crowell Brine Dam is on Canal Creek, a tributary of the Pease River; Area IX is on the Middle Pease River, Cottle County, TX; Area X is on the Middle Fork of the Wichita River, King County, TX; and Areas XIII-XIV are on the Jonah and Salt Creeks of Prairie Dog Town Fork of the Red River, Hall County, TX.

Existing project. The plan of improvement consists of one deep-well injection system, three brine storage reservoirs, four low-flow brine collection dams, two well collection facilities, six pumping plants, and 56.3 miles of pipeline. Construction was completed at Estelline Springs, Area VIII (low-flow dam, pumpstation and pipeline), Area X (low-flow dam and pumpstation) and Truscott Lake. In 1987, Area VIII began operation, pumping brines to Truscott Lake.

Local Cooperation. Section 1107 of the Water Resources Development Act of 1986 authorized the project at full Federal expense. The Red River Authority of Texas has signed a 221 Agreement as the non-Federal sponsor.

Operation and results during fiscal year. Estimated total cost of the project is $241,500,000 (October 1997 price level base). A draft Supplement to the Final Environmental Impact Study (SFEIS) was submitted for public review in May 1995. Finalization of the SFEIS has been put on hold indefinitely and the Assistant Secretary of the Army for Civil Works directed that a reevaluation of the Wichita River Basin be performed with available funding. The Wichita Basin Reevaluation effort was completed and a Record of Decision (ROD) was executed in March 2004. Efforts are underway to complete the Wichita Basin portion of the project.

6. BIRCH LAKE, OK

Location. On Birch Creek at river mile 0.8, about 1.5 miles south of Barnsdall, in Osage County, OK. (See Barnsdall, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see the Annual Report for 1979. Construction began in November 1973, and the project was placed in useful operation in March 1977.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

7. BOWIE COUNTY LEVEE, TX

Location. Bowie County is located in northeastern Texas, along the Red River, near Texarkana, Texas. The Bowie County Levee is situated on the south side of the Red River and extends almost 9 miles from the Kansas City Southern Railroad embankment westward to an area near Wamba, Texas. (See Wamba, TX, Gelogical Survey map, scale 1:24,000.)

Existing project. The project, as authorized under the Flood Control Act of 1946, provides for the rehabilitation of the existing Bowie County, Texas, Levee. The levee was constructed in 1913 by the Bowie County Levee District No. 1. The Bowie County Levee is part of a levee system, which includes the Miller County Levee that extends downstream approximately 35 miles. The existing Bowie County Levee does not meet current design standards and has not received proper maintenance. Studies completed in 1994 indicated that no economically feasible flood control alternative was identified and Federal interest in pursuing detailed design and project construction was not warranted. Legislation passed in FY 01 re-authorized the project to include rehabilitation of approximately 6 miles of the existing levee and construction of approximately 4 miles of new levee. This project will be constructed at an estimated cost of $14,143,000.

Local cooperation. Additional legislation is required to allow the Government to build the levee proposed by the local sponsor. The Government has determined that this project will be cost-shared in accordance with the Flood Control Act of 1936.

Operations and results during fiscal year. In the FY 01 Appropriations Bill, the Corps was directed to proceed toward completion of this project. During FY 04, NEPA coordination will be initiated including extensive archaeological mitigation.

8. CANDY LAKE, OK

Location. On Candy Creek, a tributary of Bird Creek in the Verdigris River Basin, at river mile 1.9. The damsite is about 1.5 miles northeast of Avant in Osage County, OK. (See Avant, OK, Geological Survey map, scale 1:24,000.)

Existing project. The plan of improvement provides for an earthfill dam about 4,200 feet long, including an uncontrolled concrete spillway, with a maximum height of 103 feet above the streambed. Outlet works will consist of a gated intake structure, a 10x11.25-foot conduit, and a stilling basin. An 18x24-inch low-flow pipe and an 18-inch water supply pipe will be provided. The lake will have a total capacity of 75,420 acre-feet (44,160 for conservation and sediment reserve and 31,260 for flood control). The drainage area above the damsite is 43 square miles. Candy Lake will be operated as a unit of a seven-lake system for flood control in the Verdigris River Basin in Oklahoma. Funds were not provided to complete construction and in 1996 deauthorization of Candy Lake was published in the Federal Register.

Local cooperation. Section 2 of the Flood Control Act of 1938, the Water Supply Act of 1958, and Section 221 of the Flood Control Act of 1970, apply.

Operations and results during fiscal year. WRDA 99 mandated selling deauthorized project lands back to the former owners or their descendants. With funds of $360,000 provided in FY 03, the transfer will be completed. Tulsa District has identified previous landowners and their descendants and will complete cultural resource and NEPA investigations in June of 2004. Landowner notices to purchase will be sent by August 2004.

9. CANTON LAKE, OK

Location. On the North Canadian River at river mile 394, about 2 miles north of Canton in Blaine County, OK. (See Canton, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 590 of the Annual Report for 1969. Construction began in December 1940, and the project was placed in useful operation in April 1948.

Local cooperation. The Canton Lake Committee was established to improve coordination and communication between the multi-purpose users of Canton Lake. The committee coordinates Oklahoma City's water supply release schedule with interested parties to minimize impacts.

Operations and results during fiscal year. A Dam Safety Report was submitted to HQUSACE in March 2001. The purpose of the report was to evaluate and select an alternative to address the inability of the project to safely pass the Probable Maximum Flood (PMF). Repair and rehabilitation of the tainter gates is underway at $1.5 million. Routine operation and maintenance continued.

10. COPAN LAKE, OK

Location. On the Little Caney River, a tributary of the Caney River, in the Verdigris River Basin, at river mile 7.4, about 2 miles west of Copan in Washington County, OK. (See Copan, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-7 of the Annual Report for 1983. Copan Lake is operated as a unit of a seven-lake system for flood control in the Verdigris River Basin in Oklahoma. Construction began in November 1972, and the project was placed in useful operation in April 1983.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

11. COUNCIL GROVE LAKE, KS

Location. On the Grand (Neosho) River at river mile 450, about 1.5 miles northwest of Council Grove, in Morris County, KS. (See Council Grove Lake, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 519 of the Annual Report for 1969. Construction began in June 1959, and the project was placed in useful operation in July 1964.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Repair and rehabilitation of embankment road was completed at $500,000. Congressional add funds were expended for construction of shower/toilet building at $399,000. Routine operation and maintenance continued.

12. EL DORADO LAKE, KS

Location. On the Walnut River, a tributary of the Arkansas River, at river mile 100.2, about 4 miles northeast of El Dorado in Butler County, KS. (See El Dorado, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-7 of the Annual Report for 1983. El Dorado Lake was authorized as a unit of a three-lake system for flood control in the Walnut River Basin. Construction began in October 1973, and impoundment began in June 1981. Project is complete.

Local cooperation. By payment of $8.17 million on May 18, 1997, the Kansas Department of Wildlife and Parks has fully complied with the Local Cooperation Agreement.

Operations and results during fiscal year. WRDA 99 mandated the transfer without consideration of 51.98 acres of land to the state of Kansas for use as Honor Camps. The state of Kansas must pay for the administrative costs of the land transfers. A letter was sent to the state of Kansas informing the state of the administrative

costs. The state of Kansas is not interested in paying the administrative costs and is not pursuing the land transfer. Routine operation and maintenance continued.

13. ELK CITY LAKE, KS

Location. On the Elk River at river mile 8.7, about 7 miles northwest of Independence, in Montgomery County, KS. (See Table Mound, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 593 of the Annual Report for 1969. Construction began in February 1962, and the project was placed in useful operation in March 1966.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

14. FALL RIVER LAKE, KS

Location. On the Fall River at river mile 54.2, about 4 miles northwest of Fall River, in Greenwood County, KS. (See Severy, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 953 of the Annual Report for 1969. Construction began in May 1946, and the project was placed in full operation in April 1949.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

15. FORT SUPPLY LAKE, OK

Location. On Wolf Creek, a tributary of the North Canadian River, at river mile 5.5, about 12 miles northwest of Woodward, in Woodward County, OK. (See Fort Supply, OK, Geological Survey Map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 594 of the Annual Report for 1969. Construction began in October 1938, and the project was placed in full flood control operation in May 1942.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

16. FRY CREEKS, BIXBY, OK

Location. In the northern part of the city of Bixby, in Tulsa County, OK.

Existing project. The project consists of enlarging both Fry Creeks, diverting Fry Creek 1 into Fry Creek 2 and then diverting the combined creeks into the Arkansas River. The total length of the modified channels would total 4.3 miles, with bottom widths of 30 to 225 feet and depths of 6 to 12 feet. Three bridges will be constructed and 20 acres of land has been acquired for mitigation of fish and wildlife losses. Estimated total cost of the project is $14,513,000.

Local Cooperation. The Project Cooperation Agreement was signed with the city of Bixby, OK, in January 1995.

Operations and results during fiscal year. Construction efforts were completed in FY 00.

17. GREAT BEND, KS

Location. In Barton County, KS, on the north bank of the Arkansas River about 4.5 miles above its confluence with Walnut Creek. (See Great Bend, KS, Geological Survey map, scale 1:24,000.)

Existing project. The plan, authorized by the Flood Control Act of 1965, provides for 6.2 miles of leveed channel to divert Walnut Creek flood flow around Great Bend into the Arkansas River upstream from the city; a 1.5-mile leveed channel to divert Little Walnut Creek flood flow into the Walnut Creek diversion levees along the Arkansas River; a tie-back levee 4.3 miles long on the Arkansas River left bank upstream from the junction of the Walnut diversion channel; and appurtenant facilities.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Financial closeout on this project was completed during FY 97. This project has been fully operational since June 1994. Estimated total cost of the project is $36,350,000 (October 1994 price level base).

18. GREAT SALT PLAINS LAKE, OK

Location. On the Salt Fork of the Arkansas River at river mile 103.3, about 12 miles east of Cherokee, in Alfalfa County, OK. (See Jet, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 594 of the Annual Report for 1969. Construction of the project began in September 1938, and was completed in July 1941. The project was placed in full flood control operation in May 1941.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

19. HALSTEAD, KS

Location. In the city of Halstead, in Harvey County, KS, along the Arkansas River. (See Halstead, KS, Geological Survey Map, scale 1:24,000.)

Existing project. Provides for channel modification and construction of about 4 miles of levee in combination with straightening and widening approximately 3.6 miles of the Little Arkansas River channel to a 50-foot-bottom width in the vicinity of Halstead. Channel modification will be restricted to one side of the channel except in transition areas. Tree planting and re-vegetation will be done and ten pool riffle areas will be established to minimize environmental impacts.

Local cooperation. Fully complied with.

Operations and results during fiscal year. The project is fully operational, however, a construction claim has been the subject of a court proceeding. The outcome of this issue is pending.

20. HEYBURN LAKE AND POLECAT CREEK, OK

Location. On Polecat Creek, a minor tributary of the Arkansas River, at river mile 48.6, about 11 miles west of Sapulpa, in Creek County, OK. (See Lake Heyburn, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 599 of the Annual Report for 1969. Construction started in March 1948, and the project was placed in useful operation in October 1950. Channel improvements below the lake were completed in September 1952.

Local cooperation. The channel improvement project below the lake was never maintained by the sponsor, Joint Drainage District No. 1, Tulsa and Creek Counties, OK. For this reason, the channel returned to its pre-project condition and does not provide flood protection for the affected area. The Corps of Engineers discontinued maintenance inspections of the channel project in 1982, due to the condition of the project and lack of cooperation on the part of the sponsor.

Operations and results during fiscal year. Routine operation and maintenance continued.

21. HUGO LAKE, OK

Location. On the Kiamichi River at river mile 17.6, about 7 miles east of Hugo, in Choctaw County, OK. (See Hugo Dam, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-12 of the Annual Report for 1977. Construction began in October 1967, and the project was placed in useful operation in January 1974.

Local cooperation. Fully complied with.

Operations and results during fiscal year. WRDA 99 mandated the sale of approximately 250 acres of project lands at Hugo Lake to the Choctaw County Industrial Authority at fair market value. Tulsa

District completed NEPA documentation, surveys and other activities needed for the land transfer. The Deed of Transfer has been submitted to HQ for Secretary of the Army execution. Routine operation and maintenance continued.

22. HULAH LAKE, OK

Location. On the Caney River at river mile 96.2, about 15 miles northwest of Bartlesville, near Hulah, in Osage County, OK. (See Bowring, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 595 of the Annual Report for 1969. Construction began in May 1946, and was completed in June 1950. The project was placed in full flood control operation in September 1951.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

23. JOHN REDMOND DAM AND RESERVOIR, KS

Location. The dam is located on the Grand (Neosho) River at river mile 343.7, about 2 miles northwest of Burlington, in Coffey County, KS. (See John Redmond Dam, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 581 of the Annual Report for 1970. Construction was initiated in July 1959, and was completed in December 1965. The project was placed in flood control operation in July 1964.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

24. KAW LAKE, OK

Location. On the Arkansas River at river mile 653.7, about 8 miles east of Ponca City, in Kay County, OK. (See Charley Creek West, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-13 of the Annual Report for 1977. Construction began in June 1966, and the project was placed in operation in May 1976.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

25. LAKE KEMP, TX

Location. On the Wichita River at river mile 126.7, about 40 miles southwest of Wichita Falls, TX. (See Northeast Lake Kemp, TX, Geological Survey Map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-14 of the Annual Report for 1977. Construction began in May 1970, and the project was placed in useful operation in October 1972.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

26. LAKE WICHITA, HOLLIDAY CREEK, TX

Location. The project is located in Wichita and Archer Counties, TX. The Lake Wichita dam and the Holliday Creek channel are located in the city of Wichita Falls, TX. (See Wichita Falls, TX, Geological Survey Map, scale 1:24,000.) Financial closeout is ongoing and scheduled to be complete during FY 01.

Existing project. The existing Lake Wichita dam was replaced with an earthen dam approximately 16,000 feet long with a concrete spillway, an auxiliary spillway, and low-flow outlet works. Channel improvements along Holliday Creek from the new spillway to the Wichita River, a distance of 9.3 miles, were also constructed.

Local cooperation. Fully compiled with.

Operations and results during fiscal year. The project was completed October 1, 1996, and is fully operational. Estimated total project cost is $48,789,000 (October 1995 price level base). Financial closeout is ongoing and scheduled to be complete during FY04.

27. MARION RESERVOIR, KS

Location. On the Cottonwood River at river mile 126.7, about 3 miles northwest of Marion, in Marion County, KS. (See Pilson, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 597 of the Annual Report for 1969. Construction began in June 1964, and the project was placed in flood control operation in February 1968.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

28. MCGRATH CREEK, WICHITA FALLS, TX

Location. The project is located in the northern central portion of Texas, in the city of Wichita Falls.

Existing project. McGrath Creek is approximately 3,900 feet long and connects Sikes Lake and the recently constructed Holliday Creek project. The project involves realigning and concrete lining the McGrath Creek Channel, and constructing a new spillway to pass flows through Sikes Lake.

Local cooperation. The city of Wichita Falls, TX, is the non-Federal sponsor. The Project Cooperation Agreement was executed in November 1994.

Operations and results during fiscal year. Project construction is completed. Estimated total project cost is $14,500,000. Financial closeout occurred in FY 00.

29. MINGO CREEK, OK

Location. On the right-bank tributary of Bird Creek in the city of Tulsa, in Tulsa County, OK. (See Tulsa, OK, Geological Survey Map, scale 1:24,000.)

Existing project. The project consists of 23 detention sites to capture peak flows and hold them temporarily until downstream flows subside. There are approximately 9.4 miles of channelization in selected locations on the tributaries and main stem of Mingo Creek. Estimated total project cost is $123,960,725.

Local cooperation. The local sponsor is the city of Tulsa, OK, and has been fully complied with. The city has constructed 4.75 miles of channel and placed two excavated detention facilities into flood control operation prior to initiation of Federal construction in September 1988. Reimbursement to date for work completed by the city of Tulsa is $19,000,000. Construction efforts were completed in FY01.

Operations and results during fiscal year. Project is estimated to closeout in FY04.

30. OOLOGAH LAKE, OK

Location. On the Verdigris River at river mile 90.2, about 2 miles southeast of Oologah, in Rogers County, OK. (See Oologah, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-15 of the Annual Report for 1972. Construction began in July 1950, but the project was placed in standby status in October 1951. Construction resumed in December 1955, and was completed in May 1963 for initial development. Construction for ultimate (second stage) development was initiated in July 1967, and was completed in 1974.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Congressional add funds in the amount of

$285,000 were expended for erosion control repair. Routine operation and maintenance continued.

31. OPTIMA LAKE, OK

Location. On the North Canadian River at river mile 623.2, about 4.5 miles northeast of Hardesty, in Texas County, OK. (See Optima Dam, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the existing improvement, see page 19-16 of the Annual Report for 1979. Construction began in March 1966, and impoundment began in October 1978. Construction was completed in 1981.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

32. PARKER LAKE, OK

Location. On Muddy Boggy Creek, a tributary of the Red River, about 23 miles east of Ada, in Coal County, OK. (See Parker, OK, Geological Survey map, scale 1:24,000.)

Existing project. Parker Lake, if constructed, would be a multipurpose element in a plan of improvement for the Upper Muddy Boggy Creek Basin, OK. The project would consist of an earth fill dam about 2,200 feet long, a gated outlet works for flood control and water supply, and a 100-foot-wide spillway. The lake created would have a total storage capacity of 220,240 acre-feet and would yield 42 million gallons per day for municipal and industrial water supply. The project was authorized by WRDA of 1986. The project has not been funded for construction, however, a Limited Project Review of the project is scheduled to be completed in March 1998. Federal accomplishment of single purpose municipal and industrial water supply projects is not in accord with current Administration priorities.

Local cooperation. The Oklahoma Water Resources Board, the sponsor, has agreed to cost share in the flood control portion of the project and the water supply provided enough interested users for the water supply can be identified.

Operation and results during fiscal year. Estimated total project cost is $71,400,000 (October 1992 price level base).

33. PAT MAYSE LAKE, TX

Location. On Sanders Creek, a tributary of the Red River, at river mile 4.6, about 12 miles north of Paris, in Lamar County, TX. (See Grant, TX, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 584 of the Annual Report for 1970. Construction began in March 1965, and the project was placed in full flood control operation in September 1967.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Park roads were repaired at $100,000 at various locations. Routine operation and maintenance continued.

34. PEARSON-SKUBITZ BIG HILL LAKE, KS

Location. On Big Hill Creek at river mile 33.3, about 4.5 miles east of Cherryvale, KS. (See Dennis, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-11 of the Annual Report for 1983. Construction began in April 1974, and impoundment began in March 1981.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

35. PINE CREEK LAKE, OK

Location. On the Little River at river mile 145.3, about 5 miles northwest of Wright City, in McCurtain County, OK. (See Wright City, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 584 of the Annual Report for 1970. Construction began in February 1963, and the project was placed in useful operation in June 1969.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

36. SARDIS LAKE, OK

Location. On Jackfork Creek, a tributary of the Kiamichi River, at river mile 2.8, about 2.5 miles north of Clayton, in Pushmataha County, OK. (See Yanush, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-11 of the Annual Report for 1983. Sardis Lake is operated as a unit of a two-lake system for flood control in the Kiamichi River Basin. (The other lake in the system is Hugo Lake). Construction began in August 1975, and the project became operational in January 1983.

Local cooperation. The Oklahoma Water Resources Board (OWRB) failed to make satisfactory arrangements to pay for the Sardis Lake water supply storage as agreed to in a letter exchange of September 1997. On July 2, 1998, the state of Oklahoma was declared in default under the contract. On July 14, 1998, the Department of Justice (DOJ) filed suit in the Northern District Court of Oklahoma. The litigation has not moved forward because of a taxpayer "qui tam" (Fent case) suit filed in January 1998 in the Western District Court of Oklahoma against the OWRB and the United States. The suit between OWRB and the United States was postponed until a decision was reached on the taxpayer "qui tam" suit. On March 4, 1999, the Western District Court dismissed OWRB and the United States from the suit. The Fent case was appealed to the Tenth Circuit U.S. Court of Appeals. The dismissal was upheld and the case was remanded. The Fent case was appealed to the Oklahoma Supreme Court (OSC) and the OSC accepted the case for review. The qui tam lawsuit was settled when the OSC ruled that the water storage contract between the State of Oklahoma and the United States Government is a legally binding contract. Since that decision, the Federal government has re-opened its lawsuit and it is now in litigation in the U.S. District Court for the Northern District of Oklahoma. The United States filed a motion for summary judgment on December 14, 2003. The State of Oklahoma filed its response on January 23, 2004. Work is ongoing.

Operations and results during fiscal year. Routine operation and maintenance continued.

37. SKIATOOK LAKE, OK

Location. On Hominy Creek, a tributary of Bird Creek in the Verdigris River Basin, at river mile 14.3, about 5 miles west of Skiatook, in Osage County, OK. (See Avant S.E., OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see Page19-8 of the Annual Report for 1987. Construction began in January 1974, impoundment began in October 1984, and the project became operational in November 1984.

Local cooperation. Fully complied with.

Operations and results during fiscal year. A dam safety project to rehabilitate the existing spillway was authorized with the approval of the Dam Safety Report in FY 97. Construction began in FY 01. The total project cost is estimated to be $10,000,000 (October 2000 price levels). Construction was complete in FY 03. Routine operation and maintenance continued. A major recreation lease was signed with the Skiatook Economic Development Authority for the provision of additional recreation facilities. This was Tulsa District's first action under the National Recreation Lakes Demonstration Program.

38. TORONTO LAKE, KS

Location. On the Verdigris River at river mile 271.5, about 4 miles southeast of Toronto, in Woodson County, KS. (See Fredonia, KS, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 600 of the Annual Report for 1969. Construction began in November 1954, and the project was placed in full operation in March 1960.

Local cooperation. Fully complied with.

Operations and results during fiscal year. WRDA 99 mandated the transfer, without consideration, of 31.98 acres of project lands to the state of Kansas for use as an Honor Camp. The state of Kansas must pay for the administration costs of the land transfer. A letter was sent to the state of Kansas informing the state of the administrative costs, however, the state is not interested in paying the costs and is not pursuing the land transfer. Routine operation and maintenance continued.

39. TULSA AND WEST TULSA LEVEES, OK

Location. On the banks of the Arkansas River near Tulsa, OK. On the left bank, the levee extends from river mile 531.0 near Sand Springs, OK, downstream to river mile 521.4 at Tulsa. On the right bank, the levee extends from near river mile 526.7 downstream to river mile 521.3 and is adjacent to the major portion of the business and residential districts in West Tulsa, Tulsa County, OK.

Existing project. The Tulsa and West Tulsa Levees were completed by the Tulsa District in 1945. The project was turned over to the Tulsa County Drainage District No. 12 for operations and maintenance. The project consists of 3 levees with a total length of about 20 miles and an average height of 10 feet. The levees provide protection from flooding to property valued at approximately $1 billion dollars. Many of the drainage pipes that pass under the levee have deteriorated and levee material has eroded into the pipes leaving small cavities in the embankment. The Tulsa District completed an evaluation of the levees in September 1989, which determined that rehabilitation would be required for the levees to operate as designed. Funds to repair the levee were provided in FY 91 and FY 94 by the U.S. Congress.

Local cooperation. The Local Cooperation Agreement (LCA) was executed in March 1992, with Tulsa County and Levee District No. 12, the non-Federal sponsors. In FY 99, a supplement to the LCA and additional funding was provided by the local sponsor to allow construction of Phase II.

Operations and results during fiscal year. Phase I contract for repair of 23 of the 48 deficient pipes was awarded July 30, 1992, and completed in July 1993. Phase II construction was initiated in the summer of 1999 and was completed in FY 00. Phase III construction was initiated in FY 01 and completed in FY 02.

40. WAURIKA LAKE, OK

Location. On Beaver Creek, a tributary of the Red River, at river mile 27.0, about 6 miles northwest of Waurika, in Jefferson County, OK. (See Hastings, OK-TX, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-12 of the Annual Report for 1983. Waurika Lake is operated as a unit of a coordinated lake system for flood control in the Red River Basin. Construction began in July 1971, and impoundment began in August 1977.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operations and maintenance continued.

41. WINFIELD, KS

Location. Winfield is located approximately 15 miles north of the Kansas-Oklahoma state line on U.S. Highway 77 in Cowley County, KS. The city is located immediately southeast of the confluence of the Walnut River and Timber Creek.

Existing project. The project consists of raising and extending approximately 4 miles of levee along Timber Creek and the Walnut River. Road ramps will be constructed at two locations where city streets cross the Walnut River.

Local cooperation. A Project Cooperation Agreement (PCA) was signed on September 4, 1996. The city of Winfield, the local sponsor, is currently fulfilling its requirements.

Operations and results during fiscal year. A construction contract was awarded in FY 98. Construction was completed in FY 99. The Project was transferred in FY 00.

42. WISTER LAKE, OK

Location. On the Poteau River at river mile 60.9, about 2 miles south of Wister, in LeFlore County, OK. (See Wister, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 601 of the Annual Report for 1969. Construction began in April 1946, and was completed in May 1949. The project was placed in full flood control operation in October 1949.

Local cooperation. Fully complied with.

Operations and results during fiscal year. WRDA 99 mandated the transfer of 10-acres of project lands to the Summerfield Cemetery Association. NEPA documentation, surveys and other activities were performed leading up to the land transfer. A deed transferring 6.08 acres was sent to the cemetery association in September 2002. Project intake gates were repaired and rehabilitated at $586,000. Routine operation and maintenance continued.

43. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 38-E.

44. INSPECTION OF COMPLETED LOCAL FLOOD PROTECTION PROJECTS

Inspections of completed, Federally constructed local flood protection projects which are owned, operated, and maintained by local interests are made to determine the extent of compliance with approved regulations for operations and maintenance. The inspections assist the Corps of Engineers in determining if the project provides the flood protection for which it was constructed. See Table 38-I for a list of projects inspected in FY 03. Fiscal year cost was $270,469.

45. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

The Tulsa District Corps of Engineers is responsible for flood control operations at 12 non-Corps projects. These include nine Bureau of Reclamation lakes, two Grand River Dam Authority lakes, and one city-county owned lake. All of these projects were constructed wholly or in part with Federal funds. Routine flood control releases were required at several of the projects. Fiscal year costs for scheduling flood control reservoir operations totaled $762,935.

46. EMERGENCY RESPONSE ACTIVITIES - FLOOD CONTROL AND COASTAL EMERGENCIES

a. Disasters. The Emergency Operations Center (EOC) was activated only one time during FY03. This occurred during May 2003 in support of the Oklahoma City tornadoes. Work involved daily situation reports monitoring conditions during non-routine work periods. One person was dispatched to the State EOC in Oklahoma City. Damage did not exceed Local and State Government capabilities.

b. Operational Program Areas. Fiscal year cost for catastrophic disaster preparedness was $7,441; $10,819 for Nationwide Civil Works Activities; $734,295 for anti-terrorism force protection $197,136 for disaster preparedness; $880 for the emergency operations; and $2,591 for emergency water supplies and drought assistance.

c. Emergency Work in Support of Other Federal Agencies. Support work was performed for FEMA in response to the Super Typhoon Pongsona in December 2002 and January 2003. We also assisted in the debris recovery efforts from the Space Shuttle Columbia disaster in February 2003. The SWT Power PRT deployed to Richmond,

VA in response to the Hurricane Isabel recovery efforts in September 2003.

47. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

See Table 38-J for FY 02 expenditures for Small Flood Control Projects Not Specifically Authorized by Congress (Section 205); Emergency Streambank and Shoreline Projects (Section 14).

Multiple-Purpose Projects Including Power

48. BROKEN BOW LAKE, OK

Location. On the Mountain Fork River at river mile 20.3, about 9 miles northeast of Broken Bow, in McCurtain County, OK. (See Broken Bow, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvements, see page 29-17 of the Annual Report for 1971. Construction began in November 1961, and the project was placed in useful operation in October 1969. Power units 1 and 2 were placed in operation in January and June 1970, respectively.

Local cooperation. The development of a trout fishery in the Mountain Fork River below Broken Bow Lake was implemented in 1989, in cooperation with the Corps of Engineers (Corps), Southwestern Power Administration, Oklahoma Department of Wildlife Conservation, and OWRB. The operation of the trout stream has been cooperatively managed by a Memorandum of Understanding. WRDA of 1996, Sec. 338, modified the project to provide for the reallocation of sufficient quantity of water supply storage space to support the Mountain Fork trout fishery at no expense to the state of Oklahoma. The District is waiting on implementing guidance.

Operations and results during fiscal year. Routine operation and maintenance continued. Customer-funded replacement of the hydropower vacuum circuit breaker was completed at $186,000.

49. EUFAULA LAKE, OK

Location. On the Canadian River at river mile 27.0, about 12 miles east of Eufaula, in McIntosh County, OK. (See Porum, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 588 of the Annual Report for 1970. Construction began in December 1956, and the project was placed in full flood control operation in February 1964. There are numerous areas along the shoreline where private property is subject to flooding and erosion as a result of the construction and operation. Erosion problems in numerous subdivisions bordering the lake were studied in 1989 and 1993. At this time, it is estimated that there are approximately 22 miles of shoreline in need of attention. Estimated costs for repair is approximately $15 million.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Customer-funded replacement of hydropower intake gates were completed at $774,000. Congressional add funds and O&M funds were expended for erosion repair at $445,000. Routine operation and maintenance continued.

50. FORT GIBSON LAKE, OK

Location. On the Grand (Neosho) River at river mile 7.7, about 5 miles north of Fort Gibson, in Muskogee County, OK. (See Fort Gibson Dam, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 604 of the Annual Report for 1969. Construction began in March 1942, but was held in abeyance during World War II. Construction resumed in May 1946, and was completed in June 1950. The fourth generator was installed and the project placed in full operation in September 1953.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued.

51. KEYSTONE LAKE, OK

Location. On the Arkansas River at river mile 538.8, near Sand Springs, OK, and about 15 miles west of Tulsa, OK. (See Keystone Dam, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 589 of the Annual Report for 1970. Construction began in January 1957, and the project was placed in flood control operation in September 1964.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Customer-funded replacement of the hydropower excavation system at $692,000 and repair of the penstock pipes at $786,000. Routine operation and maintenance continued.

52. LAKE TEXOMA (DENISON DAM), OK AND TX

Location. On the Red River at river mile 725.9, about 5 miles northwest of Denison, TX. (See Denison Dam, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 603 of the Annual Report for 1969. Lake Texoma is operated as a unit of a coordinated lake system for flood control in the Red River Basin. Construction started in August 1939, and was completed in February 1944. Commercial power generation was started in March 1945. Authorized work is complete except for installation of the third, fourth, and fifth power units.

Local cooperation. Fully complied with.

Operations and results during fiscal year. WRDA 99 mandated the sale, at fair market value, of approximately 1,580 acres of project lands to the state of Oklahoma's Department of Tourism. The administrative costs of the land transfer must be paid by the state of Oklahoma. An estimate of administrative costs, $55,000, was provided to Oklahoma Land Commission, acting on behalf of Oklahoma Tourism. To date, the State has not made administrative funds available to initiate sale of project lands. Routine operation and maintenance continued. Gate seals were replaced at a cost of $522,000 and road repairs were completed for $605,000.

53. ROBERT S. KERR LOCK AND DAM AND RESERVOIR, OK

Location. On the Arkansas River at navigation mile 336.2, about 8 miles south of Sallisaw, in LeFlore County, OK. (See Robert S. Kerr, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-21 of the Annual Report for 1972. The Robert S. Kerr Lock and Dam and Reservoir is a unit of the McClellan-Kerr Arkansas River Navigation System. Construction began in April 1964, and closure was completed in October 1970. The lock and dam became operational for navigation in December 1970. Generating units 1, 2, 3, and 4 were placed in operation in October, July, September, and November 1971, respectively.

Local cooperation. See section 1 of this report.

Terminal facilities. Five sites have been developed for handling coal, grain, construction aggregates, and miscellaneous cargo. The facilities are considered adequate for present traffic.

Operations and results during fiscal year. Customer-funded hydropower replaced the excavation system at $1.86 million and repaired the intake gate construction for $385,000. Routine operation and maintenance continued.

54. TENKILLER FERRY LAKE, OK

Location. On the Illinois River at river mile 12.8, 7 miles northeast of Gore, in Sequoyah County, OK. (See Gore, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 606 of the Annual Report for 1969. Construction began in June 1947, and was completed in July 1953.

Local cooperation. Fully complied with.

Operations and results during fiscal year. Routine operation and maintenance continued. A project to build an auxiliary spillway and to modify the existing spillway was authorized February 22, 1994, by the Acting Assistant Secretary of the Army, under the Dam Safety Assurance Program. Phase I was awarded in FY 00. Phase II will be awarded in FY 04. Project completion is scheduled for FY 06.

55. WEBBERS FALLS LOCK AND DAM, OK

Location. On the Arkansas River at navigation mile 366.6, about 5 miles northwest of Webbers Falls, in Muskogee County, OK. (See Webbers Falls, OK, Geological Survey map, scale 1:24,000.)

Existing project. For a description of the completed improvement, see page 19-23 of the Annual Report for 1977. The Webbers Falls Lock and Dam is a unit of the McClellan-Kerr Arkansas River Navigation System. In January 1965, construction began and the project was placed in useful operation in November 1970. The lock and dam became operational for navigation in December 1970. Generating units 1, 2, and 3 were placed in operation in August, September, and November 1973, respectively.

Local cooperation. See section 1 of this report.

Terminal facilities. Facilities at the Port of Muskogee include: a cargo pier, mooring dolphins, warehouse, terminal building, and fuel facility built by the Muskogee City-County Port Authority; a liquid cargo loading facility and a steel unloading facility built by Frontier Steel Company; grain holding facilities built by Conagra, Inc.; and a general-purpose private dock built by the Fort Howard Paper Company. The facilities are considered adequate for present traffic.

Operations and results during fiscal year. Routine operation and maintenance continued. Customer-funded hydropower repairs were made on the exciter system at $919,000.

Environmental Infrastructure

56. LAWTON, OK

Location. Lawton is located approximately 80 miles southwest of Oklahoma City on Highway 44.

Existing project. The project consists of demolition of an existing, but abandoned, wastewater treatment facility.

Local cooperation. Cost sharing on this project will be 75% Federal and 25% non-Federal. The city will be responsible for provision of LERRD and cash as necessary.

Operations and results during fiscal year. In FY04, this project will be scoped and design undertaken. Additionally, NEPA coordination will begin. If appropriate, a Project Cooperation Agreement will be drafted.

57. YUKON, OK

Location. Yukon is located immediately adjacent to Oklahoma City's western boundary on Highway 66.

Existing project. The project consists of constructing approximately 9 miles of domestic water line connecting the city's well field to the city water system. Also to be constructed is a one million gallon storage facility.

Local cooperation. Cost sharing on this project will be 75% Federal and 25% non-Federal. The city will be responsible for provision of LERRD and cash as necessary.

Operations and results during fiscal year. In FY04, this project will be scoped and design undertaken. Additionally, NEPA coordination will begin. If appropriate, a Project Cooperation Agreement will be drafted.

General Investigations

58. SURVEYS

Fiscal year cost was $723,955, which included one flood damage prevention study, one reconnaissance study; eight special studies, one watershed comprehensive study; miscellaneous activities - special investigations, and Interagency Water Resources Development; North American Waterfowl Management Plan, Coordination with other Agencies, to include nine planning assistance to states studies. Table 38-K provides a specific list and respective fiscal year expenditures.

59. COLLECTION AND STUDY OF BASIC DATA

Fiscal year cost was $275,098, which includes floodplain management services. Table 38-K provides a specific list and respective fiscal year expenditures.

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
1.	McClellan-Kerr Arkansas	New Work					
	River Navigation System,	Approp	-	-	-	-	130,936,638[2]
	OK, (Tulsa District Portion)	Cost	-	-	-	-	130,936,638[2]
		Maint					
		Approp	3,761,500	4,612,634	3,656,600	3,901,050	185,525,046
		Cost	3,727,639	4,621,133	3,673,947	3,909,747	185,514,833
3.	Arcadia Lake, OK	New Work					
		Approp	-	-	-	-	82,965,900
		Cost	-	-	-	-	82,958,217
		Maint					
		Approp	444,500	363,303	331,660	270,000	5,657,045
		Cost	442,653	363,852	330,229	272,425	4,846,671
4.	Arkansas City, KS	New Work					
		Approp	1,226,279	6,021,000	3,555,000	3,386,000	19,272,279
		Cost	1,354,661	5,928,701	3,450,223	3,485,188	19,145,930
	(Contributed Funds)	Contrib.	223,000	-	275,000	446,000	1,209,000
		Cost	12,437	100,397	370,695	721,000	1,204,529
5.	Arkansas-Red River	New Work					
	Basins Chloride Control,	Approp	-	-	-	-	25,705,208
	KS, OK, and TX	Cost	-	-	-	-	25,705,208
		Maint					
		Approp	-	-	-	-	2,316,354
		Cost	-	-	-	-	2,316,354
5a.	Area V,	New Work					
	Estelline Springs, TX	Approp	-	-	-	-	300,028
		Cost	-	-	-	-	300,028
		Maint					
		Approp	1,200	-22	-	-	158,635
		Cost	1,100	100	-	-	158,576
5b.	Area VIII, TX	New Work					
		Approp	-	-	-	-	46,682,242
		Cost	-	-	-	-	46,671,992
		Maint					
		Approp	1,311,000	1,389,118	1,270,877	1,225,900	17,220,243
		Cost	1,304,043	1,393,675	1,270,846	1,228,185	17,214,075

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
5c.	Red River Basin Chloride Control, TX & OK	New Work					
		Approp	1,350,000	1,410,005	1,453,000	1,024,000	34,605,805
		Cost	1,561,098	1,554,259	1,924,234	1,132,168	34,429,260
6.	Birch Lake, OK	New Work					
		Approp	-	-	-	-	13,549,170
		Cost	-	-	-	-	13,549,170
		Maint					
		Approp	495,500	461,668	549,198	366,713	14,929,345
		Cost	494,938	462,134	547,574	368,386	14,929,298
7.	Bowie County Levee, TX	New Work					
		Approp	-	898,000	500,000	3,977,000	7,195,000
		Cost	12,245	68,767	369,294	87,734	2,331,632
8.	Candy Lake, OK	New Work					
		Approp	-	-	-	-	4,927,922
		Cost	-	-	-	-	4,927,922
		Maint					
		Approp	4,300	144,639	-2,100	160,700	525,109
		Cost	4,258	79,789	62,754	160,203	524,501
9.	Canton Lake, OK	New Work					
		Approp	-	-	750,000	1,571,000	13,530,834[11]
		Cost	-	-	40,304	1,849,003	13,099,141[11]
		Maint					
		Approp	1,938,000	2,283,689	2,213,105	3,776,700	43,687,762
		Cost	1,933,114	2,071,657	2,345,792	3,860,393	43,680,616
10.	Copan Lake, OK	New Work					
		Approp	-	-	-	-	83,800,814
		Cost	-	-	-	-	83,799,189
		Maint					
		Approp	713,700	982,230	1,156,296	1,365,568	16,175,573
		Cost	718,401	828,670	996,852	1,946,550	16,172,612
11.	Council Grove Lake, KS	New Work					
		Approp	-	-	-	-	11,810,509
		Cost	-	-	-	-	11,810,509
		Maint					
		Approp	1,939,500	1,170,626	1,141,491	1,572,658	25,787,535
		Cost	1,941,271	1,169,987	1,132,250	1,578,191	25,780,984

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
12.	El Dorado Lake, KS	New Work					
		Approp	-	-	-	-	92,413,349
		Cost	-	-	-	-	92,413,343
		Maint					
		Approp	413,000	428,953	1,374,259	-525,550	8,669,712
		Cost	410,488	431,436	410,264	433,507	8,665,250
13.	Elk City Lake, KS	New Work					
		Approp	-	-	-	-	19,052,990
		Cost	-	-	-	-	19,052,990
		Maint					
		Approp	542,500	491,835	552,194	392,067	17,501,346
		Cost	540,154	495,728	555,276	391,814	17,498,603
14.	Fall River Lake, KS (Federal)	New Work					
		Approp	-	-	-	-	10,550,873
		Cost	-	-	-	-	10,550,873
		Maint					
		Approp	1,255,300	833,727	856,613	958,724	21,979,306
		Cost	1,249,267	834,193	857,320	958,931	21,967,990
	(Contrib. Funds)	Contrib.	-	-	-	-	6,120
		Cost	-	-	-	-	6,120
15.	Fort Supply Lake, OK	New Work					
		Approp	-	-	-	-	7,723,134
		Cost	-	-	-	-	7,723,134
		Maint					
		Approp	1,043,900	1,411,399	850,662	758,262	22,553,021
		Cost	1,039,928	908,878	1,340,655	767,718	22,544,319
16.	Fry Creeks, Bixby, OK	New Work					
		Approp	331,000	314,940	53,000	-11,000	10,552,508
		Cost	299,002	458,769	50,100	3,645	10,547,762
	(Contrib. Funds)	Contrib.	-	-	-	-	640,000
		Cost	-	-	-	-	640,000
17.	Great Bend, KS (Federal)	New Work					
		Approp	-	-	-	-	19,968,400
		Cost	-	-	-	-	19,968,073
	(Contrib. Funds)	Contrib.	-	-	-	-	4,259,254
		Cost	-	-	-	-	4,259,254

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
18.	Great Salt Plains Lake, OK	New Work					
		Approp	-	-	-	-	4,626,270
		Cost	-	-	-	-	4,626,270
		Maint					
		Approp	153,000	176,051	207,800	135,200	8,733,398
		Cost	152,074	177,334	206,829	136,296	8,733,335
19.	Halstead, KS	New Work					
	(Federal)	Approp	137,000	-	-	-34,000	8,449,000
		Cost	106,110	-	120	-	8,428,456
	(Contributed Funds)	Contrib.	-	-	-	-	940,000
		Cost	-	-	-	-	924,537
20.	Heyburn Lake and	New Work					
	Polecat Creek, OK	Approp	-	-	-	-	2,560,572
		Cost	-	-	-	-	2,560,572
		Maint					
		Approp	599,000	576,202	515,514	396,500	15,764,752
		Cost	597,959	579,597	489,680	424,207	15,763,541
21.	Hugo Lake, OK	New Work					
		Approp	-	-	-	-	41,211,562
		Cost	-	-	-	-	41,211,562
		Maint					
		Approp	1,557,300	1,832,276	1,843,268	1,427,577	37,507,601
		Cost	1,572,140	1,693,801	1,953,926	1,446,860	37,492,149
22.	Hulah Lake, OK	New Work					
		Approp	-	-	-	-	11,388,150
		Cost	-	-	-	-	11,388,150
		Maint					
		Approp	379,800	416,639	875,987	-26,491	13,602,717
		Cost	378,336	416,647	334,411	514,514	13,600,690
		Minor Rehab					
		Approp	-	-	-	-	135,718
		Cost	-	-	-	-	135,718
23.	John Redmond Dam	New Work					
	and Reservoir, KS	Approp	-	-	-	-	28,151,470
		Cost	-	-	-	-	28,151,470

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
	John Redmond Dam	Maint					
	and Reservoir, KS (Cont'd)	Approp	2,250,800	1,340,208	1,238,835	798,759	36,709,769
		Cost	2,173,461	1,357,075	1,147,578	889,596	36,648,858
24.	Kaw Lake, OK	New Work					
	(Federal)	Approp	-	-	-	-	109,430,750
		Cost	-	-	-	-	109,430,750
		Maint					
		Approp	1,973,000	1,841,224	1,856,073	1,591,576	43,086,068
		Cost	2,004,185	1,839,741	1,855,504	1,600,350	43,078,063
	(Contributed Funds)	Contrib.	-	-	-	-	43,934
		Cost	-	-	-	-	43,934
25.	Lake Kemp, TX	New Work					
		Approp	-	-	-	-	7,637,702
		Cost	-	-	-	-	7,637,702
		Maint					
		Approp	132,900	199,368	308,600	83,300	4,154,669
		Cost	134,012	199,174	308,631	83,471	4,154,687
26.	Lake Wichita,	New Work					
	Holliday Creek, TX	Approp	58,212	-	-	-26,000	33,876,212
	(Federal)	Cost	1,300	10,533	7,544	1,739	33,865,116
	(Contributed Funds)	Contrib.	-	-	-	-	7,835,000
		Cost	-	-	-	-	7,835,000
27.	Marion Reservoir, KS	New Work					
		Approp	-	-	-	-	13,420,818
		Cost	-	-	-	-	13,420,818
		Maint					
		Approp	1,622,000	1,678,188	1,344,484	1,204,000	30,288,027
		Cost	1,608,056	1,688,126	1,343,896	1,207,722	30,287,065
		Minor Rehab					
		Approp	-	-	-	-	68,924
		Cost	-	-	-	-	68,924
28.	McGrath Creek,	New Work					
	Wichita Falls, TX	Approp	-13,491	-	-	-	8,538,349
	(Federal)	Cost	146,578	-	-	-	8,538,349
	(Contributed Funds)	Contrib.	-116,740	-	-	-	3,086,860
		Cost	-116,666	-	-	-	3,086,860

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
29.	Mingo Creek, OK	New Work					
	(Federal)	Approp	2,790,000	810,000	-	-144,000	77,570,726
		Cost	3,957,236	1,672,839	81,762	-163,301	77,508,286
	(Contributed Funds)	Contrib.	-	-	-	-	16,253,400
		Cost	255,192	7,334	54,970	6,842	15,940,463
30.	Oologah Lake, OK	New Work					
		Approp	-	-	-	-	37,029,928[3]
		Cost	-	-	-	-	37,029,928[3]
		Maint					
		Approp	2,500,600	2,014,940	1,785,313	1,954,457	38,805,270
		Cost	2,354,285	1,981,374	1,959,640	1,944,451	38,789,619
31.	Optima Lake, OK	New Work					
		Approp	-	-	-	-	47,173,438
		Cost	-	-	-	-	47,173,438
		Maint					
		Approp	56,500	60,165	33,600	56,000	7,664,458
		Cost	56,483	60,089	33,706	55,756	7,664,189
32.	Parker Lake, OK	New Work					
		Approp	-	-	-	-	585,326
		Cost	-	-	-	-	584,973
33.	Pat Mayse Lake, TX	New Work					
		Approp	-	-	-	-	9,310,661
		Cost	-	-	-	-	9,310,661
		Maint					
		Approp	1,419,000	1,155,476	1,045,000	1,079,494	23,291,236
		Cost	1,414,598	1,031,774	1,172,166	1,067,060	23,307,855
34.	Pearson-Skubitz	New Work					
	Big Hill Lake, KS	Approp	-	-	-	-	16,879,166
		Cost	-	-	-	-	16,879,166
		Maint					
		Approp	1,629,000	982,590	855,597	739,728	18,548,443
		Cost	1,621,799	971,026	866,555	740,517	18,533,573
35.	Pine Creek Lake, OK	New Work					
		Approp	-	-	-	-	20,628,049
		Cost	-	-	-	-	20,628,049

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
	Pine Creek Lake, OK	Maint					
	(Cont'd)	Approp	1,204,000	1,116,606	1,162,805	1,001,204	24,910,752
		Cost	1,202,771	1,108,172	1,165,391	1,004,528	24,906,407
36.	Sardis Lake, OK	New Work					
		Approp	-	-	-	-	68,518,439
		Cost	-	-	-	-	68,518,429
		Maint					
		Approp	857,000	976,570	835,730	739,547	16,641,468
		Cost	850,120	74,016	835,398	746,978	16,638,366
37.	Skiatook Lake, OK	New Work					
		Approp	318,000	563,000	6,067,000	2,476,000	116,157,738[10]
		Cost	363,350	705,676	5,963,460	2,579,052	116,149,840[10]
		Maint					
		Approp	1,319,000	1,309,964	1,241,036	1,172,017	20,107,455
		Cost	1,316,760	1,159,733	1,391,394	1,146,951	20,077,363
38.	Toronto Lake, KS	New Work					
		Approp	-	-	-	-	13,896,324
		Cost	-	-	-	-	13,896,324
		Maint					
		Approp	350,000	332,053	294,742	635,550	10,203,177
		Cost	359,068	333,891	293,915	635,858	10,202,617
39.	Tulsa & West Tulsa, OK	New Work					
	(Federal)	Approp	-	250,000	-	-106,000	1,569,000
		Cost	457,787	-4,991	143,361	8,556	1,564,812
	(Contributed Funds)	Contrib.	17,976	-	50,000	-	542,976
		Cost	230,433	7,304	54,157	4,062	477,763
		Minor Rehab					
		Approp	-	-	-	-	1,118,111
		Cost	-	-	-	-	1,110,444
40.	Waurika Lake, OK	New Work					
		Approp	-	-	-	-	69,729,461
		Cost	-	-	-	-	69,729,281
		Maint					
		Approp	1,392,000	2,080,801	1,755,020	1,248,655	28,372,338
		Cost	1,368,572	1,847,177	2,001,504	1,254,026	28,366,787

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
41.	Winfield, KS	New Work					
		Approp	532,000	-	-	-	8,186,617
		Cost	1,003,158	107,110	81,380	22,329	8,182,531
	(Contributed Funds)	Contrib.	-10,540	-	-	-	54,460
		Cost	54,460	-	-	-	54,460
42.	Wister Lake, OK	New Work					
		Approp	-	-	-	-	10,690,751
		Cost	-	-	-	-	10,687,439
		Maint					
		Approp	522,000	1,642,027	848,533	1,172,100	19,268,184
		Cost	512,889	1,405,810	1,059,323	1,182,828	19,243,988
		Major Rehabilitation					
		Approp	-	-	-	-	11,131,529
		Cost	-	-	-	-	11,131,529
48.	Broken Bow Lake, OK	New Work					
		Approp	-	-	-	-	41,222,692
		Cost	-	-	-	-	41,222,692
		Maint					
		Approp	1,472,000	1,569,462	1,326,436	1,444,800	38,233,564
		Cost	1,471,041	1,516,022	1,377,812	1,433,581	38,215,036
	(Contributed Funds)	Maint					
		Approp	-	265,000	-	43,234	308,234
		Cost	-	715	12,725	194,794	208,234
49.	Eufaula Lake, OK	New Work					
		Approp	-	-	-	-	123,795,907[4]
		Cost	-	-	-	-	123,795,907[4]
	(Contributed Funds)	Contrib.	-	-	841,750	100,000	1,197,130[12]
		Cost	-	-	68,395	872,948	1,195,523[12]
		Maint					
		Approp	5,983,500	7,366,431	5,499,826	5,214,351	106,587,691
		Cost	5,982,694	6,025,815	6,816,899	5,234,169	106,554,336
50.	Fort Gibson Lake, OK	New Work					
		Approp	-	-	-	-	43,821,405[5]
		Cost	-	-	-	-	43,821,405[5]

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
	Fort Gibson Lake, OK	Maint					
	(Cont'd)	Approp	4,112,800	6,153,097	3,908,653	4,422,388	87,733,550
		Cost	4,084,774	6,056,839	4,002,613	4,400,687	87,640,818
	(Contributed Funds)	Contrib.	-	-	726,750	-122,196	1,102,554
		Cost	-	4,985	49,683	507,716	1,048,348
51.	Keystone Lake, OK	New Work					
		Approp	-	-	-	-	123,171,173[6]
		Cost	-	-	-	-	123,171,173[6]
		Maint					
		Approp	4,822,000	5,791,162	4,433,952	4,066,568	84,322,687
		Cost	4,814,771	5,223,541	4,600,664	3,475,567	83,297,282
	(Contributed Funds)	Contrib.	-	660,000	206,750	845,000	1,711,750
		Cost	-	-	92,489	886,515	979,004
52.	Lake Texoma	New Work					
	(Denison Dam),	Approp	-	-	-	-	68,168,960[7]
	OK and TX	Cost	-	-	-	-	68,157,390[7]
		Maint					
		Approp	7,716,000	8,681,636	5,804,151	7,327,440	148,866,635
		Cost	7,740,970	6,548,892	7,949,426	7,259,058	148,756,299
		Minor Rehabilitation					
		Approp	-	-	-	-	46,237
		Cost	-	-	-	-	46,237
	(Contributed Funds)	Contrib.	-	-	300,000	58,167	359,367
		Cost	-	-	45,321	302,564	347,885
53.	Robert S. Kerr Lock and	New Work					
	Dam and Reservoir, OK	Approp	-	-	-	-	94,578,237
		Cost	-	-	-	-	94,578,237
		Maint					
		Approp	4,022,000	4,807,396	5,618,000	5,156,828	91,695,269
		Cost	4,019,578	4,175,229	5,810,188	5,597,038	91,667,289
	(Contributed Funds)	Contrib.	-	-	817,000	75,000	892,000
		Cost	-	-	252,364	1,654,611	1,906,975

Table 38-A

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[1]
54.	Tenkiller Ferry Lake, OK	New Work					
		Approp	4,889,000	7,586,500	5,406,000	6,660,000	52,205,220[8]
		Cost	5,439,572	7,633,779	5,427,945	6,712,593	51,987,367[8]
		Maint					
		Approp	4,258,000	4,096,566	3,264,696	3,141,348	76,566,430
		Cost	4,209,693	3,719,833	3,658,226	3,154,723	76,548,205
(Contributed Funds)		Contrib.	-	-	106,750	-	107,350
		Cost	-	-	73,758	23,600	97,358
55.	Webbers Falls Lock & Dam, OK	New Work					
		Approp	-	-	-	-	86,107,967
		Cost	-	-	-	-	86,107,967
		Maint					
		Approp	4,803,000	3,657,610	3,636,000	3,362,984	82,001,418
		Cost	4,779,826	3,677,750	3,643,603	3,381,388	81,980,728
	(Contributed Funds)	Maint					
		Approp	432,600	1,053,000	150,000	457,370	2,092,970
		Cost	432,600	48,362	168,785	565,868	1,215,615
56.	Lawton, OK	New Work					
		Approp	-	-	-	55,000	55,000
		Cost	-	-	-	2,084	2,084
57.	Yukon, OKs	New Work					
		Approp	-	-	-	55,000	55,000
		Cost	-	-	-	2,127	2,127

1. Includes $2,077,900 expended by the Jobs Act (P.L. 98-8 dated, March 24, 1983) for projects listed in Tables 29-M of the FY 85 Annual Report.
2. Includes $12,700,038 for Bank Stabilization and Channel Rectification.
3. Excludes $81,460 contributed funds and $1,348,816 special funds.
4. Excludes $299,803 contributed funds and $13,211,728 special funds.
5. Excludes $134,919 contributed funds. Includes $49,581 Public Works acceleration funds; and $1,058,500 Hydropower.
6. Excludes $5,366,231 special funds.
7. Includes $433,549 Emergency Relief funds. Exchange $1,256,068 from special contributed funds.
8. Excludes $946 contributed funds. Includes $39,999 Public Works acceleration funds. Includes an appropriation of $21,527,500 for Dam Safety and $21,257,054 in Dam Safety expenditures.
9. The cost for Grand Lake O' the Cherokees has been added to the amount reported in paragraph 45, Scheduling Flood Control Reservoir Operations.
10. Includes an appropriation for Dam Safety of $7,413,000, and Dam Safety expenditures of $7,302,050.
11. Includes an appropriation for Dam Safety of $750,000, and Dam Safety expenditures of $40,304.
12. Contributed funds for Muddy Creek bridge replacement.

TABLE 38-B AUTHORIZING LEGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
1.	July 24, 1946	McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM	HD 79-758 PL 79-525
	October 22, 1976	Big and Little Sallisaw Creeks Navigation Project	PL 94-587
	November 17, 1986	W.D. Mayo Hydropwer	PL 99-662
3.	December 31, 1970	ARCADIA LAKE	HD 91-299
	October 22, 1976	Changed water quality to water supply	PL 94-587
4.	November 17, 1986	ARKANSAS CITY	PL 99-662
5.		ARKANSAS-RED RIVER BASINS CHLORIDE CONTROL	
5a.	October 23, 1962	Authorized Area V (Estelline Springs)	SD 87-l07
5b.&5c.	November 7, 1966	Authorized Areas VII, VIII, and X	PL 89-789 SD 110
	December 31, 1970	Authorized Areas I, II-III, VI, IX, XIII, XIV, and XV	PL 91-6ll
	November 17, 1986	Authorized the Red River Basin and the Arkansas River Basin as separate projects with separate authority.	PL 99-662
6.	October 23, 1962	BIRCH LAKE	HD 87-563
7.	August 26, 1994	BOWIE COUNTY LEVEE	PL 103-316
8.	October 23, 1962	CANDY LAKE	HD 87-564
9.	June 28, 1938 July 24, l946 June 30, 1948	CANTON LAKE Approved Irrigation Storage Approved Water Supply Storage	HD 75-569
10.	October 23, 1962	COPAN LAKE	HD 87-563
11.	May l7, 1950	COUNCIL GROVE LAKE	HD 80-442
12.	October 27, 1965	EL DORADO LAKE	HD 89-232
13.	August 18, 1941	ELK CITY LAKE	HD 76-440
14.	August 18, 1941	FALL RIVER LAKE	HD 76-440
15.	June 22, 1936	FORT SUPPLY LAKE	HD 74-308
16.	November 17, 1986	FRY CREEKS	PL 99-662
17.	November 17, 1986	GREAT BEND	PL 99-662

TABLE 38-B AUTHORIZING LEGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
18.	June 22, 1936	GREAT SALT PLAINS LAKE	HD 74-308
19.	November 17, 1986	HALSTEAD	PL 99-662
20.	July 24, 1946	HEYBURN LAKE AND POLECAT CREEK	HD 80-290
21.	July 24, 1946	HUGO LAKE	HD 79-602
22.	June 22, 1936	HULAH LAKE	HD 74-308
23.	May 17, 1950 February l5, 1958	JOHN REDMOND DAM AND RESERVOIR Authorized name change	HD 80-442 PL 85-327
24.	October 23, 1962	KAW LAKE	HD 87-143
25.	October 23, 1962	LAKE KEMP	HD 87-144
26.	November 17, 1986	LAKE WICHITA, HOLLIDAY CREEK	PL 99-662
27.	May 17, 1950 March 14, 1990	MARION RESERVOIR Authorized name change	HD 80-442 PL 101-253
28.	November 17, 1988	MCGRATH CREEK WICHITA FALLS, TX	PL 100-676
29.	November 17, 1986	MINGO CREEK	PL 99-662
30.	June 28, 1938	OOLOGAH LAKE	Committee Doc. No. 1, 75th Cong., 1st Session
31.	June 22, 1936	OPTIMA LAKE	HD 74-308
32.	November 17, 1986	PARKER LAKE	PL 99-662
33.	October 23, 1962	PAT MAYSE LAKE	HD 88-71
34.	October 23, 1962 November 10, 1978	PEARSON-SKUBITZ BIG HILL LAKE Authorized name change	HD 87-472 PL 95-265
35.	July 3, 1958	PINE CREEK LAKE	HD 85-170
36.	October 23, 1962 December 4, 1981	SARDIS LAKE Authorized name change	SD 87-145 PL 97-88
37.	October 23, 1962	SKIATOOK LAKE	HD 87-563
38.	August 18, 1941	TORONTO LAKE	HD 76-440 PL 77-228

TABLE 38-B AUTHORIZING LEGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
39.	August 18, 1941	TULSA & WEST TULSA, OK	PL 77-228
40.	December 30, 1963	WAURIKA LAKE	SD 88-33 PL 88-253
41.	October 27, 1965	WINFIELD	PL 89-298
42.	June 28, 1938	WISTER LAKE	Committee Doc. No. 1, 75th Cong., 1st Session
	July 30, 1983	Changed conservation pool elevation	PL 98-63
	October 12, 1996	Increase permanent pool level	PL 104-303
48.	July 3, 1958	BROKEN BOW LAKE	HD 85-170
	October 23, 1962		SD 87-137
	October 12, 1996	Reallocation of water supply storage	PL 104-303
49.	July 24, 1946	EUFAULA LAKE	HD 79-758
	July 16,1984	Authorized Piney Creek and Muddy Creek bridge replacement	PL 98-360
	November 17, 1986	Authorized cost sharing	PL99-662
50.	August 18, 1941	FORT GIBSON LAKE	HD 76-107
	July 24, 1946	Incorporated into the multiple-purpose plan for the Arkansas River Basin	PL 76-228
	November 17, 1986	Added hydropower units 5 & 6	PL 99-662
51.	May 17, 1950	KEYSTONE LAKE	SD 81-07
52.		LAKE TEXOMA (Denison Dam)	
	June 28, 1938	Flood control and power	HD 75-541
	October 17, 1940	Navigation and regulating flows	PL 76-868
	Sepember 30, 1944	Authorized name	PL 78-454
	August 14, 1953	Water supply	PL 83-273
	November 17, 1986	Recreation	PL 99-662
53.	July 24, 1946	ROBERT S. KERR LOCK AND DAM AND RESERVOIR	HD 79-758
	July 8, 1963	Authorized name change	PL 88-62
54.	June 28, 1938	TENKILLER FERRY LAKE	Committee Doc. No. 1, 75th Cong., 1st Sess.
55.	July 24, 1946	WEBBERS FALLS LOCK AND DAM	HD 79-758 Cong., 1st Sess.
56.	October 31, 1992	LAWTON, OK	PL 102-580
57.	October 31, 1992	YUKON, OK	PL 102-580

TABLE 38-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Big and Little Sallisaw Navigation Project	Inactive	-	-	3,163
Poteau River Navigation Project, OK and AR	Complete	1983	536,952	-
Red River from Fulton, AR, to Mouth of Washita River	Complete	1924	378,574	182,157

TABLE 38-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Augusta LPP, KS[1,2]	1938		84,217
Boswell Lake, OK[3]	1952	-	-
Cherry and Red Fork Creeks LPP, OK[2]	1970	261,448	-
Crutcho Creek LPP, OK[3]	1972	213,016	-
Dodge City LPP, KS[2]	-	-	-
Enid LPP, OK[2]	1963	743,612	14,599
Flat Rock and Valley View Creeks LPP, Tulsa, OK[2, 4]	1975	1,741,000	-
Florence LPP, KS[2]	1965	369,782	-
Hutchinson LPP, KS[2]	1956	3,497,718	-
Iola LPP, KS[2]	1939	22,290	-
Jenks LPP, OK[2]	1950	344,797	-
Joe Creek LPP, OK[2]	-	308,041	-
Larned LPP, KS[2]	-	-	-
Lukfata Lake, OK[3]	1983	1,424,685	-
Marion, KS	1988	5,488,618	
Oklahoma City LPP, OK[2]	1960	8,047,512	-
Red River Bank Stabilization Below Denison, OK and TX[2, 6]	1953	1,177,537	-
Red River Emergency Bank Protection	-	400,000	-
Sand Creek LPP, KS[2]	1968	545,996	-
Sand Lake, OK[3]	1963	-	-
Shidler Lake, OK[3]	1983	568,191	-
Tulsa and West Tulsa LPP, OK[2]	1954	3,592,432	-
Turtle Creek LPP, Yukon, OK[3]	1975	144,853	-
West Branch Chisholm Creek LPP, KS[2]	1965	364,200	-
Wichita and Valley Center LPP, KS[2]	1960	12,247,379	-

LPP - Local Protection Project.

1. Completed by Kansas Works Progress Administration.
2. Complete.
3. Deferred.
4. Federal cost limited to $1,000,000.
5. Active with no current year expenditures.
6. FY 99 – FY 02 additional funds of $955,432 were received for construction.

TABLE 38-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date and Authority	Federal Funds Expended	Contributed Funds Expended
Arcadia Lake (Uncompleted Recreation), OK		April 16, 2002 Public Law 99-662	0	0
Ark-Red Basins Chloride Control, Ark Basin, OK		April 16, 2002 Public Law 99-662	14,300,000	0
Big & Little Sallisaw Creeks, OK		April 16, 2002 Public Law 99-662	167,000	0
Big Pine Lake, TX	1984	November 1, 1997 Public Law 99-662	1,701,670	0
Boswell Lake, OK		April 16, 2002 Public Law 99-662	0	0
Candy Lake, OK	1996	July 9, 1995 Public Law 99-662	4,950,000	0
Cedar Point Lake, KS	1980	November 17,1986 Public Law 99-662	0	0
Cow Creek, Hutchinson, KS	1971	November 17, 1986 Public Law 99-662	363,720	0
Crutcho Creek, Oklahoma County, OK		April 16, 2002 Public Law 99-662	0	0
Denison Dam Power Unit 3, OK		April 16, 2002 Public Law 99-662	0	0
Douglass Lake, KS		April 16, 2002 Public Law 99-662	668,000	0
El Dorado, West Branch, Walnut River, KS	1977	November 17, 1986 Public Law 99-662	92,319	0
Lukfata Lake, OK		April 16, 2002 Public Law 99-662	0	0
Neodesha Lake, KS	1952	November 17, 1986 Public Law 99-662	97,910	0
Lake Texoma Perimeter Access Roads, Texas & Oklahoma		July, 9, 1995 Public Law 99-662	13,200	0
Sand Lake, OK		April 5, 1999 Public Law 99-662	0	0
Shidler Lake, OK		May 1, 1997 Public Law 99-662	568,000	0
Towanda Lake, KS	1981	November 17, 1986 Public Law 99-662	393,361	0
Tuskahoma Lake, OK	1963	July 19, 1992 Public Law 99-662	0	0
Upper Little Arkansas River Watershed, KS		April 16, 2002 Public Law 99-662	1,266,000	0

TABLE 38-H ARKANSAS RIVER BASIN MULTIPLE-PUPOSE PLAN (See Section 1 of Text)

Feature	River	River Mile[1]	Nearest Town
LAKES			
Canton	North Canadian	394.3	Canton, OK
Elk City	Elk River	8.7	Elk City, KS
Eufaula	Canadian	27.0	Eufaula, OK
Fall River	Fall River	54.2	Fall River, KS
Fort Gibson	Grand (Neosho)	7.7	Fort Gibson, OK
Grand Lake O' the Cherokees	Grand (Neosho)	77.0	Disney, OK
Keystone	Arkansas	538.8	Sand Springs, OK
Lake Hudson (Markham Ferry)	Grand (Neosho)	47.4	Locust Grove, OK
Neodesha	Verdigris	222.8	Neodesha, KS
Oologah	Verdigris	90.2	Oologah, OK
Tenkiller Ferry	Illinois	12.8	Gore, OK
Toronto	Verdigris	271.5	Toronto, KS
Wister	Poteau	60.9	Wister, OK
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM, OK			
(Tulsa District Portion)			
Bank Stabilization and Channel Rectification	Verdigris and Arkansas	N/A[2]	Fort Smith, AR, to Catoosa, OK
Chouteau Lock and Dam (17), OK	Verdigris	401.5	Okay, OK
Newt Graham Lock and Dam (18), OK	Verdigris	421.6	Inola, OK
Robert S. Kerr Lock and Dam (15), OK	Arkansas	339.0	Sallisaw, OK
Robert S. Kerr Marine Terminal, OK	Arkansas	336.2	Cowlington, OK
Sans Bois Navigation Channel, OK	Sans Bois Creek	341.0	Keota, OK
W.D. Mayo Lock and Dam (14), OK	Arkansas	319.6	Redland, OK
Webbers Falls Lock and Dam (16), OK	Arkansas	366.6	Gore, OK

1. On the McClellan-Kerr Arkansas River Navigation System, these are navigation miles.
2. As required for a channel 9 feet deep.

TABLE 38-I INSPECTION OF COMPLETED LOCAL FLOOD PROTECTION PROJECTS (See Section 44 of Text)

Projects Inspected in Fiscal Year	Inspection Date
Cherry/Red Fork Creeks, OK	November 2001
Deep Fork Channel Clearing	September 2001
Dodge City, KS	May 2001
Enid Diviersion Channel, OK	October 1999
Flat Rock/Valley View Creeks, OK	November 2001
Florence, KS	March 2002
Fry Creek, Bixby, OK	October 2002
Great Bend, KS	October 1999
Haikey Creek, OK	November 2001
Halstead, KS	November 2001
Hutchinson, KS	April 2003
Iola, KS	December 2001
Holliday Creek, Wichita Falls, TX	September 2003
Jenks, OK	June 2003
Joe Creek, OK	October 2002
Larned, KS	November 2001
Marion, KS	March 2002
Mingo Creek, OK	October 2002
North Canadian Waste Water Treatment Plant, OK	August 2000
Oklahoma City Floodway, OK	August 2000
Park City, KS	April 2002
Sand Creek, Newton, KS	November 2001
South Deer Creek, OK	September 2001
Tulsa and West Tulsa Levees, OK	October 2002
West Branch Chisholm Creek, KS	April 2003
Wichita/Valley Center, KS	April 2003
Winfield, KS	October 2002
Park City Levee, KS	May 2003

TABLE 38-J FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION (See Section 47 of Text)

Study Identification/Name	Fiscal Year Cost
SMALL FLOOD CONTROL PROJECTS NOT SPECIFICALLY AUTHORIZED BY CONGRESS - Section 205 Coordination	
Section 205 Coordination	19,173
Bixby Creek, Bixby, OK	2,711,432
Lake Carl Blackwell, Stillwater, OK	263
Cowskin Creek, Wichita, KS	139,489
Whitewater River, Augusta, KS	-16,611
Wichita Falls, TX, Plum Creek	75,651
Willowwood Addition, Edmond, OK	1,849
Coon Creek, Kinsley, KS	57,439
Wolf Creek, Lawton, OK	55,141
TOTAL SMALL FLOOD CONTROL PROJECTS	3,043,826
EMERGENCY STREAMBANK AND SHORELINE PROTECTION (Section 14)	
Section 14 Coordination	16,040
County Road Bridge, Washita River Garvin	-8,236
U.S. 83 Bridge, Garden City, KS	4,455
Slover Street, Shawnee, OK	8,371
TOTAL EMERGENCY STREAMBANK AND SHORELINE PROTECTION	20,630
PROJECT MODIFICATION TO IMPROVE ENVIRONMENT (Section 1135)	
Section 1135 Coordination	8,511
Preliminary Restoration Plan	905
Fish Habitat Restoration, Eldorado, KS	11,932
Big Lake Ecosystem Restoration, OK	2,981
Eastern Avenue Bottomland Hardwoods Restoration, OK	2,275,373
Riverine Habitat Restoration, OK	2,556,253
Arkansas River Restoration, OK	3,087
Garden City, KS	110,948
Sand Creek, Newton, KS	178,513
TOTAL MODIFICATION TO IMPROVE ENVIRONMENT	5,148,503
AQUATIC ECOSYSTEM RESTORATION (SECTION 206)	
Section 206 Coordination	18,421
Byron Walker Wetlands, Kingman, KS	8,867
Aquatic Ecosystem Restoration, North Canadian River, OK	2,103,064
Arkansas River, Arkansas City, KS	14,433
Medicine Creek, Medicine Park, OK	7,283
Mineral Bayou, Durant, OK	47,862
Pryor Creek, OK	2,864
Meadow Lake Ecosystem Restoration, OK	33,111
TOTAL AQUATIC ECOSYSTEM RESTORATION	2,235,905

TABLE 38-K GENERAL INVESTIGATIONS
(See Sections 58 and 59 of Text)

Study Identification/Name	Fiscal Year Cost
SURVEYS	
Flood Damage Prevention Studies	
Reconnaissance Study	
Miami, OK and Vicinity	24,604
Bois D'Arc Creek, Bonham, TX	190
Special Studies	
Ecosystem Restortion Reconnaissance Studies	
Miami, OK and Vincinity Recon Study	108,027
Grand (Neosho) River Basin Study	47,028
Southest Oklahoma, OK	40
Oologah Lake Watershed, OK	224
Walnut & Whitewater Rivers Watershed, KS	2,100
Wister Lake Watershed, OK	22,988
Washita River Basin, OK	46,168
Mountain Fork Watershed Study, OK	4,520
Ecosyatem Restoration Feasibility Study	
Oologah Lake Watershed, OK	141,008
Walnut & Whitewater Rivers Watershed, KS	84,797
Wister Lake Watershed, OK	937
Watershed/Comprehensive Reconnaissance Study	
Spavinaw Creek, OK	18,799
Miscellaneous Activities	
Special Investigations	34,864
Interagency Water Resources Development	18,303
North American Waterfowl Management Plan	3,722
Coordination with Other Federal Agencies, States, and Non-Federal Interests	
Department of Agriculture, Soil Conservation Service (PL 83-566)	
Coop with Other Water Resource Development Agencies	12,363
Planning Assistance to States	
PAS-KS-Parsons Water Supply Study	1,954
Oklahoma, Mangum Lake	-5,090
Oklahoma, Lake Texoma Regional Sewer	25,528
Oklahoma, Kaw Reservoir Water Treatment	-7,678
Oklahoma, Arkansas River Channel Capacity, Phase II	666
Oklahoma, Oologah Water Quality Study	959
Oklahoma, Adair RWD #5	36,282
Oklahoma, Water Plan Update	91,667
Oklahoma, PAS-OK Arkansas River Coridor	8,986
TOTAL SURVEYS	723,955
COLLECTION AND STUDY OF BASIC DATA	
Flood Plain Management Services	83,301
NFPC	49,206
Quick Responses	31
SS-Pawnee Tribe Flood Proofing	1,223
SS-Flood Risk Assessment-Native America	54,938
SS-Community CBG Flood Evaluations	31,294
SS-Tulsa County Flood Mitigation Plan	484
SS-Avant, OK	80
SS-Blanchard, OK	101
SS-Riverine Flood Model	49

TABLE 38-K GENERAL INVESTIGATIONS (Cont.)
(See Sections 58 and 59 of Text)

Study Identification/Name	Fiscal Year Cost
SS-Florence, KS	591
SS-Stroud, OK	376
SS-Osage County, OK	446
SS-Towanda, KS	74
SS-Sand Springs, OK	189
SS-Apache County, OK	93
SS-Commerce, OK	1,364
SS-Edmond, OK	250
Technical Services General	51,009
TOTAL COLLECTION AND STUDY OF BASIC DATA	275,098

FORT WORTH, TX, DISTRICT

District includes that portion of Texas south of Red River drainage basin exclusive of drainage basin of Rio Grande and its tributaries above and including Pecos River; exclusive of drainage basins to all short streams arising in coastal plain of Texas and flowing into the Gulf of Mexico, including entire basins of Buffalo Bayou, San Jacinto, San Bernard, Lavaca, Navidad, Mission, and Arkansas Rivers; exclusive of lower basins of major streams flowing into the gulf as follows: Sabine River, Texas and Louisiana, downstream from U.S. Highway 190 crossing at Bon Wier, Texas; Neches River downstream from Town Bluff gauging station; Trinity River downstream from Texas State Highway 45 crossing at Riverside, Texas; Brazos River downstream from confluence with Navasota River; Colorado River downstream from gauging station at Austin; Guadalupe River downstream from confluence with San Marcos River; San Antonio River downstream from confluence with Escondido Creek; Nueces River downstream from confluence with Frio and Atascosa Rivers; and exclusive of Agua Dulce, San Fernando, and Olmos Creek basins draining into Baffin Bay; coastal area south thereof to Rio Grande and south to the northern boundaries of Newton, Jasper, Tyler, Polk, Trinity, Walker, Waller, Austin, Fayette, Gonzales, Karnes, Live Oak, Jim Hogg, Zapata; the northern and western boundaries of McMullan; and the western boundaries of Montgomery and Duval Counties, Texas. District also includes those portions of the Sulphur River and Cypress Creek Watershed located in the State of Texas; that portion of western Louisiana in Sabine River drainage basin upstream from U.S. Highway 190 crossing at Bon Wier, Texas.

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Navigation

1. TRINITY RIVER PROJECT, TX

The project authorized by the River and Harbor Act of 1965 (H. Doc 276,89th Cong., lst Sess.) consists of five major components: Multiple-Purpose Channel, Tennessee Colony Lake, Dallas Floodway Extension, West Fork Floodway and Water Conveyance Facilities. For the last full report on the project as authorized, see Annual Report of 1978. The project information present herein is based on the tentatively selected project plan presented in the Draft General Design Memorandum. The plan consists of three structural components: Dallas Floodway Extension, Tennessee Colony Lake, and Channel to Liberty in the lower basin.

Operations during fiscal year. Channel to Liberty and Tennessee Colony Lake have been dormant for several years due to lack of local support. The Dallas Floodway Extension has advanced to the construction stage, and is described in the Flood Control section.

CHANNEL TO LIBERTY:

Location. The Channel to Liberty begins at the Houston Ship Channel, crosses the bay area in an easterly direction to intersect the existing Double Bayou Channel, turns northward along the coastline to Wallisville Lake and then continues northward through the lake area along the course of the Trinity River to River Mile 45 above Liberty, Texas.

Existing project. See Galveston, Texas District Annual Report for existing project.

Proposed project. The navigation portion of the channel will have a width of 200 feet with a depth of 12 feet and will extend from the Houston Ship Channel in Galveston Bay to the port of Liberty, Texas. The flood control portion of the channel will have a bottom width of 200 feet with a depth of 30 feet, and will extend from Wallisville Lake to River Mile 45 above Liberty, Texas.

Local cooperation. Local interests are required to: (a) provide, without cost to the Federal Government, all lands, easements and rights-of-way required for construction, operation and maintenance of the project, (b) accomplish, without cost to the Federal Government, all relocations and alterations to existing improvements, other than highway bridges over new land cuts and railroad bridges required for the construction of the project, (c) maintain and operate the flood control portion of the channel upstream of Liberty, Texas, and (d) reimburse the Federal Government for one-half of the separable costs allocated to recreation and fish and wildlife enhancement.

TENNESSEE COLONY LAKE:

Location. The Tennessee Colony dam site is located at River Mile 341.7 on the Trinity River about 22 miles west of Palestine, Texas. The lake would extend into Freestone, Anderson, Henderson, and Navarro Counties, and would control a drainage area of 12,302 square miles.

Existing project. The plan of improvement provides for the construction of an earthfilled dam with a maximum height of 123 feet above the streambed and a total embankment length of 42,350 feet with a gated concrete spillway The lake will have a total controlled storage of 3,455,000 acre-feet and a water surface area of 114,400 acres at the top of the flood control pool and 68,100 acres at the top of the conservation pool. The total storage includes 2,269,500 acre-feet for flood control, 1,040,000 acre-feet for conservation, and 145,500 acre-feet for sediment reserve.

Local cooperation. Local interests are required to reimburse the Federal Government for costs allocated to water supply storage and one-half of the separable cost allocated to recreation and fish and wildlife enhancement.

Flood Control

2. AQUILLA LAKE, TX

Location. On Aquilla Creek in Hill County, Texas, with the dam at River Mile 23.3, about 6.8 miles southwest of Hillsboro, Texas, and about 24.0 miles north of Waco, Texas.

Existing project. For description of completed improvements and authorizing acts see Annual Report of 1984. Construction was started March 1977, and project was ready for beneficial use April 29, 1983. Estimated cost is $46,100,000.

Local cooperation. The Water Supply Act of 1958, as amended, and the Federal Water Project Recreation Act of 1965 and Section 221, Flood Control Act of 1970 apply. A contract with the

Brazos River Authority for water supply storage was approved by the Secretary of the Army, June 29, 1976. To date, the Authority has paid $1,244,908 toward principal and $317,597 to operation and maintenance.

Operations during fiscal year. Painted floodgates and gate liners along with routine operation and maintenance activities.

Benefits accrued to Aquilla Lake project: Accumulated flood damages prevented through FY 2003 were $25,594,100.

3. BARDWELL LAKE, TX.

Location. Dam is on Waxahachie Creek 5-river miles upstream from its confluence with Chambers Creek, a tributary of the Trinity River, and about 5 miles south of Ennis, Ellis County, Texas.

Existing project For a description of completed improvement and authorizing act see Annual Report of 1969. Construction of project was started August 1963 and completed for beneficial use in November 1965. Estimated cost of project is $12,941,000.

Local cooperation. Local interests must reimburse the Federal Government for costs allocated to increased water supply storage under the terms of the Water Supply Act of 1958. A contract was approved by the Secretary of the Army on June 24, 1963, and the Trinity River Authority, a State agency, agreed to fulfill all requirements of local cooperation. To date the authority has paid $1,998,543 toward principal and $2,795,657 toward annual cost of operation and maintenance of project, including cost of operating 10-foot conduit.

Operations during fiscal year. Completed embankment slope repair. Continued routine operation and maintenance activities.

Benefits accrued to Bardwell Lake project: Accumulated flood damages prevented through FY 2003 were $36,710,400.

4. BELTON LAKE, TX

Location. Dam is on Leon River about 16.7 miles above confluence of Leon and Lampasas Rivers and about 3 miles north of Belton, Texas.

Existing project. For a description of completed improvement and authorizing acts see Annual Report of 1962. Construction started June 1949 and project was ready for beneficial use in March 1954. Raising water supply pool: Construction started in July 1970 and the pool raise is complete. Estimated cost of project is $18,410,000.

Local cooperation. Section 2, Flood Control Act of 1938, applies. A contract with Brazos River Authority, a State agency, for remaining water supply storage in reservoir was approved by Secretary of the Army on January 15, 1958, at an estimated cost of $5,125,003. To date $2,197,647 has been paid. Under the contract Brazos River Authority must also pay annually 11.2 percent of actual annual cost of operation and maintenance. To date $3,841,634 has been paid. An interim contract with Brazos River Authority for emergency use of water supply storage in project was approved by Secretary of the Army on January 2,1957. Amount of $433,083 paid by authority on March 21, 1957 for use of these facilities was credited to interest and principal payable under formal water supply contract.

Operations during fiscal year. Constructed entrance complex at Live Oak. Park. Continued routine operation and maintenance activities.

Benefits accrued to Belton Lake project: Accumulated flood damages prevented through FY 2003 were $632,311,500.

5. BENBROOK LAKE, TX

Location. Dam is in Tarrant County, Texas, on Clear Fork of Trinity River 15 river miles upstream from its confluence with West Fork of Trinity River about 10 miles southwest of downtown Fort Worth, Texas.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction of project was started May 1947 and ready for beneficial use in September 1952. Estimated cost of project is $14,544,000.

Local cooperation. Section 2, Flood Control Act of 1938, applies. No water supply storage is included in project. In 1956, Congress passed legislation enabling the city of Fort Worth to purchase conservation storage space in Benbrook Lake. Contracts have been negotiated with the city of Fort Worth and the Benbrook Water and Sewer

Authority for the use of portions of the navigation storage for water supply purposes until such storage is required for Trinity River Navigation. To date, $2,368,710 has been paid by the city of Fort Worth and $227,680 by Benbrook Water and Sewer Authority. A cost-sharing contract with the city of Benbrook for Recreation Development was approved by the Secretary of the Army May 20, 1977. To date, $27,315 has been paid.

Operations during fiscal year. Initiated Homeland Security improvements. Continued routine operation and maintenance activities.

Benefits accrued to system consisting of Benbrook Lake, Clear Fork and West Fork Floodways: Accumulated flood damages prevented through FY 2003 are estimated at $4,859,520,800.

6. CANYON LAKE, TX

Location. Dam is on Guadalupe River, 303 miles above its mouth, and about 12 miles northwest of New Braunfels, Comal County, Texas.

Existing project. For a description of completed improvement and authorizing act see Annual Report of 1969. Construction started April 1958 and project completed for beneficial use June 1964. Estimated cost of project is $21,732,000, including $1,400,000 contributed by local interests.

Hydropower: The Guadalupe-Blanco River Authority (GBRA) was licensed by the Federal Energy Regulatory Commission to construct a 6,070-kilowatt plant, which is located adjacent to the existing outlet channel. The project operates utilizing conservation releases, i.e., no change from the present operating regiment is anticipated. GBRA has an agreement with the Pedernales Electric Cooperative for sale of power. Construction of the hydropower was completed in 1989 with non-Federal funds.

Local cooperation. Local interests (Guadalupe Blanco River Authority) will utilize water impounded for water supply and streamflow regulation for development of electric power. In a formal contract approved by Chief of Engineers on October 24, 1957, Guadalupe-Blanco River Authority agreed to fulfill all requirements of local cooperation. Required contribution of $1,400,000 was made in full by Guadalupe-Blanco River Authority. The estimated cost of the water storage contract is about $9,000,000. To date, $3,677,165 has been paid. In addition $22,848 was contributed for installation and operation of reservoir leakage gages. Under the contract the authority must pay 34.8 percent of actual annual cost of operation and maintenance. To date, $3,086,940 has been paid.

Operations during fiscal year. Cleanup and repair from 2002 flood continued using routine Operations and Maintenance, General funds. Continued routine operation and maintenance activities.

Benefits accrued to Canyon Lake project: Accumulated flood damages prevented through FY 2003 were $430,208,900.

7. DALLAS FLOODWAY EXTENSION

Location. The Dallas Floodway is in the metropolitan city of Dallas, Dallas County, Texas.

Existing project. The project consists of a 3.7 mile long Chain of Wetlands with an average width of 600 feet, with the alignment being placed on the west Trinity River overbank; and Standard Project levee of protection levees protecting the Lamar Street, Rochester Park, and the Cadillac Heights area; a levee providing 500 year level of protection to the Central Waste Water Treatment Plant, plus 31 miles of linear recreation. During flooding, the upper and lower wetlands would convey floodwaters to outfalls east of IH-45 and north of Loop 12, respectively. Additionally, the wetlands would provide 123 acres of ecosystem restoration. Estimated Federal cost of this project is $104,300,000 (October 1998 price levels), and estimated cost to local interests is $50,100,000, a total for the project of $154,400,000. The River and Harbor Act of 1965 authorized the flood control portion of the project. Credits for flood protection works constructed by the non-Federal interest were authorized by the Water Resources Development Act of 1996, Section 351. The ecosystem restoration and recreation portions were authorized by the Water Resources Development Act of 1999, Section 356.

Local cooperation. On May 2, 1996, the citizens passed a bond election to pay for the non-Federal portion of the project. The draft Project Cooperation Agreement was approved by both parties in July 2001.

Operations during fiscal year. FY 2003 funds were used to complete the supplement to the EIS, continue plans and specifications development. The project is 5 percent complete, and is scheduled for completion in September 2010.

8. FERRELLS BRIDGE DAM - LAKE O' THE PINES, TX

Location. Dam is on Cypress Creek in Marion, Harrison, Upshur, Morris, Camp, and Titus Counties, Texas, 8 miles west of Jefferson, Texas.

Existing project. An earthfill dam 10,600 feet long and 77 feet high includes a 200-foot spillway with a capacity of 68,200 cubic feet per second. Reservoir controls runoff from 850 square miles of drainage area, and has a gross storage capacity of 842,100 acre-feet including 587,200 acre-feet flood control storage, 3,800 acre-feet conservation storage, and 251,000 acre-feet for municipal and industrial water supply. Reservoir extends 28 miles upstream. Project affords substantial flood protection of Cypress Creek Valley from dam site to confluence with Red River and, together with operation of other reservoirs proposed in Red River Basin, will provide flood protection along main stem of Red River below Denison Dam. Construction commenced in January 1955 and was completed June 1960. Estimated Federal cost of project is $17,231,700, including $4,349,200 for Code 711 and $399,739 accelerated Public Works fund. This project transferred to the Fort Worth District as of the end of FY 1979.

Local cooperation. None required.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Ferrells Bridge Dam-Lake O' The Pines project: Accumulated flood damages prevented through FY 2003 were $57,025,200.

9. GRAPEVINE LAKE, TX

Location. Dam is in Tarrant County, Texas, on Denton Creek, 11.7 river miles upstream from its confluence with Elm Fork of Trinity River and about 20 miles northwest of city of Dallas, Texas.

Existing project. For description of completed improvement and authorizing act, see Annual Report of 1962. Construction of project was started December 1947 and ready for beneficial use in July 1952. Estimated cost of project is $18,896,000, including $2,040,000 contributed by local interests. A contract for modification of Embankment and Spillway was awarded September 30, 1983 and completed Fiscal Year 1990. The improvements provided for spillway modification by construction of spillway chute and stilling basin and a berm on the downstream side of the main embankment.

Local cooperation. A contract with Dallas County Park Cities Water Control and Improvement District No. 2 for 50,000 acre-feet of water supply storage was approved by Secretary of the Army on March 21, 1955. Park Cities paid the required $607,000. A contract with city of Dallas for 85,000 acre-feet of water supply storage was approved by Secretary of the Army on March 17, 1954. Dallas paid the required $1,433,026. A contract with city of Grapevine, Texas, for 1,250 acre-feet of water supply storage was approved by Secretary of the Army on September 14, 1953, at an estimated cost of $22,654. A contract for Interim Use of Navigation Storage with city of Grapevine was approved by Secretary of the Army on February 27, 1981, at an estimated cost of $684,000, has been paid in full. Above contracts include payment of operation and maintenance costs as follows: Dallas County Park Cities Water Control and Improvement District No. 2, a pro rata part of the actual annual cost, which part is to be not less than $2,000 nor more than $3,000; Dallas, 9.2 percent of actual annual cost; and Grapevine, its pro rata part of actual annual cost (estimated at $79.55 annually and included in total annual payment). Following operation and maintenance payments have been made: Park Cities, $148,231; Dallas, $930,341; and Grapevine, $457,573.

Operations during fiscal year. Installed Homeland Security devices to include video cameras and seismic sensors. Continued routine operation and maintenance activities.

Benefits accrued to system comprised of Grapevine Lake and Dallas Floodway: Accumulated flood damages prevented through FY 2003 were $8,759,639,100.

10. HORDS CREEK LAKE, TX

Location. On Hords Creek, a tributary of Pecan Bayou, about 13.5 miles west of Coleman,

Texas, and about 27.8 miles upstream from mouth of Hords Creek.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction of project was started January 1947 and completed for beneficial use in April 1948. Estimated cost of project is $4,337,000 including $105,000 contributed by local interests.

Local cooperation. Completed as required.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Hords Creek project: Accumulated flood damages prevented through FY 2003 were $990,400.

11. JIM CHAPMAN LAKE, TX

Location. Jim Chapman Lake is located in northeast Texas about 4 miles southeast of Cooper, 13.0 miles north of Sulphur Springs, and is at river mile 23.3 on the South Sulphur River. The South Sulphur River rises in Fannin County, Texas, and flows generally east for about 80 miles to its confluence with the North Sulphur River to form the Sulphur River.

Existing project. For description of completed improvement and authorizing acts, see Annual Report of 1997. Construction of project was started in July 1958 and completed for beneficial use in May 1994. The Energy and Water Development Appropriations Act of 1997, Public Law 104-206, H.R. 3816, 104th Congress, H.R. 3816, effective September 30, 1996, changed the name of Cooper Lake and Channels, TX, to Jim Chapman Lake, TX. Estimated cost of project is $143,000,000, including $227,000 non-Federal cost for land for the levees.

Local cooperation. Local interests (North Texas Municipal Water District, Sulphur River Municipal Water District, city of Irving) will utilize water impounded for present and future water supply. The total cost allocated to water supply to be reimbursed is $54,600,000. North Texas Municipal Water District, NTMWD, has contracted for 36.859 percent of the water supply storage for future use with deferred payments for ten years. Under the contract NTMWD must pay 13.803 percent of actual annual cost of operation and maintenance. Sulphur River Municipal Water District, SRMWD, has contracted for 6.5 percent of the water supply storage for initial use and 19.78 percent for future use for a total of 26.282 percent of the water supply storage. To date, $248,628 has been paid. Under the contract, SRMWD must pay 2.435 percent of actual annual operation and maintenance. To date, $127,818 has been paid. The city of Irving has contracted for 16.923 percent of the water supply storage for initial use and 19.936 for future use for a total of 36.859 of the water supply storage. To date, $1,283,266 has been paid. Under the contract Irving must pay 6.337 percent of actual annual operation and maintenance. To date $329,716 has been paid.

The Texas Parks and Wildlife Department and the Corps of Engineers have entered into or have agreed to formal Operation and Maintenance contracts for recreation facilities and wildlife conservation and management. Under the contracts for recreation facilities dated 7 November 1988 and 11 September 1990, Texas Parks and Wildlife will be responsible for 100 percent of the operations and maintenance of two state parks that are being constructed with Federal funds. Under the contracts for wildlife conservation and management the state will be responsible for 24.14 percent of the operation, maintenance and replacement annual costs for areas totaling approximately 35,500 acres. The remaining balance will be the responsibility of the Project Sponsors and the Government.

Operations during fiscal year. Work continues on the Northeast Texas Cultural Center. Expected completion date is September 2004. Continued routine operation and maintenance activities.

Benefits accrued to Jim Chapman Lake project: Accumulated flood damages prevented through FY 2003 are estimated at $16,828,300.

12. JOE POOL LAKE, TX

Location. Dam is located at River Mile 11.2 on Mountain Creek, a right bank tributary of the West Fork of the Trinity River, and is adjacent to the city limits of Grand Prairie, Dallas County, Texas, which is one of the rapid growing cities in the Dallas-Fort Worth Metropolitan area.

Existing project. For description of completed improvement and authorizing acts see Annual Report

of 1996. Construction of project was started in 1975 and completed for beneficial use in September 1994. Public Law 97-400, H.R. 7377, 97th Congress, effective December 31, 1982, changed the name of Lakeview Lake to Joe Pool Lake. Estimated cost of project is $215,540,000 including $11,350,000 contributed by local interests.

Local cooperation. The Water Supply Act of 1958 as amended, and the Federal Water Project Recreation Act of 1965 apply. Water storage space contract with the Trinity River Authority (TRA) for 142,900 acre-feet of water supply storage space was executed September 29, 1976. Final capital cost for water storage space is $60,828,657, including Interest During Construction and contractor claims. Recreation development contract with the TRA Joe Pool Lake was executed August 2, 1976. Under this original recreation contract, as amended, TRA had difficulty meeting its long-term capital debt repayment obligation to the Government. As a result, H.R. 4733, Title I, Section 102(b), 106th Congress, 2nd Session, authorized the city of Grand Prairie, TX, to pay the Government a total of $4,290,000 in two installments in exchange for the local sponsorship of the recreation program, relieving TRA of any and all obligations. The city of Grand Prairie made its first installment in the amount of $2,150,000 on December 1, 2000, with the second and final installment, in the amount of $2,140,000, due and payable no later than December 1, 2003.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Joe Pool Lake project: Accumulated flood damages prevented through FY 2003 were $1,257,907,100.

13. JOHNSON CREEK, ARLINGTON, TX

Location. The project is located in the city of Arlington, Tarrant County, Texas.

Existing project. The Johnson Creek Watershed, which has a drainage area of 21 square miles, lies principally in Tarrant County, with a small portion lying in Dallas County. Much of the watershed is extensively developed, and is being used for industrial, residential, commercial, and recreational activities. The flood of record occurred on May 16-17, 1989, which damaged 175 structures and overtopped eight major bridges by as much as five feet. The flood of March 26-27, 1977, inundated about 70 homes, and one person drowned. Estimated Federal cost is $14,430,000 (October 2001 price levels), and estimated cost to local interests is $8,390,000. The total project cost is estimated at $22,820,000. The project was authorized by the Water Resources Development Act of 1999, Section 101 (b)(14). Construction was started in 1997 by the city of Arlington, after a Section 104 request was granted by the ASA (CW).

Local cooperation. The city of Arlington, Texas, signed the Project Cooperation Agreement on December 1, 2000. To date, $7,600,000 has been contributed by the city of Arlington.

Operations during fiscal year. During FY 2003, funds were used to complete plans and specifications, buyouts, and continue project construction. The project is 67 percent complete overall and is scheduled for completion in September 2007.

14. LAVON LAKE, TX

Location. Dam is in Collin County, Texas, on East Fork of Trinity River 55.9 miles above its confluence with Trinity River and about 22 miles northeast of Dallas, Texas.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction of project was started January 1948 and ready for beneficial use in September 1953. Project is complete. See following section for Lavon Lake Modification and East Fork Channel Improvement authorized by Flood Control Act of 1962. Estimated cost of project is $15,470,000.

Local cooperation. Section 2, Flood Control Act of 1938, applies. A contract with North Texas Municipal Water District, NTMWD, for water supply storage, including cost of intake structure, was approved by Secretary of the Army July 8, 1954, at an estimated cost of $1,405,753. Contract was revised in 1973 and final revised contract amount is $1,445,262. To date, NTMWD has paid $5,880,972. Under the contract, NTMWD must pay annually 13.6 percent of actual annual cost of operation and maintenance, and to date has paid $1,815,539.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Lavon Lake project: Accumulated flood damages prevented through FY 2003 were $505,926,800.

15. LAVON LAKE MODIFICATION AND EAST FORK CHANNEL IMPROVEMENT, TX

Location. Existing dam is in Collin County Texas, on East Fork of Trinity River, 55.9 miles above its confluence with Trinity River and about 22.0 miles northeast of Dallas, Texas. Channel improvement of East Fork extends from its mouth to River Mile 31.8.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1988. Construction of project was initiated in May 1970 and ready for beneficial use in December 1975. Estimated Federal cost of the modification and improvement is $69,750,000 and $220,000 local interests, a total of $69,970,000. Project is complete.

Local cooperation. Local interests must reimburse the Federal Government for costs allocated to increased water supply storage under the terms of the Water Supply Act of 1958. The North Texas Municipal Water District, NTMWD, has contracted for 43 percent of the water supply (approved September 22, 1967, by the Secretary of the Army) and to date $985,433 has been paid. NTMWD has submitted assurance to contract for 57 percent of future water supply. Reimbursement is currently estimated at $39,933,278.

Levee Districts 4 and 5, which comprise the lower 10 miles of the East Fork Channel, entered into agreements as required by Section 221 of the Flood Control Act of 1970 on January 28, 1972 and have furnished all necessary construction easements.

Levee Districts 6, 8, 10, 13, and 15, which comprise the upper 15 miles of the East Fork Channel, have declined to provide the necessary assurances. On December 8, 1972, this portion of the project was reclassified from "active" to "inactive" category.

Operations during fiscal year. Continued routine operation and maintenance activities.

16. LEWISVILLE DAM, TX

Location. Dam is in Denton County, Texas, on Elm Fork of Trinity River 30 river miles above its confluence with Trinity River and about 22 miles northwest of city of Dallas, Texas at a site downstream from old Garza Dam.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction of project was started November 1948 and ready for beneficial use in November 1954. Estimated cost of project is $25,902,000, including $3,677,000 contributed by local interests.

Hydropower: The city of Denton, Texas, COD, was licensed by the Federal Energy Regulatory Commission to construct a 2,000-kilowatt plant, which is located adjacent to the existing outlet channel. The project operates utilizing conservation releases, i.e., no change from the present operating regiment is anticipated. COD Utilities Department utilizes this power for its local customers. Construction of the hydropower was completed in 1991 with non-Federal funds.

Local cooperation. A contract with city of Dallas for 415,000 acre-feet of water supply storage land rights and interests to Garza Dam and Reservoir was approved by the Secretary of the Army on July 16, 1953. Local contributions have been made in full. A contract with city of Denton, Texas, for remaining 21,000 acre-feet of water supply storage was approved by the Secretary of the Army on May 20, 1954, with an estimated cost of $250,064. Local contributions have been paid in full. Under above contracts, cities of Dallas and Denton must pay annually 21.9 and 1 percent, respectively, of actual annual cost of operation and maintenance. To date Dallas has paid $5,183,706 and Denton $230,482.

Operations during fiscal year. Repaired 45,000 linear feet of cracked sealing at the top of the dam. Continued routine operation and maintenance activities.

Benefits accrued to system comprised of Lewisville Lake; this includes Ray Roberts Lake and Dallas Floodway Systems. Accumulated flood damages prevented through FY 2003 were $29,445,105,800.

17. MILLICAN LAKE, TX

Location. Dam is on the Navasota River at mile 24.1, approximately 7.0 miles north of Navasota, Texas in Grimes and Brazos Counties, Texas.

Existing project. The project provides for construction of a concrete and earthfill dam 25,300 feet long including a 472-foot gate-controlled spillway, rising 83 feet above the streambed.

Local cooperation. The project is authorized for construction by the River and Harbor Act of 1968. The Water Supply Act of 1958 as amended and the Federal Water Project Recreation Act of 1965 applies. The Brazos River Authority has indicated by letter dated February 16, 2001 their intent to be the cost-sharing sponsor for this project.

Operations during fiscal year. Funds were reprogrammed into the project for economic reevaluation to determine if the authorized project remains justified and meets current day needs. This reevaluation indicated that the authorized project remained justified and warranted further detailed study.

18. NAVARRO MILLS LAKE, TX

Location. Dam is in Navarro County, Texas, at River Mile 63.9 on Richland Creek, a tributary of Trinity River, about 16.0 miles southwest of Corsicana, Texas.

Existing project. For description of completed improvement and authorization acts see Annual Report of 1965. Construction started December 1959 and project completed for beneficial use March 1963. Estimated cost of project $13,154,000 including $300,000 contributed by local interests.

Local cooperation. The Water Supply Act of 1958, as amended, applies. A formal contract with the Trinity River Authority was approved March 3, 1966, by the Secretary of the Army at an estimated cost of $2,260,800. To date the Authority has paid $1,613,592 for water supply and $1,894,833 for operation and maintenance.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Navarro Mills Lake project: Accumulated flood damages prevented through FY 2003 were $35,618,100.

19. O.C. FISHER DAM AND LAKE, TX

Location. Dam is on North Concho River, a tributary of Concho River, about 6.6 miles above mouth of North Concho River near city of San Angelo, Texas.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Name was changed from San Angelo Dam and Reservoir to O.C. Fisher Dam and Lake January 3, 1975 by Public Law 93-634. Construction of project was started May 1947 and ready for beneficial use February 1952. Estimated cost of project is $17,111,000.

Local cooperation. Section 2, Flood Control Act of 1938, applies. A water supply contract with Upper Colorado River Authority for water supply storage in reservoir was approved by Secretary of the Army on October 11, 1948. The Authority has contributed $860,444 toward cost of project and $64,336 toward operation and maintenance for a 50-year period. The Authority must pay additional contributions of $1 a year for useful life of project, beginning January 1, 1965.

Operations during fiscal year. Repaired low flow gates, stems and stem guides. Continued routine operation and maintenance activities.

Benefits accrued to O.C. Fisher Dam and Lake project: Accumulated flood damages prevented through FY 2003 were $19,589,300.

20. PROCTOR LAKE, TX

Location. Dam is at River Mile 238.9 on Leon River, a tributary of Brazos River, about 8.0 miles northeast of Comanche in Comanche County, Texas.

Existing project. For description of completed improvement and authorization act see Annual Report of 1969. Construction of project was started July 1960 and completed for beneficial use 1963. Estimated cost of project is $16,249,000.

Local cooperation. The Water Supply Act of 1958 applies. A formal contract with the Brazos River Authority, a State agency, was approved by Secretary of the Army, July 1, 1960, and was

modified and approved May 9, 1966, at an estimated cost of $1,707,900. To date the Authority has paid $662,077 for water supply and $834,481 for operation and maintenance.

Operations during fiscal year. Converting flowage easement to fee acquisition at Buffalo Springs and Frees subdivision. Continued routine operation and maintenance activities.

Benefits accrued to Proctor Lake project: Accumulated flood damages prevented through FY 2003 were $70,658,500.

21. RAY ROBERTS LAKE, TX

Location. Dam site is located at River Mile 60.0 on the Elm Fork of the Trinity River, Denton County, between Sanger and Aubrey, Texas and 30 miles upstream from Lewisville Dam.

Existing project. The plan of improvement provides for construction of an earthfilled dam with a maximum height of 141 feet above the streambed, a length of 15,250 feet including an uncontrolled broadcrested spillway 100 feet long, controlling 682 square miles of drainage area. The lake will have a total controlled storage of 1,064,600 acre-feet, with a water surface area of 36,900 acres. The total storage includes 260,800 acre-feet for flood control, 749,200 acre-feet for water supply, and 54,600 acre-feet for sediment reserve. The Water Resources Development Act of 1990 authorized the Greenbelt Corridor between Lewisville and Ray Roberts Lakes. Estimated Federal cost of the project is $317,300,000 (Oct. 1, 1995 base price). Public Law 96-384, 96th Congress, H.R. 8094, effective January 4, 1981, changed the name of Aubrey Lake to Ray Roberts Lake.

Hydropower: At the request of the city of Denton and the approval of the Secretary of the Army the penstock was added to the embankment as a minimum facility for future hydropower. The city of Denton, Texas, COD, was licensed by the Federal Energy Regulatory Commission to construct a 1,000-kilowatt plant, which is located adjacent to the existing outlet channel. The project operates utilizing conservation releases, i.e., no change from the present operating regiment is anticipated. COD Utilities Department utilizes this power for its local customers. Construction of the hydropower was completed in 1991 with non-Federal funds.

Local cooperation. The Water Supply Act of 1958, as amended, and the Federal Water Project Recreation Act of 1965 and Section 221, Flood Control Act of 1970 apply. Contracts with the cities of Dallas and Denton, Texas, for water supply storage and recreation were approved by the Secretary of the Army, September 16, 1980. To date the city of Dallas has paid $173,145,337. The city of Denton has paid in full their share of the water supply storage. Dallas has paid $872,231 and Denton has paid $306,451 toward annual cost of operation and maintenance.

Operations during fiscal year. The project was physically completed in April 1999. Financial closeout of the project is continuing. Continued routine operation and maintenance activities.

Benefits accrued to Ray Roberts Lake project: Accumulated flood damage prevented is shown in with Lewisville Dam, TX.

22. SAN ANTONIO CHANNEL IMPROVEMENT, TX

Location. Floodway is in city of San Antonio, Bexar County, Texas, on San Antonio River and San Pedro, Apache, Alazan, Martinez, and Six Mile Creeks.

Existing project. The project consists of 30.7 miles of channel and associated improvements on six separate streams. Completion of detailed engineering and design studies revealed that the least costly alternative for the remaining channel improvements would consist of two tunnels 120 feet below the surface each having an inside diameter of 24 feet and vertical intake, outlet and access shafts. The San Pedro Creek tunnel is 6,040 feet in length and the San Antonio River tunnel is 16,360 feet in length. Estimated Federal cost of these modifications is $155,250,000 (Oct. 1, 2000, base price), and estimated cost to local interests is $66,650,000, which includes $4,100,000 cash contributions and $62,550,000 for lands, damages, and construction, a total of $221,900,000. The existing project was authorized by 1954 Flood Control Act. The Water Resources Development Act of 1976 added authorization to the existing project for construction of flood control measures needed to preserve and protect the Espada Aqueduct located in the vicinity of Six Mile Creek. Construction was started in October

1957. The Water Resources Development Act of 1996 added a Section 215 reimbursement limitation. The Water Resources Development Act of 2000 added environmental restoration and recreation as project purposes.

Local cooperation. Local interests must furnish lands and rights-of-way for construction, including purchase and removal of buildings, relocation or reconstruction of bridges (exclusive of railway bridges), channel dams where applicable, and utility lines; hold the United States free from damages; maintain and operate all works after completion; and provide a cash contribution for enhancement benefits of 2.65 percent of actual Federal construction cost. San Antonio River Authority furnished assurances that it will comply with all requirements of local cooperation. These assurances were accepted by the District Engineer on April 15, 1957. To date $3,958,731 has been contributed by San Antonio River Authority. In addition, $30,000 has been contributed and accepted, under the authority of Civil Functions Appropriations Act of 1958, for vehicular crossings over the San Antonio Channel.

Operations during fiscal year. During FY 2003, funds were used to continue the cost shared General Reevaluation Report for environmental restoration and recreation, continue flood damage repairs, and continue floodplain mapping of the San Antonio River tributaries. The project is about 99 percent complete overall and is scheduled for completion in September 2007.

Benefits accrued to San Antonio project: Accumulated damages prevented through FY 2003 were $464,039,400.

23. SAN GABRIEL RIVER, TX

Location. Project is a system of three reservoirs in Williamson County in the central portion of Brazos River Basin, which consists of Granger Dam at River Mile 31.9 on San Gabriel River, about 7.0 miles east of Granger, Texas; North San Gabriel Dam at River Mile 4.3 on North Fork of San Gabriel River, about 3.5 miles northwest of Georgetown, Texas; and South Fork Dam at River Mile 4.7 on South Fork of San Gabriel River, about 3.0 miles southwest of Georgetown, Texas.

Existing project. For description of completed improvements and authorizing acts, see the Annual Report of 2001. Construction of Granger Lake started in October 1972 and the project was ready for beneficial use in January 1980. Estimated cost of project is approximately $62 million. Construction of North San Gabriel Dam and Lake Georgetown started in October 1972 and the project was ready for beneficial use in March 1980. Estimated cost of project is approximately $38.8 million. The South Fork Lake project is scheduled for Deauthorization in FY 2003.

Local cooperation. Construction is subject to condition that local interests reimburse the Federal Government for costs allocated to water supply at Granger, Georgetown, and South Fork Lakes. Reimbursement currently estimated at $13,315,000 for Granger, $6,295,000 for Georgetown, and $50,563,000 for South Fork, for a total of $70,172,000, exclusive of interest. Brazos River Authority, a State agency, is the local interests' sponsor of project, and by letter dated April 18, 1966, indicated its acceptance of the proposed plan of development and its willingness to pay for the costs allocated to water supply in each reservoir in the ultimate plan. Such water supply assurances for Granger and Georgetown Lakes were approved May 24, 1968 as satisfactory in accordance with requirements of the Water Supply Act of 1958, as amended. Contract negotiations for South Fork Lake will be deferred until the need for water supply develops and the reservoir is scheduled for construction.

Operations during fiscal year. Granger and Georgetown: routine operation and maintenance continued at both projects. Design and construction activities initiated on Congressionally funded trail system at Georgetown.

Benefits accrued to project consisting of Granger and Georgetown: Accumulated flood damages prevented through FY 2003 were $56,786,200.

24. SOMERVILLE LAKE, TX

Location. Dam is on Yegua Creek 20 miles upstream from its confluence with Brazos River and about 2 miles south of Somerville, Texas.

Existing project. For description of completed improvements and authorizing act see Annual Report of 1969. Construction started in June 1962 and the project was ready for beneficial use in January 1967. Estimated cost of project is $30,227,000.

Local cooperation. The Water Supply Act of 1958, as amended, applies. A contract with the Brazos River Authority, a State agency, for water supply storage approved May 10, 1962, by the Secretary of the Army, has paid $2,836,939 to date. Also under the contract, the Authority must pay annually 28.655 percent of the actual annual cost of operation and maintenance.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Somerville Lake project: Accumulated flood damages prevented through FY 2003 were $142,602,800.

25. STILLHOUSE HOLLOW DAM, TX

Location. Dam is on Lampasas River 16 miles upstream from its confluence with Little River, a tributary of the Brazos River, and about 5 miles southwest of Belton, Texas.

Existing project. For description of completed improvements and authorizing act see Annual Report of 1969. Construction was initiated in July 1962 and the project was ready for beneficial use in February 1968. Estimated cost of project is $23,670,000.

Local cooperation. The Water Supply Act of 1958 applies. A contract with the Brazos River Authority, a State agency, for water supply storage was approved April 13, 1962, by the Secretary of the Army, at an estimated cost of $6,912,430. To date the Authority has paid $3,655,147. Also under the contract the Authority must pay annually 27.748 percent of the actual annual cost of operation and maintenance. To date the Authority has paid $2,238,092.

Operations during fiscal year. Continued routine operation and maintenance activities.

Benefits accrued to Stillhouse Hollow Dam Project: Accumulated estimate of flood damages prevented through FY 2003 is $75,323,300.

26. WACO LAKE, TX

Location. Dam is on Bosque River, 4.6 river miles above its confluence with Brazos River, at city of Waco, McLennan County, Texas.

Existing project. For description of completed improvements and authorizing act see Annual Report of 1969. Estimated cost of project is $50,853,000 including $250,000 contributed by local interests and $2,500,000 other non-Federal cost. Construction was started in July 1958, and project was ready for beneficial use in February 1965.

Local cooperation. Section G of the Flood Control Act of December 1944 applies. A contract with the Brazos River Authority, a State agency, for water supply storage and the contract with the city of Waco transferring the existing Lake Waco to the Government for their water storage, was approved by the Secretary of the Army on April 15, 1958. To date, the Authority for their portion of the water supply storage has paid $3,405,242. Also under the contract the Authority and the city must pay 14.706 and 2.087 percent respectively of the actual cost of operation and maintenance. To date the Authority has paid $1,833,377 and the city has paid $274,287. A contract with the Brazos River Authority, for additional storage for municipal and industrial water supply, was approved by the Acting Assistant Secretary of the Army, September 28, 1984.

Operations during fiscal year. Work on Congressional add for pool continues. Continued routine operation and maintenance activities.

Benefits accrued to Waco Lake project: Accumulated flood damages prevented through FY 2003 were $333,647,600.

27. WACO LAKE, TX (DAM SAFETY)

Location. For location of completed dam see Waco Lake, Texas in this chapter.

Existing project. The existing rolled earthfill embankment's top elevation of 510 feet National Geodetic Vertical Datum (NGVD), is hydrologically deficient. The original hydrologic design criteria used for Waco Dam design has been revised. Current hydrologic design criteria indicates the spillway and outlet works cannot pass the Probable Maximum Flood (PMF) without overtopping the dam by 1.0

foot, which could lead to failure of the embankment and catastrophic release of the reservoir. Adding required freeboard, Waco Dam crest height is hydrologically deficient by 4.6 feet. The proposed modification consists of raising the dam crest approximately by 4.6 feet to 514.6 feet NGVD utilizing a combination of compacted earthfill and reinforced cast-in-place concrete parapet wall for the full length of the dam. No major modification to the spillway, spillway service bridge, outlet works tower, or outlet works tower service bridge will be required. However, the spillway hoist mechanisms for the tainter gates will be waterproofed. The outlet works service bridge will be provided with a removable bulkhead to be installed only large flood events but would otherwise remain unchanged. Estimated Federal cost for raising the dam modification is $6,260,000 (Oct. 1, 1998, base price) and $220,000 is to be reimbursed by local sponsors.

Operations during fiscal year. Project construction was completed in September 2001. Financial closeout was completed in July 2002. Total cost of the project was $4,738,400.

28. WRIGHT PATMAN DAM AND LAKE, TX

Location. Dam is on Sulphur River in Cass and Bowie Counties, Texas. Dam is 45 miles above mouth of Sulphur River, and about 8 miles southwest of Texarkana, Texas.

Existing project. For description of completed improvements and authorizing act see Annual Report of 1984. Estimated cost of project is $51,945,000, which includes $5,449,100 Code 711, $399,939 accelerated public works funds, and $13,138,004 to be reimbursed by local interests, over a period not to exceed 50 years, for water supply storage, and including $2,092,040 for pro rata share of original reservoir cost. Construction was initiated in August 1948 and completed in March 1962, except real estate activities, construction under Code 711, and conversion of 120,000 acre-feet to water supply storage after completion of Cooper Reservoir (now Jim Chapman Lake). This project transferred to the Fort Worth District as of the end of FY 1979.

Local cooperation. A contract with the city of Texarkana, Texas, for reserving water supply storage space was approved by the Secretary of the Army December 17, 1968. To date, the city has paid $933,142. The city has paid $840,305 toward operation and maintenance costs of the project.

Operations during fiscal year. Completed extensive repairs to outlet works structure and roof; replaced lift cables on the outlet works gates. Continued routine operation and maintenance activities.

Benefits accrued to Wright Patman Dam and Lake project: Accumulated flood damages prevented through FY 2003 were $88,298,200.

29. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspection of completed local flood protection projects is made periodically in compliance with Section 208. 10, of Title 33, Code of Federal Regulations, which contains regulations for operation and maintenance of local flood-protection works approved by the Secretary of the Army in accordance with authority in Section 3, Flood Control Act of 1936. See Table 39-D for inspections made this fiscal year.

Inspection costs for FY 2003 from regular funds for maintenance were $149,426. Total costs to September 30, 2003 were $149,426.

30. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

In accordance with Flood Control Act of 1944, expenditures were made for scheduling flood control reservoir operations and preparation of reservoir regulation manual for Marshall Ford Dam, on the Colorado River, near city of Austin, Texas, and for preparation of reservoir regulation manual for Twin Buttes Dam, on Middle and South Concho Rivers near city of San Angelo, Texas. Marshall Ford Dam was authorized by 1937 River and Harbor Act. Project was constructed jointly by Bureau of Reclamation and Lower Colorado River Authority and was completed during FY 1942. Twin Buttes Reservoir was authorized for construction by Department of Interior by Public Law 152, 85th Congress. Construction was initiated in June 1960; closure of dam started in June 1962; deliberate impoundment was started January 23, 1963.

Accumulated damages prevented by Marshall Ford Reservoir through FY 2003 were $364,909,900 and by Twin Buttes through FY 2003 were

$1,142,650. Twin Buttes Reservoir consists of two separate pools, one on South Concho River and the other on Middle Concho River and Spring Creek. Equalizing channel between these two pools is at elevation 1925.0. Costs for FY 2003 from regular funds for operation of both reservoirs were $58,052.

31. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

(See Table 39-C.)

32. WORK UNDER SPECIAL AUTHORIZATION

(See Table 39-E.)

Flood control activities pursuant to Section 205, Public Law 585, 80th Congress, as amended (preauthorization); Emergency stream bank protection under Section 14, Public Law 526, 79th Congress, as amended; Snagging and Clearing of navigable streams and tributaries in interest of flood control Section 208, Public Law 780, 83rd Congress, as amended. Emergency flood control, hurricane-flood, and shore protection activities, Public Law 99, 84th Congress, and antecedent legislation, Environmental restoration under Section 1135, Public Law 662, 99th Congress, as amended; Aquatic ecosystem restoration under Section 206, Public Law 303, 104th Congress.

Fiscal year costs were $44,945 for catastrophic disaster preparedness program; $1,628 for recreation management support program; $250,106 for anti-terrorism /force protection; no levee repairs.

Multi-Purpose Projects Including Power

33. ROBERT DOUGLAS WILLIS HYDROPOWER, TX

Location. For location of completed dam see Town Bluff Dam-B.A. Steinhagen Lake, Texas in this chapter.

Existing project. Installation of hydroelectric power generating facilities at Town Bluff Dam was authorized by the River and Harbor Act of 1945 (Public Law 79-14), March 2, 1945, but deferred in the original construction. Town Bluff Dam was completed and placed in operation in 1951. A Design Analysis Report completed in April 1982 and a Feasibility Report approved September 9, 1983 indicated that installing hydropower at this project was economically feasible. The hydropower facilities include a 7,400-kilowatt power plant (two units at 3,700 kilowatts each), intake and outlet facilities, and necessary switchgear equipment is located in the main embankment at the old diversion channel. The plant is operated remotely from the Sam Rayburn project. The project produces an estimated 35,900 megawatt hours of energy per year. There is no Federal cost on this project, it is completely funded by non-Federal funds. The estimated non-Federal cost is $18,643,000. 101st Congress House Report 923, effective February 7, 1989, changed the name of Town Bluff Hydropower to Robert Douglas Willis Hydropower.

Local cooperation. A contract with the Sam Rayburn Municipal Power Authority was approved by Secretary of the Army, June 28, 1985, relative to financing, escrow agreement, and power sales agreement.

Operations during fiscal year. Repair tainter gates; continued routine operation and maintenance activities.

34. SAM RAYBURN DAM AND RESERVOIR, TX

Location. Dam is on Angelina River 25.2 miles upstream from its confluence with Neches River and about 10.0 miles northwest of Jasper, Texas.

Existing project. For description of completed improvements and authorizing act see Annual Report of 1969. Construction was started August 1956 and project was ready for beneficial use in March 1965. Estimated cost of project is $68,683,000 including $3,000,000 contributed by local interests.

Local cooperation. A contract with the Lower Neches Valley Authority, a State agency, to contribute $3,000,000 toward the first cost and an additional $200,000 annually for 50 years after completion of the project was approved by the Secretary of the Army on January 22, 1957. Contribution of $3,000,000 was made in full and annual payments to date of $5,600,000 have been made by the Authority.

A contract with the city of Lufkin for water supply storage was approved May 27, 1969, by the Secretary of the Army at an estimated cost of

$525,600. To date, the city has paid $1,082,566. Also under the contract the city of Lufkin must pay annually 0.692 percent of the annual cost of operation and maintenance. To date, the city has paid $252,491.

Operations during fiscal year. Completed repairs to the raw water readers and valves at the powerhouse. Continued routine operation and maintenance activities.

Benefits accrued to Sam Rayburn project: Accumulated flood damages prevented through FY 2003 were $959,338,300.

35. TOWN BLUFF DAM - B. A. STEINHAGEN LAKE, TX

Location. Dam is on Neches River about 12.4 miles below mouth of Angelina River, one-half mile north of Town Bluff, Texas, and 93.0 river miles north of Beaumont, Texas.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction started March 1947 and project was ready for beneficial use in April 1951. Estimated cost of project is $9,888,000, including $2,000,000 contribution by local interests.

Local cooperation. Completed as required.

Operations during fiscal year. Contract awarded to repair tainter gates and other structural components at the spillway structure. Continued routine operation and maintenance activities.

36. WHITNEY LAKE, TX

Location. Dam is on Brazos River, about 442 miles above mouth of river, 5.5 miles southwest of Whitney, Texas, and about 38 miles upstream from city of Waco, Texas.

Existing project. For description of completed improvement and authorizing acts see Annual Report of 1962. Construction of project was started May 1947 and ready for flood control use in December 1951. First power was placed on the line in June 1953. Raise power pool is complete. Estimated cost of project is $46,306,000.

Local cooperation. Section 2, Flood Control Act of 1938, applies. A contract with the Brazos River Authority, a State agency, for water supply storage was approved by the Secretary of the Army November 3, 1982. To date, the Authority has paid $273,491.

Operations during fiscal year. Powerhouse switchyard was rehabilitated, including replacing circuit breakers, power bus, control transformers and cutout switches. Continued routine operation and maintenance activities.

Benefits accrued to Whitney Lake project: Accumulated flood damages prevented through FY 2003 were $814,494,700.

General Investigations

37. SURVEYS

Fiscal year costs for reconnaissance and feasibility studies were $569,481 for flood damage prevention studies and $1,737,647 for ecosystem restoration studies. Miscellaneous activities include $12,234 for Coordination with Other Agencies; $38,682 for Special Investigations; $47,707 for Planning Assistance to States; $5,433 for Inter-agency Water Resource Development; $2,120 for North American Waterfowl Management.

38. PRECONSTRUCTION ENGINEERING AND DESIGN

NORTH BOSQUE RIVER, TX

The North Bosque Watershed is located within the middle portion of the Brazos River Basin, which includes Erath and Bosque Counties. The ecological system of the basin has suffered significant adverse impacts due to urbanization and concurrent changes in land use to support the human environment. The plan of improvement consists of reforestation, construction of low-water dams, creation of conservation easements and wetland areas for the purpose of ecosystem restoration. Funds were appropriated in FY2003, but reprogrammed to another study, as the North Bosque Interim Feasibility Study, conducted under the Middle Brazos River Feasibility Study, was not completed in time for inception of the PED phase. It has since been determined that the study will not progress to the PED phase in the future, but instead be converted to a

Section 206 Continuing Authorities Program project in FY 2004.

39. COLLECTION AND STUDY OF BASIC DATA

Work continued under the Flood Plain Management Services on the compilation of information on floods and potential flood damages, including identification of those areas subject to inundation. Fiscal year expenditures for these activities totaled $92,019. Fiscal year costs were $7,101 for hydrologic studies.

Construction, General

BOSQUE AND LEON RIVER BASINS, TX

The project area is located on the Bosque and Leon River Watersheds in central Texas. The McGregor Naval Weapons Industrial Reserve Plant (NWIRP) is being closed under special legislation, and is hydrogeologically upgradient from both Lake Waco and Lake Belton. Perchlorate from the plant is migrating from contaminated sites on NWIRP property and may be threatening sole-source water supplies for Waco, Temple, Killeen and surrounding towns. The project is assessing the extent of perchlorate pollution to existing surface and groundwater supplies, as well as the wildlife habitat. FY 2003 activities include continuation of field sampling of water, plants and animals; begin evaluation of potential exposure to humans and the environment, and initiation of public dialog. Fiscal year expenditures for this project were $1,968,257.

WHITNEY LAKE (POWERHOUSE), TX (MAJOR REHAB)

The project area is described in Paragraph 36, Whitney Lake, TX. Rehabilitation measures include replacement of the two turbines, rewinding and uprating the two generators, and replacement of necessary peripheral items and equipment within the powerhouse. The total increase in power output of the plant will be from 30 megawatts to 42 megawatts. Fiscal year expenditures for this project were $168,390.

Operations and Maintenance

TEXAS WATER ALLOCATION ASSESSMENT

The study area includes the entire state of Texas. Work included review of the water supply proposals identified in the sixteen State of Texas Regional Plans; instream flow studies; brush management studies; partial reallocation study on Lake Texoma; rural issues study; study to develop a comprehensive, GIS-based decision support system for water resource management; reservoir operations system assessment in the Sulphur River basin; review of Corps water supply authorities and policies; prioritization of candidate watersheds for environmental restoration; national hydrography dataset; and hydrologic model comparison study. Fiscal year expenditures for these activities totaled $689,707.

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
1	Trinity River						
	Project, TX Includes						
	Channel to Liberty	0	1,481,000	10,000,000	9,689,000	43,744,865	
	Tennessee Colony	0	1,391,517	1,128,478	1,413,437	26,508,297	
	Lake and Dallas						
	Floodway Extension						
2	Aquilla Lake, TX						
		0	0	0	0	45,506,300	
		0	0	0	0	45,506,300	
		495,402	626,664	650,974	547,500	10,750,873	
		494,234	621,230	596,616	608,478	10,750,874	
3	Bardwell Lake, TX						
		0	0	0	0	10,934,505	18
		0	0	0	0	10,934,505	18
		1,381,780	1,415,678	1,539,786	1,536,484	34,625,587	
		1,381,570	1,368,940	1,488,127	1,560,775	33,396,122	
4	Belton, Lake, TX						
		0	0	0	0	16,960,549	
		0	0	0	0	16,960,549	1
		2,342,703	2,749,404	2,471,465	2,872,018	55,486,675	18
		2,341,207	2,746,489	2,331,531	3,003,969	55,401,619	18
5	Benbrook Lake, TX						
		0	0	0	0	13,130,463	
		0	0	0	0	13,069,991	2
		1,881,572	1,861,714	2,078,986	1,915,894	45,242,685	18
		1,878,634	1,792,079	2,131,210	1,923,548	43,838,060	18

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
6	Canyon Lake, TX						
		0	0	0	0	19,088,524	3
		0	0	0	0	19,088,524	
		2,698,653	3,003,518	3,158,417	2,395,457	46,139,517	18
		2,693,821	3,000,514	2,682,156	2,855,455	45,894,810	18
8	Ferrels Bridge Dam-						
	Lake O' The Pines, TX	0	0	0	0	14,175,197	4
		0	0	0	0	14,175,197	4
		2,591,674	3,584,493	2,663,240	2,503,329	60,544,888	18
		2,616,552	3,578,116	2,504,690	2,585,780	60,462,519	18
9	Grapevine Lake, TX						
		0	0	0	0	21,317,790	
		0	0	0	0	21,317,790	
		2,310,317	2,302,882	2,408,522	2,319,489	52,713,868	18
		2,312,046	2,295,103	2,252,779	2,333,157	52,558,962	18
10	Hords Creek Lake, TX						
		0	0	0	0	2,731,089	8
		0	0	0	0	2,731,089	
		1,121,472	1,181,083	1,102,141	990,712	25,435,608	18
		1,119,966	1,170,419	1,032,050	1,066,592	25,364,509	18
11	Jim Chapman Lake, TX						
	(Federal Funds)	0	0	0	0	138,694,887	
		41,009	0	0	0	168,666,315	
	(Contributed Funds)	0	0	0	0	227,000	
		0	0	0	0	227,000	
	(Federal Funds)						
		0	1,066,239	1,067,213	1,097,984	14,371,765	
		0	1,127,343	1,077,280	1,287,090	13,047,626	

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
12	Joe Pool Lake, TX						
		0	0	0	0	188,960,000	
		0	0	0	0	188,873,609	
		596,050	678,519	711,981	660,028	11,209,254	
		596,139	672,018	696,619	683,414	11,208,665	
14	Lavon Lake, TX						
		0	0	0	0	12,864,796	
		0	0	0	0	12,864,796	
		2,245,796	2,321,018	2,406,905	2,434,745	60,260,576	18
		2,242,988	2,298,660	2,329,688	2,451,887	60,285,545	18
15	Lavon Lake Modification and East Fork Channel Improvement, TX	0	0	0	0	69,796,862	
		0	0	0	0	69,796,862	
16	Lewisville Dam , TX						
		0	0	0	0	25,333,988	
		0	0	0	0	25,333,988	9
		2,926,881	2,916,554	3,497,749	2,928,002	75,050,542	18
		2,923,443	2,910,633	3,406,978	2,998,249	72,458,026	18
18	Navarro Mills Lake, TX	0	0	0	0	9,846,759	
		0	0	0	0	9,846,759	11
		1,340,083	1,409,077	1,546,127	1,529,456	33,390,513	18
		1,340,570	1,404,162	1,501,145	1,535,028	33,344,799	18

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
19	O.C.Fisher Dam						
	and Lake, TX	0	0	0	0	16,027,467	
		0	0	0	0	16,027,467	
		755,803	744,046	877,163	647,965	27,377,986	18
		755,398	725,766	575,835	969,075	27,377,870	18
20	Proctor Lake, TX						
		0	0	0	0	14,469,585	
		0	0	0	0	14,469,585	
		1,724,038	1,664,100	2,198,891	1,546,698	41,347,749	18
		1,722,744	1,665,658	1,525,637	2,141,750	41,070,388	18
21	Ray Roberts Lake, TX						
		0	0	0	0	319,778,700	
		110,719	84,610	10,744	0	319,648,066	
		1,001,638	729,435	735,435	577,250	11,454,595	
		1,000,619	735,647	687,109	627,072	11,390,012	
33	Robert Douglas Willis						
	Hydropower, TX	0	0	0	0	18,628,463	
	(Contributed Funds)	0	0	0	0	18,628,463	
34	Sam Rayburn						
	Dam and	0	0	0	0	60,670,957	
	Reservoir, TX	0	0	0	0	60,670,957	12
		4,294,428	3,996,843	4,463,209	3,686,019	94,311,750	18
		4,293,583	3,989,524	3,961,631	4,131,404	93,931,538	18

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
22	San Antonio						
	Channel	992,082	1,063,057	730,000	1,604,000	156,275,187	
	Improvement, TX	943,245	1,034,656	858,005	1,114,919	155,683,036	
	(Federal Funds)						
	(Contributed Funds)	0	0	130,849	177,500	3,523,789	
		0	0	130,849	177,500	3,523,789	
23	San Gabriel River, TX						
		0	0	0	0	101,796,100	
		0	0	0	0	101,796,100	
	Granger Lake	1,522,746	1,463,924	1,448,767	1,443,725	28,538,052	18
		1,522,770	1,458,816	1,375,715	1,517,410	27,239,082	18
	Lake Georgetown	1,671,861	1,606,862	1,663,580	2,500,999	29,229,609	18
		1,672,018	1,601,264	1,592,010	1,762,009	28,412,383	18
24	Somerville Lake, TX						
		0	0	0	0	27,790,438	
		0	0	0	0	27,790,438	
		2,739,611	2,734,853	2,474,008	2,480,640	55,992,616	18
		2,741,102	2,725,504	2,398,137	2,571,839	47,913,896	18
25	Stillhouse Hollow						
	Dam, TX	0	0	0	0	20,522,084	13
		0	0	0	0	20,522,084	
		1,957,661	1,599,658	1,651,388	1,630,588	35,814,765	18
		1,955,653	1,595,478	1,577,186	1,710,802	35,789,118	18

TABLE 39-A

See Section in Text	Project	FY00	FY01	FY02	FY03	Total Cost to Sep. 30,2003[17]	See Note
35	Town Bluff Dam-						
	B.A. Steinhagen	0	0	0	0	6,602,737	
	Lake, TX	0	0	0	0	6,602,737	14
		2,137,690	1,722,688	1,820,332	2,293,909	35,855,229	18
		2,136,597	1,717,464	1,696,172	1,835,698	35,202,794	18
26	Waco Lake, TX						
		0	0	0	0	49,521,121	15
		0	0	0	0	49,521,121	
		3,432,919	2,749,791	4,205,112	2,767,464	56,786,672	18
		3,415,713	2,744,744	2,685,840	3,451,213	55,851,743	18
27	Waco Lake, TX						
	(Dam Safety)	140,000	-4,500	-131,100	0	4,738,400	
		1,066,326	205,593	77,385	0	4,738,400	
	(Federal Funds)						
	(Contributed Funds)	0	0	-56,786	0	169,804	
		101,956	0	-56,786	0	169,804	
36	Whitney Lake, TX						
		0	0	0	0	42,952,938	
		0	0	0	0	42,952,938	16
		4,948,951	4,646,994	4,688,973	3,819,230	91,614,326	18
		4,916,605	4,667,890	3,625,878	4,840,188	91,282,212	18
28	Wright Patman Dam						
	and Lake, TX	0	0	0	0	35,731,626	
		0	0	0	0	35,731,626	
		2,531,902	2,885,614	2,264,503	2,584,046	58,688,540	18
		2,538,921	2,884,611	2,172,621	2,473,663	57,479,923	18

TABLE 39-B - Authorizing Legislation

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		AQUILLA LAKE, TX	
2	Aug. 13, 1968	Construction of a dam on Aquilla Creek about 6.8 miles southwest of Hillsboro, Texas and about 24 miles north of Waco, Texas.	S. Doc. 52, 90th Cong., 1st Sess.
		BARDWELL LAKE, TX	
3	Mar. 31, 1960	Construction of a dam on Waxahachie Creek about 5 miles south of Ennis, Texas	H.Doc. 424, 82nd Cong., 2nd Sess.
		BEALS CREEK, BIG SPRINGS, TX	
4	Oct. 12, 1972	Construction of a channel.	H. Doc. 115, 92nd Cong., 2nd Sess.
		BELTON LAKE, TX	
5	Jul. 24, 1946	Construction of a dam on Leon River, about 3 miles north of Belton, Texas.	H. Doc. 88, 81st Cong., 1st Sess.
	Sep. 3, 1954	Modification of the dam to provide for generation of hydroelectric power.	H. Doc. 535, 81st Cong., 2nd Sess.
		BENBROOK LAKE, TX	
6	Mar. 2, 1945	Construction of a dam on the Clear Fork of the Trinity River about 10 mile southwest of Fort Worth, Texas	H. Doc.403, 77th Cong., 1st Sess.
		CANYON LAKE, TX	
7	Mar. 2, 1945 Sep. 3, 1954	Construction of a dam on the Guadalupe River about 12 miles northwest of New Braunfels, Texas.	H. Doc. 247, 76th Cong., 1st Sess.
		DALLAS FLOODWAY EXTENSION, TX	
8	Oct. 27, 1965	Channel and SPF levees and the Trinity Navigation Project.	River and Harbor Act of 1965.
	Oct. 12, 1996	Levee credits.	WRDA 1996, Sec 351
	Aug. 17, 1999	Recreation and ecosystem restoration.	WRDA 1999, Sec 356
		FERRELLS BRIDGE DAM-LAKE O' THE PINES, TX	
9	Jul. 24, 1946	Provides for construction of an earth fill dam and reservoir area.	H. Doc. 602, 79th Cong., 2nd Sess.
		GRAPEVINE LAKE, TX	
10	Mar. 2, 1945	Construction of a dam on Denton Creek, a tributary of the Trinity River, about 20 miles northwest of Dallas, Texas.	H. Doc. 403, 77th Cong., 1st Sess.
		HORDS CREEK LAKE, TX	
11	Aug. 3, 1941	Construction of a dam on Hords Creek, a tributary of Pecan Bayou, near the city of Coleman, Texas.	H. Doc. 370, 76th Cong., 1st Sess.

TABLE 39-B - Authorizing Legislation

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		JIM CHAPMAN LAKE, TX	
12	Aug. 3, 1955	Construction of an earth fill dam and reservoir area.	H. Doc.488. 83rd Cong., 2nd Sess.
		JOE POOL LAKE, TX	
13	Oct. 27, 1965	Construction of a dam on Mountain Creek, adjacent to the city limits of Grand Prairie, Texas, about 3 miles above the existing Mountain Creek Dam.	H . Doc. 276, 89th Cong., 1st Sess.
		JOHNSON CREEK, ARLINGTON, TX	
14	Aug. 17, 1999	Project includes a buy-out of 140 structures for flood damage reduction, 155 acres of ecosystem restoration, and 2.25 miles of hard surface trail, picnic facilities and a pavilion.	PL 106-53, Sec. 101(b)(14)
		LAVON LAKE, TX	
15	Mar. 2, 1945	Construction of a dam on the East Fork of the Trinity River, about 22 miles northeast of Dallas, Texas	H. Doc. 533, 78th Cong., 2nd Sess.
		LAVON LAKE MODIFICATION AND EAST FORK CHANNELS IMPROVEMENT, TX	
16	Oct. 23,1962	Enlarge Lavon Dam and enlargement and realignment of the lower 25 miles of the East Fork of the Trinity River, including rehabilitation of existing levees.	H. Doc. 554, 87th Cong., 2nd Sess.
	Mar. 7, 1974	Improvement of Collin County Road 115.	
		LEWISVILLE DAM, TX	
17	Mar. 2, 1945	Construction of a dam on the Elm Fork of the Trinity River near the city of Lewisville, Texas.	H. Doc. 403, 77th Cong., 1st Sess.
		MILLICAN LAKE, TX	
18	Mar. 2, 1945 Sep. 3, 1954	Construction of a dam on the Guadalupe River about 12 miles northwest of New Braunfels, Texas.	H. Doc. 247, 76th Cong., 1st Sess.
		NAVARRO MILLS LAKE, TX	
19	Sep. 3, 1954	Construction of a dam on Richland Creek, a tributary of the Trinity River, about 16 miles southwest of Corsican Texas.	H. Doc. 498, 83rd Cong., 2nd Sess.
	Dec. 31, 1970	Alteration of FM Highway 3164 in Wolf Creek Park.	
		O.C. FISHER DAM AND LAKE, TX.	
20	Aug. 18,1941	Construction of a dam on the North Concho River just above San Angelo, Texas.	H. Doc. 315, 76th Cong., 1st Sess.

TABLE 39-B - Authorizing Legislation

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		PROCTOR LAKE	
21	Sep. 3, 1954	Construction of a dam on the Leon River about 8 miles northeast of Comanche, Texas.	H. Doc. 535, 81st Cong., 2nd Sess.
		RAY ROBERTS LAKE, TX	
22	Oct. 27,1965	Construction of a dam on the Elm Fork of the Trinity River between Sanger and Aubrey Texas, about 30 miles upstream from the existing Lewisville Dam.	H.Doc. 276, 89th Cong., 1st Sess.
		SAM RAYBURN DAM AND RESERVOIR	
35	Mar. 2, 1945	Construction of a dam on the Angelina River about 10 miles northwest of Jasper, Texas.	S. Doc. 98, 76th Cong., 1st Sess.
		SAM RAYBURN SPILLWAY (DAM SAFETY ASSURANCE), TX	
36	Mar. 2, 1945	Modification of the spillway and embankment	S. Doc. 98, 76th Cong., 1st Sess.
		SAN ANTONIO CHANNEL IMPROVEMENT, TX	
23	Sep. 3, 1954	Channel improvement of the San Antonio River and tributaries in and near the city of San Antonio, Texas.	H. Doc. 344, 83rd Cong., 2nd Sess.
		SAN GABRIEL RIVER PROJECT, TX	
24	Sep. 3, 1954 Jan. 3, 1975	Construction of: (1) a dam (Granger Dam and Lake) on the San Gabriel River about 7 miles east of Granger, Texas, (2) a dam (North Fork Lake) on the north Fork of the San Gabriel River about 3.5 miles northwest of Georgetown, Texas and (3) a dam (South Fork Lake) on the South Fork of the San Gabriel River about 3 miles southwest of Georgetown, Texas.	H. Doc. 535, 81st Cong., 2nd Sess. H.Doc. 591, 87th Cong., 2nd Sess.
		SOMERVILLE LAKE, TX	
25	Sep 3, 1954	Construction of a dam on Yegua Creek about 5 miles south of Somerville, Texas.	H. Doc. 535, 81st Cong, 2nd Sess
		STILLHOUSE HOLLOW DAM, TX	
26	Sep. 3, 1954	Construction of a dam on the Lampasas River about 5 miles southwest of Belton, Texas.	H. Doc. 535, 81st Cong., 2nd Sess.
		TOWN BLUFF DAM-B.A. STEINHAGEN LAKE, TX	
37	Mar. 2, 1945	Construction of a dam on the Neches River near Jasper, Texas.	S. Doc. 98, 76th Cong., 1st Sess.

TABLE 39-B - Authorizing Legislation

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		ROBERT DOUGLAS WILLIS HYDROPOWER, TX	
34	Mar. 2, 1945	Construction of two units at 3,000 kilowatts each of hydroelectric power generating facilities connected with Town Bluff-B.A. Steinhagen Lake, Texas.	S. Doc. 98, 76th Cong., 1st Sess.
		TRINITY RIVER PROJECT, TX	
1	Oct. 27, 1965	Construction of Tennessee Colony Dam located at river mile 339.2 on the Trinity River about 16 miles west of Palestine, Texas; a multiple purpose channel from the Houston, Texas ship channel to Fort Worth, Texas; a distance of approximately 363 miles, an extension of the existing Dallas, Texas, Floodway downstream approximately 9.0 miles; a realignment and enlargement of the West Fork of the Trinity River from the mouth of the West Fork to the existing Texas, Floodway, a distance of approximately 31 miles; and water conveyance facilities involving construction of about 98 miles of pipeline from Tennessee Colony Lake to the existing Benbrook Lake.	H. Doc. 276, 89th Cong., 1st Sess. H. Doc. 364, 90th Cong., 2nd Sess.
		WACO LAKE, TX	
27	Sep. 3, 1954	Construction of a dam on the northwest edge of Waco, Texas, below the confluence of the North, South and Middle Bosque Rivers	H. Doc. 535, 81st, Cong., 2nd Sess.
		WACO LAKE, TX (DAM AND SAFETY)	
28	Sep. 3, 1954	Modification of raising the dam crest.	H. Doc. 535, 81st Cong., 2nd Sess.
		WHITNEY LAKE, TX	
38	Aug. 18, 1941	Construction of a dam on the Brazos River about 19 miles southwest of Hillsboro, Texas. Raise the power pool 13.0 feet.	H. Doc. 390, 76th Cong., 1st Sess.
		WRIGHT PATMAN DAM AND LAKE, TX	
29	Jul.24, 1946	Construction of an earth-filled dam and reservoir.	H. Doc. 602, 79th Cong. 2nd Sess.

TABLE 39-C - Other Authorized Flood Control Projects

(See Section 31 of Text)

Project	For Last Full Report See Annual Report For	Cost to September 30, 2001 Construction	Operation and Maintenance
Beals Creek, Big Spring, TX[1]	2001	-	-
Belton Lake Hydropower Study, TX[5]	-	-	-
Belton Lake Modification, TX[3]	1988	-	-
Big Fossil Creek, TX[1]	1969	-	-
Big Sandy Lake, TX[5]	1986	-	-
Boggy Creek, Austin, TX[1]	1992	-	-
Brownwood Channel Improvement, TX[5]	-	-	-
Calloway Branch Hurst, TX[1]	1986	-	-
Carl L. Estes Dam and Lake, TX[5]	1979	-	-
Dam "A" Lake, TX[5]	1987	-	-
Duck Creek Channel Improvements, TX[5]	1983	-	-
Elm Fork Floodway, TX [5]	1987	-	-
Fort Worth Floodway (Clear Fork), TX[1]	1971	-	-
Fort Worth Floodway (West Fork), TX[1]	1971	-	-
Grand Prairie, TX (Landfill)[1]	1987	-	-
Grand Prairie, TX (Meyers Road)[1]	1989	-	-
Greenville, TX [1]	1983	-	-
Lake Brownwood Modification, TX[5]	1983	-	-
Lake Fork Lake, Sabine River, TX[5]	-	-	-
Lake Worth, Tarrant County, TX[4]	-	-	-
Millican, TX[2]	1988	-	-
Navasota Lake, Navasota River, TX[5]	-	-	-
Roanoke Lake, TX[5]	1979	-	-
Rockland Lake, TX[5]	1988	-	-
Rutledge Hollow Creek Channel Improvement, Poteet, TX[1]	1969	-	-
Sam Rayburn and Reservoir, TX (Dam Safety) [1]	2001	-	-
San Gabriel River, South Fork Lakes, TX[4]	-	-	-
Tarrant County, Tony's Marine Creek, TX[4]	-	-	-
Zacate Creek Channel, TX[1]	1983	-	-

[1]Completed [2]Inactive [3]Deferred [4]Recommended for Deauthorization [5]Deauthorized

TABLE 39-D - Inspection of Completed Flood Control Projects
(See Section 29 in Text)

Project, Location	Dates of Inspection
Arlington Landfill, Arlington, Texas	September 17, 2003
Beals Creek, Big Spring, Texas	August 15, 2003
Beltline Road Bridge, Richardson, Texas	September 8, 2003
Big Fossil Creek Floodway, Richland Hills, Texas	March 20, 2003
Boggy Creek Floodway, Austin, Texas	August 21, 2003
Calloway Branch Channel, Hurst, Texas	September 10, 2003
Calloway Branch, Airline Drive Park., Richland Hills, Texas	September 3, 2003
Cat Claw Creek Channel, Abilene, Texas	July 2, 2003
Dallas Floodway, Dallas, Texas	November 13, 2003
Delaware Branch, Irving, Texas	May 19, 2002
Dry Branch, Grand Prairie, Texas	July 16, 2003
Duck Creek, Garland, Texas	September 24, 2003
East Fork Floodway, Kaufman County, Texas	November 30, 1994
Fort Worth Floodway, Tarrant County, Texas	September 26, 2002
Grand Prairie Landfill, Grand Prairie, Texas	February 12, 2003
Hutton Branch, Carrollton, Texas	September 8, 2003
Johnson Creek Channel, Grand Prairie, Texas	June 24, 2003
Long Branch Channel, Greenville, Texas	September 9, 2003
Lorean Branch Channel, Hurst, Texas	September 10, 2003
McCoy Road Bridge, Carrollton, Texas	September 8, 2003
Meyers Road, Grand Prairie, Texas	February 12, 2003
Munday Floodway, Munday, Texas	December 17, 2002
Park Row Bridge, Arlington, Texas	September 17, 2003
Pleasanton Floodway, Pleasanton, Texas	September 2, 2003
Poteet Floodway, Poteet, Texas	September 2, 2003
Ridglea Country Club Drive Bridge, Fort Worth, Texas	January 15, 2003
Roaring Springs Road Bridge, Westover Hills, Texas	January 15, 2003
Rush Creek Channel, Arlington, Texas	September 17, 2003
San Antonio Floodway, San Antonio, Texas	August 26-27, 2003
San Antonio Tunnel, San Antonio, Texas	August 26-27, 2003
San Pedro Tunnel, San Antonio, Texas	August 26-27, 2003
Singing Hills Creek Channel, Watauga, Texas	September 10, 2003
Sulphur Branch Channel, Euless, Texas	December 18, 2002
Ten Mile Creek, Desoto, Texas	September 11, 2003
Waco Sewage Treatment Plant, Waco, Texas	August 7, 2002
Walnut Creek Channel, Seguin, Texas	April 7, 2003
West Fork Trinity River, River Oaks, Texas	July 9, 2003
Wheeler Creek Channel, Gainesville, Texas	June 12, 2002
Zacate Creek Floodway, Laredo, Texas	August 28, 2002

TABLE 39-E -Work Under Special Authorization
(See Section 32 of Text)

Project	Flood Control Activities	Section 205	Cost
Boyd Branch, Euless, TX			$ 724
Chacon Creek, Laredo, TX			37,240
Cienegas Creek, Del Rio, TX			39,617
Crystal Creek, Mineral Wells, TX			48,032
Farmers Branch, Tarrant County, TX			40,291
Lewis Creek, Bulverde, TX			42,212
Little Bear Creek, Euless, TX			369
Little Fossil Creek, Haltom City, TX			67,692
Pecan Creek, Gainesville, TX			92,133
Post Oak Creek, Corsicana, TX			61,374
Sulphur Creek, Lampasas, TX			21,232
Town Branch, Corsicana, TX			48,881
Section 205 Coordination Account			20,062

Project	Aquatic Ecosystem Restoration	Section 206	Cost
Applewhite Site, San Antonio, TX			$ 1,255
Concho River, Upper Colorado River Basin, TX			21,177
Cottonwood Creek, Arlington, TX			688
Lake Austin Ecosystem Restoration, Austin, TX			5,126
Lake Springfield, Groesbeck, TX			28,712
Olmos Creek Restoration, San Antonio, TX			55,745
Rio Grande Ecosystem Restoration, Laredo, TX			42,809
San Marcos River, San Marcos, TX			3,362
Spring Lake Aquatic Ecosystem Restoration, San Marcos, TX			47,731
Walnut Branch, Seguin, TX			75,277
WWTP, Meridian, TX			69,561
WWTP, Stephenville, TX			108,744
Section 206 Coordination Acct.			19,951

Project	Ecosystem Restoration	Section 1135	Cost
Beaver Pond, Hords Creek Lake, TX			$ 123
Big Cypress Bayou Fish & Wildlife Habitat, TX			14,224
Eagleland Restoration, San Antonio, TX			45,869
Joppa Preserve Restoration, TX			7,526
Lewisville Lake, Frisco, TX			25,314
Miller Springs Ecosystem Restoration, Belton, TX			207
O C Fisher Lake Ecosystem Restoration, TX			83,042
Old Trinity River Channel Wildlife Restoration, TX			17,879
Rush Creek, Tyler County, TX			37
Section 1135 Coordination Account			21,134

Project	Stream Bank Protection	Section 14	Cost
Boggy Creek, Austin, TX			$ 6,613
Brazos River, Waco Sewerage System, TX			22,398
Garner State Park, Uvalde, TX			95,708
Nokomis Road, Ten Mile Creek, Lancaster, TX			709
Wastewater Lift Station, Guadalupe River, Seguin, TX			39,785
Wastewater Plant, Intake Channel, Seguin, TX			28,917
Section 14 Coordination Acct.			15,040

GALVESTON, TX, DISTRICT

Galveston District comprises drainage basins of all short streams arising in coastal plain of Texas and flowing into the Gulf of Mexico, including the entire basin of Buffalo Bayou, San Jacinto, San Bernard, Lavaca, Navidad, Mission, and Aransas Rivers. It embraces Agua Dulce, San Fernando, and Olmos Creek Basins draining into Baffin Bay, and coastal area south thereof to the Rio Grande and east of western Boundary of Starr County, Texas. It includes lower basins of major streams flowing into the Gulf of Mexico: Sabine River, Texas and Louisiana, downstream from U.S. Highway 190 crossing at Bon Wier, Texas; Neches River downstream from Town Bluff gaging station; Trinity River downstream from Texas State Highway 19 crossing at Riverside, Texas; Brazos River downstream from confluence with Navasota River; Colorado River downstream from northern boundary of Fayette County; Guadalupe River downstream from confluence with San Marcos River; San Antonio River downstream from confluence with Escondido Creek; Nueces River downstream from confluence with Frio and Atascosa River.

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Navigation

1. AQUATIC PLANT CONTROL, TX (SOUTHWESTERN DIVISION) 1965 ACT

Location. Navigable waters, tributary streams, connecting channels, and other allied waters in Texas.

Previous project. For details see page 699 of Annual Report for 1963.

Existing project. A comprehensive project to provide for control and progressive eradication of water-hyacinth, alligatorweed, Eurasian watermilfoil, hydrilla, and other obnoxious aquatic plant growths, from navigable waters, tributary streams, connecting channels, and other allied waters in Texas in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and related purposes, including continued research for development of the most effective and economic control measures.

Control of water-hyacinth and alligatorweed has been approved for the Nueces River Basin, North Coastal Area, Guadalupe River Basin, Sabine River Basin, Trinity River Basin, Cypress Creek Basin, Neches River Basin, South Coastal Area, San Jacinto River Basin, Rio Grande Basin, Colorado River Basin and Brazos River Basin.

Control of hydrilla and watermilfoil is on a site by site basis after analysis and issuance of National Environmental Policy Act documentation

Local cooperation. Sec. 302, 1965 River and Harbor Act, amended by Water Resources Development Act of 1986, applies.

Operations during fiscal year. A new one-year cost-sharing, cost-reimbursable contract, with the options for an additional four years, has been negotiated with the State of Texas to maintain Program capabilities in the event of future funding. The contract was awarded February 15, 2001, and extended into FY 2003.

Work on an Environmental Assessment began in FY 2003 to add control of hydrilla to the Rio Grande Basin. In addition, the assessment adds giant salvinia and giant reed to the list of invasive aquatic plants to be treated, as well as all invasive aquatic plants included on the Texas Parks and Wildlife Department's list, which are torpedo grass, water spinach, giant duckweed, paper bark and water trumpet. The Environmental Assessment will be completed in Fiscal Year 04.

Cost incurred for fiscal year 2003 was $496,056.

2. BRAZOS ISLAND HARBOR, TX

Location. At extreme south end of coast of Texas, about 7 miles north of mouth of Rio Grande and about 5 miles east of Brownsville, Texas. (See National Ocean Survey Chart 11301.)

Previous project. For details see page 1017 of Annual Report for 1932.

Existing project. Provides for channel dimensions in various sections of the waterway as shown in Table 40-H.

Project also provides for dual jetties at the gulf entrance, a north jetty 6,330 feet long, a south jetty 5,092 feet long, and 1,000-foot extension to existing north jetty and for maintenance of 3rd fishing harbor constructed by local interests. Under ordinary conditions, mean tidal range is about 1.5 feet, and extreme range is about 2 feet. All depths refer to mean low tide. To some extent, height of tides is dependent on the wind, and during strong "northers" in winter season, water surface in southern end of Laguna Madre may be raised 4 feet or more above mean low tide in the gulf.

Widening Brownsville Channel from Goose Island to Brownsville turning basin and deepening southeast corner of Brownsville turning basin to 36 feet was completed in April 1980. The 1,000-foot extension to existing north jetty was deauthorized under Section 1001 of the Water Resources Development Act of 1986. The entrance channel was enlarged from 38 feet by 300 feet to 44 feet by 300 feet in FY 1992. Construction of an environmental mitigation site consisting of the creation of a 16-acre tidal wetland which included shoal grass and black mangroves, was completed in 1997. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Fully complied with.

Terminal facilities. Numerous terminal facilities for bulk and liquid cargo are available. (See Port Series No. 26, revised 1991.) Facilities are adequate for existing commerce.

Operations during fiscal year. Maintenance: Routine maintenance required. (See Table 40-J for dredging operations.)

3. CEDAR BAYOU, TX.

Location. The bayou is about 30 miles long. It flows to the south and empties into northwest corner of upper Galveston Bay, about 1.5 miles below mouth of San Jacinto River and about 28.5 miles north of Galveston, Texas. (See National Ocean Survey Chart 11326.)

Previous project. For details see Annual Report for 1938.

Existing project. Project provides for a channel 10 feet by 100 feet from Houston Ship Channel to Bayou Mile 11.0. Channel was completed from Houston Ship Channel to first bend in Cedar Bayou above the mouth in 1931. Channel from Mile -0.1 to Mile 3.0 was completed in March 1975. Channel from 3.0 to Mile 11.0 was deauthorized under Sec. 12 of Public Law 93-251 and re-authorized in December 2000 under Sec. 349 (a)(2) of Public Law 106-541, the Water Resources Development Act of 2000. Project also includes jetties at mouth of bayou provided for under previous project.

Under ordinary conditions, mean tidal range is about 0.6 feet and extreme range 1.2 feet. Height of tides is dependent largely on the wind, and during strong "northers" in the winter season water surface may be depressed 2 feet below mean low tide. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Fully complied with.

Terminal facilities. U.S. Steel Company has a barge dock at bayou mile 2.8, and there are a few small wharves, privately owned, for local use at various places along Cedar Bayou. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: No maintenance required for FY03.

4. CHANNEL TO PORT BOLIVAR, TX

Location. Port Bolivar is at end of Bolivar Peninsula and 4 miles north of city of Galveston. Channel connects the port with channel in Galveston Harbor. (See National Ocean Survey Chart 11324.)

Previous project. For details see page 1856 of Appendix to Annual Report for 1915.

Existing project. Existing project dimensions for channel are shown in Table 40-H. (Also see Table 40-B for authorizing legislation.)

Under ordinary conditions, mean tidal range is about 1.3 feet and extreme range 2 feet. Height of tides is dependent largely on the wind, and during strong "northers" in the winter season water surface may be depressed 2 feet below mean low tide. Enlargement of turning basin from 1,000 to 1,600 feet is inactive. A channel 14 feet deep, 200 feet wide, and approximately 950 feet long is maintained across the east end of the turning basin to accommodate the Galveston-Port Bolivar ferry. Project is complete except for inactive portion. Project dimensions have not been maintained in the completed part since lesser dimensions are adequate for existing commerce. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. None required.

Terminal facilities. Terminals are privately owned and consist of 2 slips and 2 piers. The piers, 400 feet wide by 1,200 feet long and 210 feet wide by 1,200 feet long, are badly deteriorated and not in use. The slips are used as anchorage by shallow-draft vessels. A highway ferry landing owned by the State of Texas is located at south end of turning basin. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Routine maintenance. (See Table 40-J for dredging operations.)

5. CLEAR CREEK AND CLEAR LAKE, TX

Location. Clear Creek has its source about 18 miles south of Houston, Texas, and flows southeast for about 25 miles, emptying into west side of upper Galveston Bay at a point 24 miles north west of Galveston, Texas. (See National Ocean Survey Chart 11326.)

Existing project. Project provides for 1.5 miles of channel 7 feet by 75 feet from Galveston Bay to mouth of Clear Creek; 0.7 miles of channel 7 feet by 60 feet, known as North Fork Channel; and 7.7 miles of channel 7 feet by 60 feet through Clear Creek and Clear Lake. The project was completed in June 1950.

Under ordinary conditions, mean tidal range is about 0.8 foot and extreme range 1.4 feet. Height of tides is dependent largely on the wind, and during strong "northers" in the winter season water surface may be depressed 2 feet below mean low tide.

Local cooperation. Fully complied with.

Terminal facilities. Consist of small privately owned wharves, several ship repair yards and marinas which accommodate light commercial vessels and pleasure yachts. These are along lake shore and at towns of Seabrook and Kemah at mouth of creek. A commercial shell loading dock, located near League City at the head of NASA-Manned Spacecraft Center, has a barge dock along lake shore near their property.

Operations during fiscal year. Maintenance: No maintenance required for fiscal year.

6. CORPUS CHRISTI SHIP CHANNEL, TX

Location. This project, formerly known as Port Aransas-Corpus Christi Waterway, Texas, was changed to Corpus Christi Ship Channel, Texas, by 1968 River and Harbor Act. This is a consolidation of old improvements of Port Aransas, Texas, and channel from Aransas Pass to Corpus Christi, Texas. Aransas Pass is on southern portion of Texas Coast, 180 miles southwest of Galveston and 132 miles north of mouth of Rio Grande. Aransas Pass connects Corpus Christi Bay with the gulf. Waterway extends from deep water in the

gulf through Aransas Pass jettied entrance, thence westerly 20.75 miles to and including a turning basin at Corpus Christi, thence westerly 1.75 miles through Industrial Canal to and including turning basin at Avery Point, thence westerly 4.25 miles to and including a turning basin near Tule Lake, thence northwesterly 1.8 miles to and including a turning basin at Viola, Texas. (See National Ocean Survey Charts 11308, 11309, 11311, and 11314.)

Previous project. For details see page 1861 of Annual Report for 1915.

Existing project. (See Table 40-H for existing project dimensions provided for in various channels and basins comprising this waterway.)

Project also provides for two rubblestone jetties at Aransas Pass entrance, extending into the gulf from St. Joseph and Mustang Islands, project lengths of which are 11,190 and 8,610 feet, respectively. Project further provides for a stone dike on St. Joseph Island about 20,991 feet long, connecting with north jetty and extending up this island to prevent a channel being cut around jetty. Project also provides for a breakwater at the entrance to the harbor area at Port Aransas, and for the realignment of the existing 12-foot by 100-foot project channel to Port Aransas. The breakwater consists of two overlapping sections. The one on the east side of the realigned entrance channel has a length of 830 feet and the second, located on the west side of the entrance channel, has a length of 1,290 feet. The channel to Port Aransas was relocated in the 300-foot clear distance between the overlapping sections. The portion of the channel remaining inside the breakwaters was widened to 150 feet. Under ordinary conditions, mean tidal range at Aransas Pass is about 1.1 feet and extreme range about 2 feet, and at Corpus Christi mean range about 1 foot and extreme about 1.5 feet. Heights of tides are dependent largely on strength and directions of winds, and during strong "northers" in the winter season water surface may be depressed as much as 3 feet below mean low tide. Estimated cost for new work is: Federal (Corps) $74,938,515, including $456,515 for Port Aransas Breakwaters and exclusive of amount expended on previous projects: and non-Federal $18,977,431 (includes $768 for Port Aransas Breakwaters) including $7,644,435 contributed funds and value of useful work performed, $3,320,228 lands, $6,027,000 relocations and $1,985,000 other cost. (October 1, 1992 base price.)

The Port Aransas-Corpus Christi 40-foot project was completed in 1966. The Jewel Fulton Canal was completed in 1963. The Port Aransas Breakwaters were completed in July 1973. Deepening deep-draft channels to 45 feet from Tule Lake Turning Basin through Viola Turning Basin was completed in 1989, and constructing a mooring area at Port Ingleside with dolphins has been deferred. Entrance and jetty channels have been dredged to project depth and width, and dredging of channel from Harbor Island to and through the Chemical Turning Basin at 45-foot depth has been completed. Initial mooring dolphins were completed in May 1979. Disposal area levees, Area 1 and Rincon were completed in August 1984. First stage disposal area levees, South Shore, were completed in September 1984. Construction contract for mitigation terracing was completed in 1997. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Fully complied with.

Terminal facilities. Terminal facilities on Harbor Island at head of Aransas Pass, Ingleside, Corpus Christi, La Quinta, Avery Point, and Viola, are considered adequate for existing commerce. (See Port Series, No. 25, revised 1993, Corps of Engineers.)

Operations during fiscal year. Maintenance: Routine maintenance. (See Table 40-J for dredging operations.)

7. DOUBLE BAYOU, TX

Location. Enters Trinity Bay on the east side about 30 miles north of Galveston and about 8.25 miles south of Anahuac, Texas.

Existing Project. Project provides for a channel 7 feet by 125 feet from the mouth of Double Bayou to the 7-foot contour in Trinity Bay, a length of 3.9 miles; and a channel, know as West Fork, 7 feet by 100 feet for a length of 2.0 miles. The project was completed in 1971.

Under ordinary conditions mean tidal range is about 0.5 feet and extreme range is about 1.2 feet. Height of tides is dependent largely on winds, and during strong north winds in the winter season, water surfaces may be depressed 1.5 feet below mean low tide. (See National Ocean Survey Chart 11326.)

Local cooperation. Fully Complied with.

Terminal facilities. Facilities are privately owned. At the mouth of the bayou is a timber wharf for loading oil barges. Between miles 1 and 1.5 above the mouth is a timber wharf, a boat slip, and a marine railway owned by the Brown and Root Corporation. At mile 3 above the mouth is a small depot for handling oyster shell. The facility consists of a timber bulkhead and hoppers for loading trucks. One-half mile above the mouth are several fishing vessel docks.

Operations during fiscal year. Maintenance: No maintenance required for FY03.

8. FREEPORT HARBOR, TX

Location. Formed by improvement of Brazos River, Texas, from mouth to about 6 miles upstream to Freeport, Texas. (See National Ocean Survey Charts 11321 and 11322.)

Previous projects. For details see page 1860 of Annual Report for 1915, and page 872 of Annual Report for 1938.

Existing project. Existing project dimensions for various channels and basins are shown in Table 40-H on channel dimensions at end of chapter.

Existing project also provides for dual jetties and a diversion canal for the Brazos River, including a dam, a lock in the dam and necessary auxiliary equipment. Also provides for rehabilitation of southwest jetty and the relocation of the northeast jetty (about 640 feet to the northeast); realignment of the channel between the Jetty Channel and Brazosport Turning Basin; realignment of the channel between Brazosport Turning Basin and Upper Turning Basin; relocation of Upper Turning Basin; and public use facilities adjacent to the Freeport Jetties. The 30-foot channel from Upper Turning Basin to Stauffer Chemical Plant, including the turning basin, was deauthorized by Sec. 12 of PL 93-251. Construction of lock in diversion dam at local expense is considered inactive.

The 38-36 foot project was completed in 1962. The 45-foot channel was completed in 1993 as follows: Relocation of the U. S. Coast Guard station was completed in May 1990; dredging the channel and turning basin to 36-feet and the Upper Turning Basin to 46-feet was completed in July 1990; dredging the jetty channel and the Lower Turning Basin was completed in November 1990; Construction of 3,700 feet of the North Jetty, was completed in March 1991; dredging the entrance channel was completed in April 1992; dredging the Main channel, Brazosport turning basin and jetty channel was completed in June 1992; construction of public use facilities, and grading and stone protection was completed in August 1992; and rehabilitation of the south jetty and addition of 500-feet to the north jetty was completed in May 1993. Channel adjustments to a bend near the project's main turning basin was completed in 1998 to provide full utilization of the 45-foot channel. Project is essentially complete. Construction of additional recreation features at Surfside by the Local Sponsor is the last remaining item. (See Table 40-G for total cost of existing project to September 30, 2003.)

Under ordinary conditions mean tidal range is about 1.5 feet and extreme range is about 2.5 feet. Except under extreme conditions, rises on river and in diversion channel do not cause greater variations in water surface than those caused by tidal action. Estimated cost of new work is: $63,707,000 Federal (Corps) and $470,000 Federal (USCG); and $32,313,000 non-Federal, including $21,302,000 contributed funds, $300,000 contributed work, $6,967,000 lands, $3,174,000 levees and spillways, and $570,000 relocations. (October 1, 1997 base price.)

Local cooperation. Fully complied with except for Section 101 of River and Harbor Act of 1970, under cost-sharing tenets of the Water Resources Development Act of 1986 and the Water Resources Development Act of 1996. Local Cooperation Agreement, executed June 26, 1986, along with Amendments 1, 2, 3, and 4 executed March 19, 1987; July 19, 1991; July 19, 1991; and July 15, 1997; respectively, require that local interest provide lands, easements, rights-of-way, including land for recreation, and dredged material disposal areas, presently estimated at $10,141,000, modify or relocate utilities, roads, and other facilities, except railroad bridges, where necessary for construction of the project, presently estimated at $570,000, contribute in cash one-half of the separable and joint costs allocated to recreation, presently estimated at $530,000; and, during construction, pay 25 percent of the construction costs allocated to deep-draft navigation, including disposal facility construction, presently estimated at $21,302,000.

Terminal facilities. Small privately owned wharves, two oil docks, one acid dock, two shell unloading docks and one caustic dock. Brazos River Navigation District has one large dock with four transit sheds over rail facilities permitting all-weather work. Facilities considered adequate for existing commerce. (See Port Series No. 26, revised 1991, for additional facilities.)

Operations during fiscal year. New Work: The construction contract to rehabilitate the North Jetty Walkway, awarded January 17, 2002, was completed in November 2002 at a cost of $274,012 Federal (Corps) and $87,487 non-Federal.

Maintenance: Routine maintenance. (See Table 40-J for dredging operations.)

9. GALVESTON HARBOR AND CHANNEL, TX

Location. A consolidation of authorized improvements at Galveston, Texas, which includes projects formerly identified as Galveston Harbor, Texas; Galveston Channel, Texas; and Galveston seawall extension. Entrance to Galveston Harbor is on the Gulf of Mexico on the northern portion of the Texas Coast. Galveston Channel extends from a point in Galveston Harbor between Bolivar Peninsula and Fort Point to and along wharf front Galveston, Texas, and is about 5 miles long and 1,200 feet wide. (See National Ocean Survey Chart 11324/5.)

Previous projects. For details see page 1854 of Annual Report for 1915.

Existing project. Provides for channel dimensions in sections of the waterway shown in Table 40-H.

Also provided are: two rubble-mound jetties, the south one extending from Galveston Island and the north one extending from Bolivar Peninsula, for distances of 35,900 feet and 25,907 feet, respectively, into the Gulf of Mexico; a concrete seawall from the angle at Sixth Street and Broadway, in the city of Galveston, to the south jetty, and a 16,300-foot extension of the concrete seawall in a southwesterly direction from 61st Street; for 11 groins along the gulf shore between 12th Street and 61st Street; and for maintenance of seawall from the angle at 6th Street and Broadway to the south jetty. Under ordinary conditions, mean tidal range in Galveston Harbor is 1.6 feet on outer bar and 1.4 feet on inner bar with extreme ranges of 2.3 and 2.1 feet, respectively. Mean range in Galveston channel is about 1.3 feet and extreme range about 2 feet under ordinary conditions. Height of tides in both Galveston harbor and channel is dependent largely on the wind, and during strong "northers" water surface may be depressed 2 feet below mean low tide.

Existing project is complete. Dredging of Galveston channel to 36-foot depth was completed in November 1966. Dredging of the realigned entrance and Outer Bar Channel was completed in October 1967. Rehabilitation of the Beach Front Groins was completed June 1970. Dredging of Galveston channel to 40 feet was completed in March 1976. See Section 16. TEXAS CITY CHANNEL, TX regarding work authorized by Water Resources Development Act of 1986, Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX, for work authorized by the Water Resources Development Act of 1996. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Complied with.

Terminal facilities. None on Galveston Harbor, which is entrance channel leading to terminal facilities on Galveston, Texas City, and Houston Ship Channels. Galveston Channel terminal facilities are mostly on south side of channel. Principal wharves, owned by the city of Galveston, extend from 10th to 41st Street (see Port Series No. 23, revised 1996). A container ship terminal equipped with a crane capable of stacking containers three units high on the deck of any normal container ship has been completed and placed into operation by the city of Galveston at Piers 10 and 11, on the south side of Galveston Channel. The city of Galveston has also placed into operation a barge terminal equipped with two 35-ton and one 5-ton cranes for loading and unloading barges on Lash and Seabee ships at Pier 35 and a docking and holding area for Lash and Seabee barges on Pelican Island, directly across the channel from Piers 35 and 36. Present facilities are considered adequate for existing commerce.

Operations during fiscal year. New Work: See Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX.

Maintenance: Routine Maintenance. Also see Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX. (See Table 40-J for dredging operations.)

10. GULF INTRACOASTAL WATERWAY BETWEEN APALACHEE BAY, FL, AND THE MEXICAN BORDER

Location. Extends from a point on Sabine River about 3 miles below Orange, Texas, to Brownsville, Texas, about 421 miles; a navigation channel, about 7 miles long, in Colorado River, extending from Matagorda, Texas, to Gulf of Mexico; a tributary channel in San Bernard River, extending from Intracoastal Waterway crossing to State highway bridge some 30 miles above crossing; a tributary channel in Colorado River extending from Intracoastal Waterway upstream 15.5 miles; a tributary channel extending about 14 miles from Intracoastal Waterway to Palacios, Texas; a tributary channel extending about 2 miles from Intracoastal Waterway to Rockport, Texas; a tributary channel extending about 6 miles from Intracoastal Waterway near Port Aransas, Texas, to town of Aransas Pass, Texas; a tributary channel about one-fourth mile long extending from Intracoastal Waterway near Port O'Connor, Texas, into Barroom Bay; a tributary channel extending about 38.8 miles from Intracoastal Waterway via Seadrift to a point in Guadalupe River 5.5 miles below Victoria, Texas; a harbor of refuge for small craft at Seadrift; a channel extending from gulf to Port Mansfield, Texas, about 11 miles; and a tributary channel in Arroyo, Colorado extending from Intracoastal Waterway to a point near Harlingen, Texas, about 31 miles; side channels in vicinity of Port Isabel, Texas, and a small boat basin at Port Isabel, Texas, and a tributary channel extending from Intracoastal Waterway main channel at a point in West Galveston Bay into Offatts Bayou about 2.2 miles with a west turnout (wye connection) 12 feet deep and 125 feet wide between Offatts Bayou Channel and the Gulf Intracoastal Waterway. (See National Ocean Survey Charts 11302, 11303, 11305, 11306, 11308, 11309, 11314, 11315, 11317, 11319, 11322, 11326, and 11331.)

Previous project. For details see page 1859 of Annual Report for 1915. (West Galveston Bay and Brazos River Canal, Texas.)

Existing project. Existing project dimensions provided for in main channel of waterway: A channel 12 feet deep (below mean low tide) and 125 feet wide

from the Sabine River to Brownsville, Texas. Relocation of channel 12 feet deep by 125 feet wide in Matagorda Bay, miles 454.3 to 471.3, relocation of channel 12 feet deep by 125 feet wide in Corpus Christi Bay, miles 539.4 to 549.7 (mileage is west of Harvey Lock, Louisiana); and alternate channel, 12 feet deep (below mean low tide) and 125 feet wide via Galveston Channel and Galveston Bay to the Galveston causeway; maintenance of existing channel 12 feet deep by 125 feet wide through Lydia Ann Channel, between Aransas Bay and Aransas Pass; provisions of such passing places, widening of bends, locks and guard locks, railway bridges over artificial cuts as are necessary, and the tributary channels shown in tabulation. The authorized channel 16 feet deep and 125 feet wide from Sabine River to Houston Ship Channel is inactive. (See Table 40-I on existing project dimensions provided for in tributary channels.)

Removal of the railroad bridge across the canal at Mud Bayou was completed and operation and care of the facility was discontinued on April 14, 1969. Deepening the existing 6 foot by 60 foot side channels at Port Isabel to 12 feet was completed February 22, 1972, Offatts Bayou channel was completed January 1974. Relocation of main channel across Corpus Christi Bay was completed in September 1976. The 14-foot by 175 foot Channel to Aransas Pass was completed in April 1979. Dredging Chocolate Bayou Channel was completed in January 1981. Construction of a saltwater barrier in Chocolate Bayou was completed in February 1981. The 12-foot by 125-foot channel relocation route in Matagorda Bay has been deauthorized. The Harbor of Refuge at Seadrift, Texas, has been placed in the inactive category.

Mouth of Colorado River: Construction of jetties at mouth of Colorado River was completed in 1986. Construction of a navigation channel from the Gulf to the GIWW and an impoundment basin were completed in 1991. Construction of Tiger Island Dam and recreation facilities were also completed in 1991. Construction of the recreation facilities at Jetty Park was completed in 1992. Construction of the diversion dam and connecting channel was completed in 1993. Construction of the oyster cultch was completed in 1995.

Brazos River Floodgates- Major Rehabilitation: Major rehabilitation of the East Floodgate Guidewalls was completed in 1997. The cost of rehabilitation was $2,750,000 Federal (Corps) and $2,750,000 Federal (Inland Waterways Trust Fund).

Sargent Beach: Work authorized by the Water Resources Development Act of 1992 for construction of a concrete-pile and concrete block revetment structure, which extends 8 miles to protect the Gulf Intracoastal Waterway was completed in 1998. Construction cost was $29,460,000 Federal (Corps) and $29,460,000 Federal (Inland Waterways Trust Fund).

Aransas National Wildlife Refuge: Work authorized by the Water Resources Development Act of 1996 provides for erosion protection and limited spill containment for the existing alignment of the Gulf Intracoastal Waterway and includes marsh creation with beneficial uses of dredged material along a 31-mile reach of the waterway which crosses the critical wintering habitat of the rare and endangered whooping crane, including a 13.25 mile reach within the boundary of the Aransas National Wildlife Refuge. This area is located approximately 35 miles northeast of Corpus Christi, Texas in Aransas and Calhoun Counties. The project was completed in 2001. Construction costs were $14,123,500 Federal (Corps).

Work remaining:

Active authorized work remaining consists of the work authorized by the Water Resources Development Act of 1988 for enlarging the existing Channel to Victoria from a depth of 9 feet and width of 100 feet to a depth of 12 feet and width of 125 feet. (See Table 40-G for total cost of existing project to September 30, 2003.)

Mean tidal variation is 0.5 foot at Orange, 1 foot at Port Arthur, 1.3 feet in Galveston Bay, 1.5 feet at Freeport, 1 foot in Matagorda Bay, 1 foot in San Antonio Bay, 1 foot at Corpus Christi, 1.5 feet at Port Isabel, and 1.5 feet at Brownsville. Extreme ranges of tide under ordinary conditions are 1 foot at Orange, 1.5 feet at Port Arthur, 2 feet in Galveston Bay, 2 feet at Freeport, 1.5 feet in Matagorda and San Antonio Bays, 1.5 feet at Corpus Christi, 2 feet at Port Isabel, and 1.5 feet at Brownsville. Height of tides is dependent largely on wind. Strong north winds have depressed water surface as much as 2 feet below mean low tide.

Estimated cost for new work is:

Channel to Victoria - $31,686,000 Federal (Corps), $422,000 Federal (Department of Transportation), $62,000 Federal (U.S. Coast Guard), and $6,530,000 non-Federal consisting of $3,521,000 cash, $1,646,000 lands, and $1,363,000 levees and other associated costs. (October 1, 2002 base prices.)

Local cooperation. Fully complied with except for provisions of Section 101, 1968 River and Harbor Act and Water Resources Development Act of 1988. The Project Cooperation Agreement for Channel to Victoria was executed November 17, 1994.

Terminal facilities. There are terminal facilities at Aransas Pass, Port Arthur, Galveston, Port Isabel, and Brownsville. See Port Series No. 22 (revised 2001), Port Series No. 23 (revised 1996), Port Series No. 25 (revised 1993) and Port Series No. 26 (revised 1991), Corps of Engineers. Local interests constructed terminal

facilities at Port Mansfield and Port Harlingen. There are numerous privately owned piers and wharves along the waterway. A 330-foot navigation district owned general cargo dock, a 770-foot private dock and a 760-foot private timber trestle have recently been completed at the upper end of the Channel to Victoria. Facilities are adequate for existing commerce.

Operations during fiscal year.

New Work: -

Channel to Victoria - The construction contract awarded September 20, 2000, for dredging Stations 1300+00 to 1841+21.69 was completed in 2003 at a fiscal year cost of $333,925. A construction contract to construct a new mitigation feature and repair an existing one was awarded September 2002. Work continued through FY 2003 at a cost of $117,170.

Prehistoric archeological site 41VT98 on the Channel to Victoria has produced artifacts dating from 1,000 to 12,000 years old, and a large Early Archaic cemetery dating from 5,000 to 7,000 years old. Analysis of the 41VT98 artifacts and mortuary remains is ongoing in accordance with the approved treatment plan.

Maintenance: -

Main Channel and Tributaries - The cost incurred for 2003 for Dredged Material Management Plans was $298,589 for Corpus Christi to Port Isabel. Erosion protection for levees along the Gulf Intracoastal Waterway was performed during FY 03 for the following reaches:

South $1,904,045

High Island to Bastrop Bayou - $1,281,770

(See Table 40-J for dredging operations.)

Aransas National Wildlife Refuge – No maintenance required in FY 03.

Brazos River Floodgates - The Brazos River Floodgates were operated and maintained at a cost of $1,282,211.

Channel to Victoria – Routine maintenance. (See Table 40-J for dredging operations.)

Colorado River Locks - The Colorado River Locks were operated and maintained at a cost of $1,313,850.

Channel to Port Mansfield – No maintenance required for FY03.

Chocolate Bayou – No maintenance required for FY03.

Mouth of Colorado River – Routine maintenance. (See Table 40-J for dredging operations.)

11. HOUSTON-GALVESTON NAVIGATION CHANNELS, TX

Location. Houston Ship Channel connects Galveston Harbor, at a point opposite Port Bolivar, with city of Houston, Texas, extending 50 miles northwesterly across Galveston Bay through San Jacinto River and Buffalo Bayou to a turning basin at head of Long Reach with light-draft channel 5 miles long from turning basin to Jensen Drive, Houston. The entrance to Galveston Harbor and Channel is on Gulf of Mexico on the northern portion of the Texas Coast. Galveston Channel extends from a point in Galveston Harbor between Bolivar Peninsula and Fort Point to and along wharf from Galveston, Texas and is about 5 miles long and 1,200 feet wide. (See National Ocean Survey Charts 11324/5, 11327, 11328, and 11329.)

Existing project. See Section 9, GALVESTON HARBOR AND CHANNEL, TX and Section 12, HOUSTON SHIP CHANNEL, TX for project prior to October 1998. New authorized project provides for enlarging the Houston Ship Channel to a depth of 45 feet and a width of 530 feet. The Galveston Channel will be enlarged to a dept of 45 feet over a width which varies between 650 and 1,112 feet, and deepening the Galveston Harbor Channel to 47 feet (45-feet authorized and 2 feet for dredging inaccuracies and wind impact) over its original 800-foot width and 10.5 mile length; and extending the channel an additional 3.9 miles to the 47-foot bottom contour in the Gulf of Mexico along existing alignment. A dredged-material disposal plan, which would utilize confined or beneficial uses of dredged material in the bay and/or offshore disposal and 118 acres of Oyster mitigation is also provided in the project.

Energy and Water Development Appropriations Act of 2001, Section 1(a)(2) of Public Law 106-377 authorized construction of barge lanes. Barge lanes will be constructed on the sides of the Houston Ship Channel to a depth of 12 feet and a distance of 500 feet from the centerline of the channel from Bolivar Roads to Morgan's Point, a distance of approximately 26 miles. Fifty-four acres of oyster reef will be impacted and will be mitigated.

Estimated cost for new work is: $419,577,000 Federal (Corps) which includes $94,950,000 for deferred environmental construction; $4,267,000 Federal (U.S. Coast Guard); and $147,429,000 non-Federal consisting of $74,747,000 cash, $1,061,000 lands, and $60,000 relocations for general navigation features; $9,896,000 for berthing areas; and $61,665,000 cash for environmental restoration which includes $31,650,000 for deferred environmental construction. (October 1, 2003 base price.)

The first construction contract to dredge the Entrance Channel Extension, awarded August 7, 1998,

was completed in 1999. The contract for dredging the entrance channel and jetty area was completed in March 2000. The Oyster Reef Mitigation for the main channel was completed in July 2000. Construction of the Lower Bay reach was completed in March 2001. A contract for Mid Bay was awarded September 8, 2001 and work continued through FY 2003. The construction contract for Redfish Island was awarded March 29, 2002 and construction was completed October 1, 2002. A contract for Mid Bayou (Goat Island) was awarded September 20, 2002, and work continued through FY 2003. The Lower Bayou contract had the NTP issued on April 28, 2000 and work continued through FY 2003. Remaining work consists of completing construction of the Mid Bay and Mid Bayou (Goat Island) reaches, redredging of the Jetty and Entrance Channels and portions of Mid-Bay, Upper Bay, and Upper Bayou reach to reestablish the proper channel depth to allow it to be opened up to 45-foot traffic and creation of marsh sites at Lower Bay, Mid Bay and Upper Bay disposal areas, and creation of barge lanes and mitigation.

Also, the Project Cooperation Agreement and an evaluation of the Economic Benefits for the Galveston Channel remain to be accomplished.

Local cooperation. Complied for the completed work. For the Houston-Galveston Navigation Channels project, authorized by the Water Resources Development Act of 1996, the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, apply. Local interests are required to provide lands, easements, rights-of-way, roads and other facilities, except railroad bridges; pay one-half of the separable and joint costs allocated to recreation; and pay 25 percent of the costs allocated to deep-draft navigation, during construction including in-kind work in connection with construction; and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion if not offset by credit allowed for lands, easements, rights-of-way, and relocations.

The Port of Houston Authority and the City of Galveston are the sponsors for the project. A Project Cooperation Agreement with the Port of Houston Authority was executed on June 10, 1998. The Project Cooperation Agreement with the City of Galveston is pending.

Terminal facilities. See Section 9, GALVESTON HARBOR AND CHANNEL, TX and Section 12, HOUSTON SHIP CHANNEL, TX.

Operations during fiscal year. New Work: The contract to dredge Lower Bayou, awarded April 21, 2000, was stopped in October 2001 and resumed in FY 2003 for a cost of $9,937,078. The Mid Bay construction contract, awarded September 28, 2001, continued through FY 2003 at a cost of $34,597,136. A contract for Redfish Island, awarded March 29, 2002 was completed in FY03 for a final cost of $409,663. The Mid Bayou (Goat Island) contract, awarded September 20, 2002 continued through FY03. Cost incurred for FY03 was $16,101,773. Geotubes were placed along Bolivar Marsh in FY03 at a cost of $585,269.

Maintenance: See Section 9, GALVESTON HARBOR AND CHANNEL, TX and Section 12, HOUSTON SHIP CHANNEL, TX for maintenance of existing channels. (See Table 40-J for dredging operations.)

12. HOUSTON SHIP CHANNEL, TX

Location. Connects Galveston Harbor, at a point opposite Port Bolivar, with city of Houston, Texas, extending 50 miles northwesterly across Galveston Bay through San Jacinto River and Buffalo Bayou to a turning basin at head of Long Reach with light-draft channel 5 miles long from turning basin to Jensen Drive, Houston. (See National Ocean Survey Charts 11324/5, 11327, 11328, and 11329.)

Previous project. For details see page 1856 of Annual Report for 1915.

Existing project. Provides for channel dimensions in sections of the waterway shown in Table 40-H.

Also provides for certain cut-offs, for easing sharp bends, an earthen dam across the upper end of Turkey Bend, and for off-channel silting basins as deemed necessary by the Chief of Engineers. Construction of 26,000 linear feet of pile dike to protect the channel in upper Galveston Bay was deauthorized by Sec. 12 of PL 93-251. The 40-foot project was completed in March 1966. Dredging a channel in Greens Bayou to Mile 1.57 was completed in 1970. Dredging Greens Bayou, Mile 1.57 to Mile 2.73, has been deauthorized. See Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX for work authorized by the Water Resources Development Act of 1996. (See Table 40-G for total cost of existing project to September 30, 2003.)

Mean tidal range under ordinary conditions is 0.6 foot to 1.3 feet in lower part of Galveston Bay; 0.6 foot to 1.3 feet in upper bay; and 0.5 to 1 foot in San Jacinto River and Buffalo Bayou. Extreme ranges under ordinary conditions are about 2 feet, 1.2 feet and 1 foot, respectively. Freshets caused rises of over 12 feet in Buffalo Bayou; however, this condition has not occurred since completion of Addicks and Barker Dams for flood control on upper watershed of Buffalo Bayou. Height of tides is dependent largely on the wind, and during strong "northers" in winter season, the water surface may be depressed 2 feet below mean low tide.

Local cooperation. Fully complied with for Houston Ship Channel. Local Cooperation Agreement

for assumption of maintenance on Bayport Ship Channel was executed April 6, 1993. Local Cooperation Agreements for assumption of maintenance on Barbour Terminal Channel and Greens Bayou Channel were both executed on February 8, 1994.

Terminal facilities. City of Houston and Port of Houston Authority operate modern terminals which supplement privately owned wharves, piers, and docks, as described in Port Series No. 24 (revised 1999), Corps of Engineers. Facilities are considered adequate for existing commerce.

Operations during fiscal year. New Work: See Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX.

Maintenance: A contract to rehabilitate the House Tract Placement Area was awarded September 27, 2003 and continued through FY03 at a cost of $2,562,000. Routine dredging maintenance. (See Table 40-J for dredging operations.) Also, see Section 11, HOUSTON-GALVESTON NAVIGATION CHANNELS, TX.

13. MATAGORDA SHIP CHANNEL, TX

Location. This is a consolidation of shallow draft channel improvements of "Channel from Pass Cavallo to Port Lavaca, Texas," and deep draft channel improvements authorized under "Matagorda Ship Channel, Texas." Bar at Pass Cavallo is 125 miles southwest of Galveston entrance and 54 miles north of Aransas Pass. It connects Matagorda Bay with the gulf. Project extends across Matagorda Bay and Lavaca Bay to towns of Port Lavaca and Point Comfort. These two towns are on opposite sides of Lavaca Bay and both are about 26 miles northwest from Pass Cavallo. (See National Ocean Survey Chart 11316.)

Existing project. Existing project dimensions provided for in various channels and basins are listed in Table 40-H on channel dimensions.

Project also provides for dual jetties at entrance, south jetty extending 6,000 feet to 24-foot depth in the gulf and north jetty extending 5,900 feet to 24-foot depth. Under ordinary conditions mean tidal range is about 1 foot and extreme range about 2 feet. Height of tide is dependent largely on the wind, and during strong "northers" in the winter season, the water surface may be depressed 2 feet below mean low tide. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Fully complied with.

Terminal facilities. Privately owned facilities at Port Lavaca, municipally owned facilities at mouth of Lynn bayou, privately owned and publicly owned facilities at Point Comfort, Texas. These facilities are considered adequate for present commerce. Facilities at Point Comfort consist of a channel, turning basin with wharfs, oil dock and loading equipment, all owned by Aluminum Company of America; and a wharf built by local interest at Point Comfort turning basin.

Operations during fiscal year. Maintenance: Routine maintenance. (See Table 40-J for dredging operations.)

14. NECHES RIVER AND TRIBUTARIES, SALT WATER BARRIER AT BEAUMONT TX

Location. The project is located just below the Big Thicket National Preserve and the confluence of Pine Island Bayou and the Neches River at Beaumont, Texas, in Jefferson and Orange Counties on the upper coast of Texas. (See National Ocean Survey Chart 11343.)

Existing project. The project will provide for an overflow dam in the Neches River, a gated salt water barrier consisting of five 56 feet by 24.5 feet tainter gates; a gated navigation bypass channel with a clear opening of 56 feet and a depth of 16 feet; an access road and levee; and an auxiliary dam across a canal which drains an adjacent bayou. Estimated cost for new work is $43,064,000 Federal (Corps) and $14,355,000 non-Federal consisting of $8,435,000 contributed funds, $1,800,000 for lands, $4,120,000 for relocations. (October 1, 2002 base price.)

The project was authorized for construction in the Water Resources Development Act of 1976 (Sec. 102, PL 94-587). The construction contract was awarded September 18, 2000 and work continued through FY 02.

Local cooperation. Local Sponsor for the project is the Lower Neches Valley Authority. Report of the Chief of Engineers for the Water Resources Development Act of 1976 authorization cited a 1974 Waterways Experiment Station report, which concluded that 75 percent of the salinity in the Neches River at Beaumont was due to the Federal deep draft navigation project to Beaumont and 25 percent was due to withdrawals by water users. From 1994 to 1996, the Corps reevaluated the project which resulted in a May 1997 decision by the Assistant Secretary of the Army (Civil Works), to direct that the project go forward with 75 percent Federal / 25 percent non-Federal cost-sharing as a navigation mitigation project. In October 1999, the Assistant Secretary of the Army (Civil Works) issued a decision stating that operations and maintenance will also be cost-shared as 75 percent Federal and 25 percent non-Federal. A Project Cooperation Agreement was executed on May 22, 2000.

Terminal facilities. None.

Operations during fiscal year. New Work: The contract to construct the saltwater barrier and the other project features, awarded September 18, 2000, continued

through FY 03. Cost incurred for the fiscal year was $7,188,511. Three utility relocation contracts were issued and completed in FY 02. Financial adjustments of these contracts were incurred in FY 03 as follows:

Dixie Pipeline Co. - $76,542

Entergy Services, Inc. – (-) $119,193

El Paso Energy Intrastate, L.P. - $46,972

A fourth utility relocation contract was completed in FY 03 as follows:

Dow/Cayouse $1,090,000

15. SABINE-NECHES WATERWAY, TX

Location. This is a consolidation of old improvements of "Harbor at Sabine Pass and Port Arthur Canal" and "Sabine-Neches Canal, including Sabine River to Orange and Neches River to Beaumont, Texas." Sabine Pass is on Gulf of Mexico about 58 miles east of Galveston and 280 miles west of Southwest Pass, Mississippi River. It connects Sabine Lake with gulf. Port Arthur canal extends 7 miles from near upper end of Sabine Pass to Port Arthur docks at mouth of Taylors Bayou. Near its upper end, Sabine-Neches canal joins and extends to mouths of Neches and Sabine Rivers. Waterway next extends up Neches River to Beaumont and up Sabine River to Orange. (See National Ocean Survey Charts 11341, 11342, and 11343.)

Previous projects. For details see page 1863 of Annual Report for 1915, page 985 of Annual Report for 1916, and page 873 of Annual Report for 1926.

Existing project. Existing project dimensions provided for in various channels and basins are set forth in Table 40-H on channel dimensions. Project also provides for two stone jetties at Sabine Pass entrance from the gulf, western jetty to be 21,905 feet long and eastern jetty 25,310 feet long. Project further provides for removal of guard lock in Sabine-Neches Canal, construction of suitable permanent protective works along Sabine Lake frontage owned by city of Port Arthur to prevent dredged material from entering Sabine Lake and to prevent erosion of material deposited, reconstruction of Port Arthur Bridge, and relocation of Port Arthur field office. Mean tidal variation at entrance is about 1.5 feet, at Port Arthur about 1 foot, and at Orange and Beaumont about 0.5 foot. Prolonged north winds during winter season have depressed water surface as much as 3.4 feet below mean low tide while tropical disturbances have caused heights as much as 8 feet above mean low tide.

Existing project is complete. Removal of obstructive bridge at Port Arthur was completed May 1969. The high level fixed bridge across Sabine-Neches Canal was completed October 1970. Deepening project to 40 feet was completed April 1972. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. Complied with.

Terminal facilities. See volume 2, Port Series No. 22 (revised 2001), Corps of Engineers. Facilities are considered adequate for present commerce.

Operations during fiscal year. Maintenance: Routine Maintenance. Mosquito control spraying was performed in FY 03 for $26,635. (See Table 40-J for dredging operations.)

16. TEXAS CITY CHANNEL, TX

Location. Texas City is on the mainland of Texas on west side of Galveston Bay, about 10 miles northwest of city of Galveston. (See National Ocean Survey Charts 11324/5.)

Previous projects. For details see page 1856 of Annual Report for 1915.

Existing project. Provides for channel 40 feet deep, 400 feet wide and about 6.75 miles long, from Bolivar Roads to a turning basin at Texas City, 40 feet deep, 1,000 feet to 1,200 feet wide and 4,253 feet long; and an Industrial Canal, 40 feet deep and 300-400 feet wide extending a distance of 1.7 miles southwestward from the south end of Texas City Turning Basin, and a turning basin, 40 feet deep, 1,000 feet wide and 1,150 feet long.

Project also provides for easing the approach to the turning basin; a pile dike 28,200 feet long, parallel to and north of the channel; and a rubble-mound dike, 27,600 feet long, along the southerly side of the pile dike.

The 40-foot channel was completed in June 1967. Widening the Texas City Turning Basin; realigning the Texas City Turning Basin to a location 85 feet easterly from its present position; and enlargement through widening and deepening of the Industrial Canal and basins was initiated in July 1980 and completed in June 1982. The only work remaining is deferred construction consisting of widening the Industrial Canal from 250 feet to 300 feet at 40 foot depth.

Work authorized by Water Resources Development Act of 1986 would modify the project by providing for deepening the Texas City Turning Basin to 50 feet, enlarging the 6.7-mile long Texas City Channel to 50 feet by 600 feet, deepening the existing 800-foot wide Bolivar Roads Channel and Inner Bar Channel to 50 feet, deepening the existing 800-foot wide Outer Bar and Galveston Entrance Channel to a 52-foot depth for 4.1 miles at a width of 800 feet and an additional reach at a width of 600 feet to the 52 foot contour in the Gulf of Mexico. Establishment of 600 acres of wetland and development of water-oriented recreational facilities on

a 90-acre enlargement of the Texas City Dike are also proposed. The project is currently under reevaluation. (See Table 40-G for total cost of existing project to September 30, 2003.)

Under ordinary conditions mean tidal range is about 1.3 feet and extreme range is about 2 feet. Height of tide is dependent largely on the wind and during strong "northers" water surface may be depressed 2 feet below mean low tide. Estimated cost for new work is $123,300,000 Federal (Corps), excluding expenditures on previous projects, and $74,393,700 non-Federal, including $62,027,741 contributed funds, $248,000 work contribution, $427,959 lands, $10,737,000 levees and spillways, $6,000 for removal of barge mooring facilities from Shoal Point (formerly known as Snake Island), $561,000 for berthing areas, and $386,000 relocations. (October 1, 1988 base price.)

Local cooperation. Fully complied with for completed work. For work authorized by the Water Resources Development Act of 1986, as amended, local interests are required to provide lands, easements, rights-of-way, and disposal areas; relocate utilities, roads, and other facilities, except railroad bridges; provide berthing areas; pay one-half of the separable and joint costs allocated to recreation; and bear all costs of operation, maintenance and replacement of recreation facilities, and, during construction, pay 25 percent of the costs allocated to deep-draft navigation to a depth of 45 feet plus 50 percent of the costs allocated to deep-draft navigation deeper than 45 feet; pay an additional 10 percent of the costs allocated to deep-draft navigation within a period of 30 years following completion if not offset by credit allowed for lands, easements, rights-of-way, relocations and disposal areas; and pay 50 percent of the costs incurred for operation and maintenance below the 45-foot depth.

Terminal facilities. Privately owned terminal facilities are on the mainland at inner end of this channel and are considered adequate for existing commerce. A deep-draft channel and turning basin extend about 1.9 miles southwestward from south end of Texas City Turning Basin have been constructed by local interests. See Port Series No. 23 (revised 1996), Corps of Engineers.

Operations during fiscal year. Maintenance: No maintenance required for FY03.

17. TRINITY RIVER AND TRIBUTARIES, TX

Location. The main stem of the Trinity River is formed at Dallas by the confluence of the West Fork and the Elm Fork at river mile 505.5. The mouth of the Trinity is about one-half mile west of Anahuac, Texas. (See Geological Survey base map, Texas, scale 1:500,000.)

Previous project. For details of abandoned locks and dam construction see page 986 of Annual Report for 1933.

Existing project. See individual detailed reports on Anahuac Channel, Channel to Liberty and Wallisville Lake. Project includes the existing Federal project designated as "Mouth of Trinity River, Texas," which was completed in 1907 at a cost of $80,000 (no cost to local interest). Project is not being maintained. (See Table 40-G for total cost of existing project to September 30, 2003.)

Local cooperation. See individual detailed reports on Channel to Liberty and Wallisville Lake. There is no local cooperation required for Anahuac Channel.

Terminal facilities. Privately owned wharves and piers at Anahuac, Moss Bluff, Wallisville, and Liberty, Texas, are adequate for existing commerce.

17A. ANAHUAC CHANNEL, TX

Location: Extends from 6-foot depth in Galveston Bay to Anahuac, Texas, opposite mouth of Trinity River 38 miles north of Galveston, Texas. (See National Ocean Survey Chart 11323.)

Existing project. No project dimensions authorized by 1905 River and Harbor Act. A 6- by 80-foot channel, 16,000 feet long was dredged in 1905. At present a 6-by 100-foot channel is maintained. Under ordinary conditions tidal range is 0.6 to 1.2 feet. Height of tide is dependent largely on wind. Strong north winds depress water surface 1.5 feet below mean sea level. Latest published map is in House Document 440, 56th Congress, 1st Session. Project was completed in 1911.

Local cooperation. None required.

Terminal facilities. Privately owned wharves and piers are the only terminal facilities at Anahuac.

Operations during fiscal year. Maintenance: No work was incurred during the fiscal year.

17B. CHANNEL TO LIBERTY, TX

Location. Improvement is located in Galveston Bay and tidal reach of lower Trinity River. (See Geological Survey Maps for Anahuac, Cove, Moss Bluff, and Liberty, Texas.)

Previous projects. For details see page 986 of Annual Report for 1932.

Existing project. Provides for a 6-foot channel from Anahuac to Liberty, which was completed in 1925. A navigable channel from the Houston Ship Channel near Red Fish Bar in Galveston Bay to Liberty, Texas, with depth of 9 feet and width of 150 feet, extending along the east shore of Trinity Bay to the mouth of the

Trinity River at Anahuac, thence in the river channel to a turning basin at Liberty, Texas, and a protective embankment along the west side of the channel in Trinity Bay.

The 6-foot Channel to Liberty was completed in 1925. The 9-foot Channel to Liberty has been dredged from junction with Houston Ship Channel to a point one mile below Anahuac, Texas. Work remaining consists of dredging a 9- by 150-foot channel from one mile below Anahuac, Texas to Liberty, Texas.

Local cooperation. Fully complied with for portion of "Channel to Liberty" between Houston Ship Channel and 1 mile below Anahuac, Texas, as required by 1946 River and Harbor Act (H. Doc. 634, 79th Cong., 2nd Sess.), but not complied with for remaining portion of "Channel to Liberty" as required by River and Harbor Act of 1945 (H. Doc. 403, 77th Cong., 1st Sess.).

Terminal facilities. Privately owned wharves and docks at Anahuac, Wallisville, Texas Gulf Sulphur Co.'s slip, Moss Bluff and Liberty, Texas, are adequate for existing commerce.

Operations during fiscal year. Maintenance: No maintenance required for FY03.

17C. WALLISVILLE LAKE, TX

Location. Dam is at river mile 3.9, about 4 miles northwest of Anahuac, Texas. (See National Ocean Survey Chart 11323.)

Existing project. Provides for construction of a dam and overflow spillway approximately 8 miles long to prevent salinity intrusion and create a 3,800 acre reservoir. The maximum pool elevation will be 2 feet above National Geodetic Vertical Datum. (The reservoir was reduced from 5600 acres with a maximum pool elevation of 4 feet N.G.V.D. by agreement to protect the endangered bald eagle.) Project provides for an 84 foot by 600-foot navigation lock to facilitate navigation on Channel to Liberty. The sill has a depth of minus 16 feet below National Geodetic Vertical Datum. Project also provides for two recreational areas; and three water control structures to control salinity intrusion and regulate freshwater flows to the saltwater marsh west of the river. Dam controls a drainage area of 1,262 square miles below Livingston Dam (non-Federal project at channel mile 99.2) and has a storage capacity of 14,000 acre-feet. Under ordinary conditions mean tidal range in bay is from 0.6 foot to 1.2 feet. Height of tide is dependent largely on wind. Strong northerly winds depress water surface 1.5 feet below mean sea level. Total estimated cost of authorized project is $81,200,000 Federal (Corps). (October 1, 2000 base price.)

A contract for construction of access road, Big Hog intake structure, intake canal and access bridge was completed in October 1968. Work started in July 1970 on construction of the lock and dam, roads, diversion channel, and navigation channel. Work was suspended in February 1973 because of an injunction halting construction. Protective work on the lock and dam was permitted and was completed in April 1973. An exception to the injunction was granted for plugging oil wells, which was completed in August 1973. Notice of appeal to the Court of Appeals for the Fifth Circuit was filed in April 1973. In August 1974, the Court of Appeals reversed the judgment and remanded the case with directions that a revised or supplemental statement be prepared and judged anew. Final supplement to the Environmental Impact Statement for the modified project authorized in the Supplemental Appropriations Act, 1983 (PL 98-63) was submitted to the Environmental Protection Agency on September 21, 1983.

In March 1986, the Court rendered its Memorandum of order continuing the injunction and directing the Corps to recommence the administrative process at the time when the first departure from standard NEPA procedures occurred prior to the 1983 legislative action. The Corps and Local Sponsors perfected an appeal to the U.S. Court of Appeals and on May 11, 1987, the Court of Appeals ruled in favor of the Corps and dismissed the suit in its entirety.

The Energy and Water Development Appropriation Act of 1991 provided $9,200,000 for the project and directive language for continuation of construction.

In the fall of 1989, a pair of bald eagles was discovered nesting at the project site, which led to additional consultation under the Endangered Species Act. Solicitation of the contract for the non-overflow dam was postponed to allow for environmental coordination. An Environmental Assessment was prepared with a Finding of No Significant Impact (FONSI), which was signed in September 1991. Environmental documents were approved and construction was resumed.

A contract to rehabilitate and complete the navigation lock, complete the North and South navigation channels, construct a new administrative/resident office building, and electrical and mechanical equipment controls for the controlled spillway structure was awarded in December 1995 and completed in FY 99. A dedication ceremony for the Wallisville Lake Project was held on November 1, 1999.

Construction of Control Structure A was completed in February 2000 and Cedar Hill Park was completed in October 2000. In 2001 remediation of the abandoned dam, removal of skimmers, repairs to the West-Non-Overflow dam and construction of public-use facilities were completed.

Site improvements consisting of replacement of timbers, construction of a boat ramp and dock, new fencing, walkways and improvements to parking lots were completed in 2003. The project is essentially complete.

Local cooperation. Local interest must contribute an amount equal to cost allocated to water supply, one-half of cost allocated to salinity control and cost allocated to recreation less cost of basic facilities and less 15 percent of total project cost. Local interest reimbursement is estimated at $12,200,000.

Operations during fiscal year. New Work: The construction contract for site improvements, awarded September 18, 2002 was completed in 2003 at a cost of $1,044,696. These improvements consisted of new fencing, gates, walkways, site furnishings, parking, striping, drinking fountains, boat ramps and docks. The contract for constructing public use facilities, awarded September 17, 2002, also completed in FY 03. Cost incurred was $865,420.

Maintenance: The Wallisville Lake Project was turned over for permanent operations at the beginning of FY 00. The project was operated and maintained at a cost of $1,118,309.

18. RECONNAISSANCE AND PROJECT CONDITION SURVEYS

Reconnaissance and condition surveys were conducted in FY 2003 at a total cost of $30,192.

19. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization):

Initial coordination for Section 107 navigation activities was performed in FY 03 at a cost of $10,125.

A Milestone Report was completed in June 2002 on Galveston Island Channel for the extension of a shallow draft channel on the west end of Galveston Channel. Project estimated cost is $6.5 million which exceeds the Continuing Authorities Programs' limit by $2.5 million. Project is on hold at the City of Galveston Harborside Management District's (the project sponsor) request.

Mitigation of shore damages attributable to navigation projects pursuant to Section 111, Public Law 90-483:

No mitigation of shore damages studies was performed in FY 2003.

Shore Protection

20. NATIONAL EROSION CONTROL DEVELOPMENT AND DEMONSTRATION PROGRAM , JEFFERSON COUNTY, TX

Location. The project location fronts the McFadden National Wildlife Refuge in the vicinity of Sea Rim State Park in Jefferson County, Texas. Beaches at the demonstration consist of a thin veneer of sand over mud and the average long-term annual erosion rate is approximately 5 feet.

Existing Project. The primary objectives of the project are to minimize erosion of the cohesive sediment and to minimize sand overwash. These objectives will be accomplished by constructing experimental low-volume beach nourishment templates contained by geotextile tube groin cells and dune construction. The 2,500 ft-long dune is designed to withstand a 5-year return period storm. Fronting half of the engineered dune corridor is a beach nourishment divided into four experimental cells of varying fill volumes and grain sizes. A geotextile tube groin separates each experimental cell. Estimated cost of new work is $1,231,222 Federal (Corps).

Local Cooperation. A Memorandum of Agreement (MOA) has been executed with the Texas General Land Office (GLO). The project is awaiting a Coastal Lease Permit from GLO.

Operation During Fiscal Year. Construction is anticipated in 2004 along with initial project monitoring

Flood Control

21. BUFFALO BAYOU AND TRIBUTARIES, TX

Location. Improvements are on Buffalo Bayou watershed, a part of San Jacinto River watershed, in Harris County, west and northwest of city of Houston, Texas. (See Geological Survey quadrangle sheets for Harris County.)

Existing project. Provides for improvements of Buffalo Bayou and its tributaries above turning basin of Houston Ship Channel to control floods for protection of city of Houston, and prevent deposition of silt in turning basin of ship channel by construction of detention reservoirs, enlargement and rectification of channels and construction of control works.

Channel rectification on Brays Bayou with an improved channel length 25.4 miles was completed in March 1971. Channel rectification on White Oak Bayou was completed in 1976. Work remaining consists of

rectification of approximately 22 miles of main stem of Buffalo Bayou.

See individual detailed reports on Addicks and Barker Reservoirs; and Brays, Greens, Halls, Hunting, Little White Oak, and Carpenters Bayous.

Local cooperation. Section 203, 1954 Flood Control Act applies. Local interests have accomplished all required local cooperation on Brays Bayou and White Oak Bayou. On Buffalo Bayou, local interests purchased interests that the United States had in 7 miles of rectified channel below Barker and Addicks Dams for $256,651. Of the remaining required rights-of-way on Buffalo Bayou, local interests have acquired about 40 percent. About 53 percent of required bridge relocations and 3 percent of the required bridge relocations have been accomplished. Advance of $4,400,000 by the Harris County Flood Control District was refunded in September 1956. Public Law 86-53 authorized reimbursement of $38,726 to Galveston, Houston and Henderson Railroad Company for bridge alterations at Brays Bayou. Non-Federal contributions totaled $63,661 for project betterment. Recreation development is subject to conditions of non-Federal cost sharing under Federal Water Project Recreation Act of 1965.

See individual detailed reports on Addicks and Barker Reservoirs; and Brays, Greens, Halls, Hunting, Little White Oak, and Carpenters Bayous.

21A. ADDICKS AND BARKER RESERVOIRS, TX

Location. Reservoirs are located in and west of the City of Houston in Harris and Fort Bend Counties, Texas.

Existing project. Construction of Barker Dam was complete in February 1945. Construction of Addicks Dam and 7.4 miles of channel rectification downstream from Addicks and Barker Dams was completed in October 1948. Modification of Barker and Addicks Dams consisting of gating the final two uncontrolled conduits in each dam, was complete in 1963. Major rehabilitation of Addicks and Barker Dams to prevent seepage through the embankment was completed in 1982.

Work under the Dam Safety Assurance program was initiated in Fiscal Year 1986. Work accomplished included raising approximately 32,400 feet of Addicks Dam 1 to 3 feet and raising approximately 57,600 feet of Barker Dam 3 to 5 feet and armor-plating low ends of both dams. A contract with the city of Houston for cost sharing in the construction of recreation facilities was entered into in November 1981. The lease for approximately 10,534 acres of land and water areas was approved in February 1983.

Local cooperation. None required.

Operations during fiscal year. Recreation: Community Park West (Phase IB) and the velodrome were completed in 1986 and remain in use. Community Park West (Phase 4) and the development of Community Park 2 (soccer fields, ball fields, and parking lots) were completed by the City of Houston in 1992. Harris County Precinct 3 completed building additional soccer fields in Community Park 2 in George Bush Park. The Fort Bend County YMCA pavilion, archery range, and nature trails in Barker Reservoir are being heavily used along with the City of Houston's Cullen Park, Harris County's George Bush Park, and Fort Bend County's Cinco Ranch Park. Maintenance and improvements of these recreation areas continue by all agencies.

Maintenance: Continued operations with project personnel. The contract for road and ramp repairs to the tops of the dams, awarded March 30, 2001, was completed in FY03 at a fiscal cost of $180,477. The contract for monitoring roller compacted concrete for determination of causes for movement was completed at a cost of $698,250.

The project is estimated to have prevented damages of $2,045,691,000 through September 2003. During Fiscal Year 2003, the project prevented $385,000,000 in damages.

21B. BRAYS BAYOU

Location. The project is located in the south-central portion of Buffalo Bayou, Harris County, TX.

Existing project. The authorized plan of improvement consists of 3 miles of stream improvements, 3 flood detention basins, and 7 miles of stream diversion channels. Aesthetic vegetation is included. Recreation facilities include trails, picnic facilities, sports fields, comfort stations and parking areas. The estimated cost for new work is $292,469,000 Federal (Corps) and $162,323,000 non-Federal consisting of $25,175,000 cash contributions, and $137,148,000 for lands and relocations (October 2003 base price).

The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640). In 1995, the project was divided into two separable elements, an Upstream (detention) Element (stream improvements and detention basins) and a Downstream (diversion) Element. The Local Sponsor was authorized to develop the project and design and construct an alternative to the diversion component and be reimbursed for the Federal share by the Water Resources Development Act of 1996 (PL 104-303). Construction funds were received in 1998.

Location cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; pay five percent of the total costs allocated to flood control presently estimated at $25,175,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities. A Project Cooperation Agreement for the Upstream (detention) element was executed March 3, 2000.

Operations during fiscal year. New Work: Construction by the Local Sponsor of the Detention Element is currently underway. A reimbursement to Harris County Flood Control District for Segment 6 of the Sam Houston Detention Basin, Compartment 4, Phase 1 was made in the amount of $3,780,085.

In accordance with Section 211 of the Water Resources Development Act of 1996, the sponsor is investigating the Downstream (diversion) Element in an effort to find an alternative to the authorized project.

21C. GREENS BAYOU

Location. The project is located in the north-central portion of Buffalo Bayou, Harris County, TX, and does not include the Halls Bayou tributary.

Existing project. The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640). The authorized project provides for 25 miles of stream enlargement, 14 miles of stream cleaning and 4 flood detention basins. Aesthetic vegetation and mitigation is included. Recreation facilities include trails, picnic facilities, sports fields, launches, ramps, comfort stations and parking areas. The project is currently being reformulated and a new project has been identified in a Great Reevaluation Study. The new project will consist of approximately 3.2 miles of stream enlargement in the upper reaches of the bayou between Veterans Memorial Drive and Cutten Road. A flood detention basin will be located near the downstream terminus of the stream enlargement. Aesthetic vegetation is included. Recreation facilities are not currently included in the project as a local sponsor has not been confirmed. The estimated cost for new work is $171,123,000 Federal (Corps) and $101,666,000 non-Federal consisting of $16,142,000 cash contributions, and $85,524,000 for lands and relocations (October 2002 base price).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $16,142,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities.

Operations during fiscal year. New Work: See Section 39, PRE-CONSTRUCTION ENGINEERING AND DESIGN.

21D. HALLS BAYOU

Location. Halls Bayou is a major tributary of Greens Bayou, located in the north-central portion of Buffalo Bayou, Harris County, TX.

Existing project. The authorized plan of improvement consists of 18 miles of stream improvements. Recreation facilities include trails, picnic facilities, boat ramps, a comfort station and parking areas. The estimated cost for new work is $75,955,000 Federal (Corps) and $55,578,000 non-Federal consisting of $8,434,000 cash contributions, and $47,144,000 for lands and relocations (October 2002 base price).

The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $8,434,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities.

Operations during fiscal year. New Work: Project is awaiting Pre-construction Engineering and Design funds.

21E. HUNTING BAYOU

Location. Hunting Bayou is located in Houston, approximately 4 to 5 miles from the central business district.

Existing project. The authorized plan of improvement consists of 14.3 miles of stream improvements. Recreation facilities include trails, picnic facilities, a comfort station and parking areas. The estimated cost for new work is $77,273,000 Federal (Corps) and $67,615,000 non-Federal consisting of $7,764,000 cash contributions, and $59,851,000 for lands and relocations (October 2003 base price).

The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640). The Local Sponsor was authorized to design and construct an alternative to the project and be reimbursed for the Federal share by the Water Resources Development Act of 1996 (PL 104-303).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way;

modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $7,764,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities.

Operations during fiscal year. New Work: Construction funds were received in 2003 to begin construction of the project. See Section 39, PRE-CONSTRUCTION ENGINEERING AND DESIGN.

21F. LITTLE WHITE OAK BAYOU, TX

Location. Little White Oak Bayou is a tributary of White Oak Bayou in north-central Houston.

Existing project. The authorized plan of improvement consists of 6.0 miles of stream enlargements. Recreation facilities include trails and picnic facilities. The estimated cost for new work is $17,958,000 Federal (Corps) and $17,957,000 non-Federal consisting of $1,996,000 cash contributions, and $15,961,000 for lands and relocations (October 1990 base price).

The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $1,996,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities.

Operations during fiscal year. New Work: Project is awaiting Pre-construction Engineering and Design funds.

21G. CARPENTERS BAYOU, TX

Location. Carpenters Bayou is a tributary of Buffalo Bayou in northeastern Houston.

Existing project. The authorized plan of improvement consists of 9.7 miles of stream enlargements. Recreation facilities include trails and picnic facilities. The estimated cost for new work is $3,900,000 Federal (Corps) and $1,950,000 non-Federal consisting of $370,000 cash contributions, and $2,320,000 for lands and relocations (October 1990 base price).

The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $370,000 and bear all costs of operation, maintenance, and replacement of flood control and recreation facilities.

Operations during fiscal year. New Work: Project is awaiting Pre-construction Engineering and Design funds.

22. BUFFALO BAYOU, TX (LYNCHBURG PUMP STATION)

Location. The project is located 10 miles east of Houston, Texas near the entrance to the Houston Ship Channel.

Existing project. The Lynchburg Pump Station is to be protected by a flood barrier encircling the facility. A plan consisting of a combination sheet pile wall and earth levee is recommended. Total barrier length is approximately 2000 feet. The Crosby-Lynchburg Road will be rerouted to the top of the levee.

Local cooperation. The Coastal Water Authority, owned by the City of Houston, is the Local Sponsor of the project. The Project Cooperation Agreement was executed June 26, 2002.

Operation during the fiscal year. The construction contract, awarded September 10, 2002, continued through FY 03 . Cost incurred on the contract for was $4,370,055.

23. CLEAR CREEK, TX

Location. The project is located about midway between the two metropolitan centers of Houston, Texas, on the north and Galveston-Texas City on the south in Harris and Galveston Counties above and below existing Clear Lake.

Existing project. The authorized plan of improvement consists of an improved channel from Mile 3.8 to Mile 34.8 to contain within its banks all flood flows up to and including that of a 100-year flood. The selected plan provides channel enlargement and easing of bends within the existing stream from Mile 3.8 to Mile 26.05 to contain at least the 10-year frequency storm, and additional outlet with gated structure from Clear Lake to Galveston Bay, restriction of development in the residual 100-year flood plain and measures to mitigate environmental effects. In 1986, at the request of Brazoria County Drainage District No. 4, that portion of the project upstream of the Brazoria/Galveston County line, approximate improved Mile 19.1, was placed in the “inactive” category. Estimated cost for new work, excluding “inactive” portion, is $84,970,000 Federal (Corps) and $57,426,000 non-Federal consisting of $7,119,000 cash contributions, $22,600,000 for lands, and $27,707,000 for relocations (October 1, 2003 base price).

Environmental interest groups and agencies, private citizens, and some local communities located near or adjacent to Clear Lake expressed opposition to the Clear Creek Flood Control Project as currently authorized and planned for upstream reaches. In general, the opposition to the project has been focused on environmental concerns in the upstream reaches and on induced flooding concerns downstream in Clear Lake. Construction has been delayed at the request of the Local Sponsor so that an alternative to the authorized project can be developed that will reduce above concerns and still provide flood protection to those that are critically affected by flood waters in the watershed.

Local cooperation. Local Sponsors for the project are Galveston and Harris counties. The Local Cooperation Agreement, executed June 30, 1986, requires local interests to provide lands, easements, rights-of-way, and material disposal areas; modify or relocate building, pipelines, utilities, roads and other facilities, except railroad bridges, where necessary in the construction of the project; make a cash contribution for mitigation measures consistent with the non-Federal share of total project costs without mitigation measures; pay five percent of the total costs allocated to flood control; and bear all costs of operation and maintenance of flood control facilities.

Operations during fiscal year. Preparation of the General Reevaluation Report (GRR) continued. Work on plan formulation, engineering analysis, socioeconomic analysis, real estate analysis, and environmental studies continued.

24. CYPRESS CREEK, TX

Location. The project is located north of Houston, Texas in Harris County.

Existing project. The authorized plan of improvement consists of enlargement of the lower 29.4 miles of the Cypress Creek Channel, incorporating grassed side slopes and channel bottom and appropriate erosion control measures; application of floodplain management techniques in the residual floodplain; construction of project-oriented recreation features, including 11.5 miles of hike-and-bike trails and related facilities for health, safety, and public access; and habitat management measures on 844 acres of Harris County Parkway land, creation of wooded and brush habitat along 100 acres of the project right-of-way, acquisition of 329 acres of wildlife habitat along the creek, and creation of 35 acres of ponds and marshes. The authorized plan is no longer under consideration. The revised project consists of removing the 34 homes where inhabitants are at or below the five-year flood level. A Section 215 Agreement was executed January 5, 2000 enabling the Harris County Flood Control to implement the project as quickly as possible and once the Project Cooperation Agreement (PCA) was executed and funds appropriated for construction. The sponsor began acquiring homes in June 1999 and began demolition of the structures in February 2000. Estimated cost for the new plan is $4,463,000 Federal (Corps) and $1,487,000 non-Federal contribution. (October 1, 1999 base price.)

Local cooperation. Local Sponsor for the project is Harris County. The non-Federal share of the cost of non-structural flood control measures shall be 25 percent of the cost of such measures. The non-Federal interests for any such measures shall be required to provide all lands, easements, rights-of-way, and relocations necessary for the project, but shall not be required to contribute any amount in cash during construction of the project. The Project Cooperation Agreement was executed on January 18, 2001.

Operations during fiscal year. New work: Harris County Flood Control District completed the non-structural buy-out in September 2001. Funds in the amount of $3,571,755 were reimbursed to the Sponsor in FY 02, and the remaining $300,244 were reimbursed upon resolution of the audit.

25. LOWER RIO GRANDE BASIN, TX

Location. The project is located in Willacy, Hidalgo, and Cameron Counties. The basin is bounded on the east by the Gulf of Mexico, on the south by the Rio Grande, which forms the international boundary between the United States and Mexico, on the west by Starr County, and on the north by Brooks and Kenedy Counties.

Existing project. See individual detailed reports on Arroyo Colorado, South Main Channel, and Raymondville Drain.

Local cooperation. See individual detailed reports on Arroyo Colorado, South Main Channel, and Raymondville Drain.

25A. ARROYO COLORADO, TX

Location. The project is located in Hidalgo and Cameron Counties, Texas.

Existing project. The authorized project will provide flood protection along Highway 83 and erosion protection for the banks of the Arroyo Colorado in the city of Harlingen. The project consists of a gated water control structure, 1.4 miles of channel improvements, and stone armoring of selected reaches in Harlingen. The estimated cost for new work is $5,851,000 Federal (Corps) and $1,951,000 non-Federal consisting of $1,848,000 cash and $103,000 for lands and relocations (October 1, 1993 base prices).

The project has reached a stalemate as the Local Sponsor, the Hidalgo County Drainage District #1, cannot provide required guarantee to hold and save the Government free from all damages arising from the construction, operation, maintenance, repair and replacement for the project, nor are they able to operate and maintain the project when completed. The International Boundary and Water Commission has complete jurisdiction over the project, as it is one of the elements of the Rio Grande Floodway System. The Commission is interested in the project but only if additional funds to do operations and maintenance are provided. Legislative approval will be required to alter the current status.

Local cooperation. Local Sponsor, the Hidalgo County Drainage District #1, is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $1,848,000 and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during fiscal year. None.

25B. SOUTH MAIN CHANNEL, TX

Location. The project is located in Hidalgo and Willacy Counties, Texas.

Existing project. The authorized project consists of channel improvements that will provide flood protection to the city of Lyford, as well as the rural area of Willacy County north of U.S. Highway 83. The authorized plan is currently being revised to reflect a smaller project and will include construction of new channels only in Willacy County, and a local protection project for Lyford.

The estimated cost for new work is $141,442,000 Federal (Corps) and $75,207,000 non-Federal consisting of $10,832,000 cash and $28,107,000 lands and $36,268,000 relocations (October 1, 2002 base prices).

Local cooperation. Originally the Local Sponsors for the project were Hidalgo County Drainage District #1 and Willacy County Drainage District #1. Late in Fiscal Year 1999, Hidalgo County Drainage District #1 withdrew support of the project. In August 1999, Willacy County Drainage District #1 restated their intent to cost-share in project construction.

Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $10,832,000 and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during fiscal year. New Work: See Section 39, PRE-CONSTRUCTION ENGINEERING AND DESIGN.

25C. RAYMONDVILLE DRAIN, TX

Location. The project is located in northern Hidalgo and Willacy Counties, Texas.

Existing project. The authorized project will provide a drainage outlet to the Laguna Madre for northern Hidalgo and Willacy Counties. The project consists of 43.8 miles of channel work, including enlargement of existing channels and construction of new channels, a 3.88-mile long levee, and diversion ditches along the west side of Raymondville. The estimated cost for new work is $64,687,000 Federal (Corps) and $21,562,000 non-Federal consisting of $7,150,000 cash and $6,142,000 lands and $8,270,000 relocations (October 1, 2002 base prices).

Local cooperation. Local Sponsor for the project is Hidalgo County Drainage District #1. Local Sponsor is required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads and other facilities, except for railroad bridges; provide a cash contribution presently estimated at $8,270,000 and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during fiscal year. New Work: See Section 39, PRE-CONSTRUCTION ENGINEERING AND DESIGN.

26. SIMS BAYOU, TX

Location. The project is located in Harris County, in the southern portion of Houston, Texas.

Existing project. The authorized plan of improvement provides for enlargement and rectification, with appropriate erosion control measures, of 19.3 miles of Sims Bayou to provide 25-year flood protection; environmental measures and riparian habitat improvement along the entire alignment; and recreational development to include 14 miles of hike-and-bike trails connecting to existing public parks, together with picnic, playground, and other leisure facilities. Estimated cost for new work is $233,197,000 Federal (Corps) and $113,021,000 non-Federal consisting of $20,501,000 cash contributions, $39,988,000 for lands, $52,216,000 for relocations and $317,000 for channels (October 1, 2003 base price).

Local cooperation. Local Sponsor for the project is Harris County Flood Control District. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads, and other facilities, except railroad

bridges, where necessary for the construction of the project; pay one-half of the separable and joint costs allocated to recreation; and bear all costs of operation, maintenance and replacement of recreation facilities; and pay 5 percent of the costs allocated to flood control; and bear all costs of operation, maintenance and replacement of flood control facilities. The Local Cooperation Agreement for flood control was executed on October 19, 1990. The recreation Local Project Agreement is currently under review by the City of Houston.

Operations during fiscal year. New Work: The construction contract for channel rectification from Swallow to Hemingway, awarded July 19, 1996, was physically completed in January 1999, and financially completed in FY03 with a final cost of $34,125. Construction contract for channel rectification from Mykawa to Cullen, awarded April 1, 1999, continued through FY 03 at a cost of $59,693. A construction contract for Channel rectification at Mouth to Port Terminal Railroad, Station 9+00 to 52+52, awarded June 30, 2000, continued through FY 03 at a cost of $1,456,359. Channel rectification contract for the Swallow to Northdale reach, awarded December 29, 2000, continued through FY 03. Cost incurred for FY 03 was $672,498. A construction contract for channel rectification downstream of Cullen to State Highway 288, awarded September 13, 2002, continued through FY03 at a cost of $7, 354,392. A contract to modify the baffle drainage structure in the Hemingway to Swallow reach was awarded June 13, 2002 and completed in FY 03. Cost incurred for FY 03 was $204,961.

Reimbursement was made to the Local Sponsor, Harris County Flood Control District, for their work on the reach from Port Terminal Railroad to Interstate Highway 45, in the amount of $300,000.

27. INSPECTION OF COMPLETED FLOOD CONTROL WORKS

Inspections of completed projects operated and maintained by local interests were made on the following projects. Fiscal year cost was $193,016.57.

Project	Date of Inspection
Vince Bayou, TX – Channel Rectification	November 2002
White Oak Bayou, TX - Flood Rectification	November 2002
Brays Bayou, TX . - Channel Rectification	March 2003
Clear Creek, Second Outlet Gated Structure	July 2003
Freeport & Vicinity, TX – Hurricane Flood Protection	July 2003
Texas City Hurricane Flood Protection, TX	August 2003

28. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to section 205 of 1970 Flood Control Act, Public Law 858, 80th Congress, as amended:

Initial coordination for Section 205 Flood Control activities was performed in FY 03 at a fiscal year cost of $9,052. Construction of the flood protection project for Buffalo Bayou, Texas (Lynchburg Pump Station) is discussed in Section 22.

Milestone report for flood protection was completed for Halletsville. Costs incurred for FY 03 were $1,383. Study for Halletsville was terminated as project was not feasible.

Milestone report for flood protection for Pearland was completed and feasibility was initiated at a cost of $15,631 for FY03.

Milestone report for reducing flooding of Old Town at the City of Brazoria was completed in FY03 and the feasibility study was initiated. Costs incurred were $9,199.

Emergency flood control – repair, flood fighting, and rescue work (Public Law 99, 84th Congress and antecedent legislation):

Disaster Preparedness cost for fiscal year 2003 was $299,366. Catastrophic disaster Preparedness Program fiscal year cost was $19,672. Anti-terrorism/Force protection cost for FY 2003 was $85,608.

Emergency Operations cost for fiscal year 2003 was $105,210 for the District's response to two events and for contract development in support of the national Emergency Ice Planning and Response Team. In July, Hurricane Claudette made landfall over the central Texas coast, the impacts resulted in a Presidential Disaster Declaration for 15 counties. Later in August, Tropical Storm Erika made landfall south of Brownsville with minimal impacts to Texas.

Rehabilitation of Flood Control Works Fiscal Year 2003 cost was $2,763 for management of eligibility inspections and field investigation for Project Information Report (PIR) preparation. The PIR

involves damages to the Texas City Hurricane Flood Protection project resulting from Hurricane Claudette.

Other Programs and Activities for FY 03 include the Regional Sediment Management Demonstration project, which is a study of sediment transport down the coastline of Texas. Costs incurred for FY 03 were $40,000.

29. EMERGENCY STREAM BANK AND SHORELINE EROSION WORK AND SNAGGING AND CLEARING ACTIVITIES UNDER SPECIAL AUTHORIZATION

Stream bank and shoreline erosion activities pursuant to Section 14 of the 1946 Flood Control Act, Public Law 525, as amended:

Initial coordination for Section 14 Emergency Stream Bank and Shoreline Erosion activities was performed in FY 03 for a cost of $10,341.

Three studies were initiated in FY 2003 as follows:

Four Oaks Ranch Road - a study was initiated and completed for erosion protection of streambank adjacent to the roadway at a cost of $46,004. Alternative solutions were presented to the sponsor, Orange County. The sponsor elected to relocate the road and the study was terminated.

Brazos River Bank Stabilization - A study was initiated to pursue erosion protection of flood protection levee. The Eligibility Determination Report was completed in May 02 and work is awaiting development of a Project Design Agreement. FY03 cost incurred was $32,852.

State Highway 82 Erosion Along the Sabine-Neches Waterway - A study was initiated for erosion protection of State Highway 82. The Eligibility Determination Report was completed in June 2003. The project is on hold awaiting funding. Cost incurred for FY03 was $4,863.

Snagging and clearing activities for flood control pursuant to Section 208 of the Flood Control Act of 1954, Public Law 780, as amended:

A new feasibility study for snagging and clearing activities for flood control improvements along Clear Creek were initiated in fiscal year 2003 at a cost of $13,371.

Environmental Restoration

30. PROJECT MODIFICATIONS FOR IMPROVEMENT OF ENVIRONMENT

Project modifications for improvement of environment activities pursuant to Section 1135 of the Water Resources Development Act of 1986, Public Law 99-662, as amended:

Coordination activities were performed in FY 03 for a fiscal year cost of $15,296.

A feasibility study was initiated on Taylor's Bayou for the replacement of a saltwater barrier to protect the bayou and marsh from saltwater intrusion. Funds in the amount of $161,161 were expended in FY03.

A preliminary Restoration Plan for Keith Lake Fish Pass in Jefferson County was completed in May 2002. A feasibility study was initiated in January 2003 and continued through FY03 at a cost of $114,938.

A Preliminary Restoration Plan was initiated for Port Aransas Nature Preserve (Piper Channel) for the protection and restoration of the ecosystem at the Port Aransas Nature Preserve. Cost incurred for FY03 was $8,759.

31. AQUATIC ECOSYSTEM RESTORATION

Coordination of Aquatic Ecosystem Restoration to improve the quality of the environment pursuant to section 206 of the Water Resources Development Act of 1996, Public Law 104-303, as amended:

Fiscal year costs for coordination were $15,327 and $74 for preliminary restoration plans.

In FY 03 Planning and Design Analysis, and environmental assessment were completed for the University of Texas Wetlands Education Center for the restoration of wetlands and dunes in support of the Education Center. Cost incurred for FY 03 was $256,833.

The feasibility study for the Gulf Intracoastal Waterway, Mad Island Marsh to protect the habitat at the Wildlife Management Area from further erosion was completed in May 2003. Funds in the amount of $319,302.

32. NORTH PADRE ISLAND, TX

Location. The project is located along the south central Texas coast on the northern portion of Padre Island, City of Corpus Christi, Nueces County, Texas. The project cuts through Mustang Island joining the Gulf of Mexico with the Gulf Intracoastal Waterway at mile 553.0

Existing project. The project was authorized by the Water Resources Development Act of 1999. The authorized plan of improvement provides for an opening between the Gulf of Mexico and Corpus Christi Bay, which consists of a jettied entrance and channel, extending from the Gulf of Mexico through Mustang

Island along the existing Packery Channel; storm damage reduction measures on the south side of the area; and ecosystem restoration measures at various locations adjacent to the project area. The estimated cost for new work is $19,500,000 Federal (Corps) and $10,500,000 non-Federal consisting of $10,000,000 cash contributions and $500,000 for lands, easements, rights-of-way, and relocations.

Local cooperation. Local Sponsor for the project is City of Corpus Christi, Texas. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way; modify or relocate buildings, pipelines, utilities, roads, and other facilities, except for railroad bridges; provide a cash contribution presently estimate at $10,000,000 and bear all costs of operation and maintenance.

Operations during fiscal year. New Work:. A construction contract was awarded July 30, 2003 and work began August 22, 2003. Cost incurred for FY 03 was $117,576. Also see Section 39, PRE-CONSTRUCTION ENGINEERING AND DESIGN.

33. BENEFICIAL USES OF DREDGED MATERIAL

Projects for beneficial uses of dredged material pursuant to Section 204 of the Water Resources Development Act of 1992, Public Law 102-560 are as follows:

Initial coordination activities for FY 03 were performed at a fiscal year cost of $13,982.

Planning and design analysis and environmental assessment for Sabine-Neches Waterway, Texas Point National Wildlife Refuge, TX are discussed in Section 34.

A preliminary restoration plan was completed on the Gulf Intracoastal Waterway, Rose City Marsh, TX for restoration of wetlands. Cost incurred for FY 03 was $2,200.

Feasibility studies continued for Sabine-Neches Waterway, Bessie Heights Marsh to raise the marsh elevation by using dredged material. See Section 35.

34. SABINE-NECHES WATERWAY – TEXAS POINT NATIONAL WILDLIFE REFUGE, TX

Location. The project is located on the Texas Gulf Coast at the intersection of the Gulf shoreline and the West Jetty of the Sabine-Neches Waterway. The project is within the Texas Point National Wildlife Refuge, managed by the U.S. Fish and Wildlife Service in Jefferson County, Texas.

Existing project. The project consist of pumping dredged material from the maintenance dredging of the Sabine Pass Channel onto the beach ridges adjacent to the West Jetty and within the Texas Point National Wildlife Refuge. Material placed in the marsh will fill subsided and eroded areas and enhance the restoration of the marsh. The material would also be available for transport into the marshes by storm-driven tidal surges. Once the material is there it would increase marsh elevations and provide nutrients for marsh plants. Any additional material will be placed in the surf zone shoreward of the ridge. This material will further stabilize the ridge and will provide increased storm protection for the marsh.

By helping to mitigate the effects of subsidence and erosion, the restored wetlands will continue to provide feeding, nesting, and nursery habitat for a variety of waterfowl, water birds, and mammals that utilize the marshes. The protected marsh will continue to contribute to the productivity for fish and shellfish by providing a feeding and nursery area.

The project was completed in January 2001. The total implementation cost was $1,045,772, consisting of $784,329 Federal (Corps) and $229,254 Non-Federal cash contribution and $32,189 Non-federal work-in-kind. The construction costs represent the incremental difference between the base navigation condition and the costs associated with constructing the marsh restoration project. There are no operation, maintenance, repair, rehabilitation, and replacement costs associated with the project.

Local cooperation. Fully complied with. The Texas General Land Office is the sponsor for the project. A Project Cooperation Agreement was executed August 11, 2000.

Operations during fiscal year. New Work: Initiated and completed the planning and design analysis and environmental assessment. The construction contract was awarded September 25, 2000 and completed in January 2001. The final cost of construction was $693,897 Federal (Corps) and $229,254 Non-Federal cash, which all costs was expended in FY 01.

35. SABINE-NECHES WATERWAY – BESSIE HEIGHTS, TX

Location. The project site is located within the Bessie Heights Marsh area, approximately 2 miles east of the Neches River in Orange County, Texas. The project is within the Nelda Stark Unit, owned by the Texas Parks and Wildlife Department.

Existing Project. The project consists of the beneficial use of dredged material by pumping approximately 651,000 cubic yards of maintenance-dredged material into an approximate 71-acre tract

within the Nelda Stark Unit of the Bessie Heights Marsh area, the remainder of the maintenance material placed in existing SNWW placement areas (PA 18, 23, and 25B.)

Bessie Heights marsh, once an immense, freshwater marsh ecosystem providing crucial protection and forage for waterfowl, invertebrates and juvenile fish, is now primarily saline and experiencing a dramatic decline in all characteristics of plants and animals. It is considered a critically reduced habitat by the Texas Commission on Environmental Quality formerly the Texas Natural Resource Conservation Commission .

The plan of improvement consists of placing maintenance dredged material from the Sabine-Neches Waterway into the existing open water areas of the Bessie Heights Marsh in an effort to restore the historical wetland habitat. By utilizing the maintenance material to mitigate the effects of subsidence and erosion, the restored wetlands will continue to provide feeding, nesting, and nursery habitat for a variety of waterfowl and mammals that use these marshes.

Local cooperation. Fully complied with. The Sponsor is the Jefferson County Waterway and Navigation District. A Project Cooperation Agreement was executed in January 2003.

Operations during fiscal year. New Work: Placement of the dredged material was completed in FY03. Planted the perimeter to prevent erosion and await consolidation. Complete consolidation is expected in August 2004 at which time the planting will be completed. FY 2003 cost is $500,000 Federal (Corps) and $191,750 non-Federal.

General Investigations

36. SURVEYS

Fiscal year costs for reconnaissance and feasibility studies were $1,477,935 for navigation and $387,098 for flood damage prevention. Reconnaissance and feasibility studies on watershed and ecosystems projects incurred costs of $699,932. No cost was incurred for a reconnaissance study for shoreline protection in FY 03. Reconnaissance and feasibility studies on review of authorized projects incurred costs of $693,513 for FY 2003. Miscellaneous Activities for FY 03 include the following: Special Investigations at a cost of $14,000; Interagency Water Resources Development at $11,008; National Estuary Program at $5,421; and North American Waterfowl Management Plan at a cost of $2,099.

37. COORDINATION WITH OTHER AGENCIES

Cost for Coordination With Other Agencies was $44,063 for FY 2003.

38. COLLECTION AND STUDY OF BASIC DATA

Floodplain management, national flood proofing conference, and technical services were performed at a cost of $38,003; $26,678; and $37,998 respectively. No cost was incurred in FY03 for quick responses to collection and study of basic data.

A study for Texas Hurricane Evacuation was completed in FY 03 and incurred a cost of $1,283.

Hydrologic studies cost $12,242.

39. PRE-CONSTRUCTION ENGINEERING AND DESIGN

Greens Bayou, Texas – The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640). The authorized project provides for 25 miles of stream enlargement, 14 miles of stream clearing and 4 flood detention basins. Aesthetic vegetation and mitigation is included. Recreation facilities include trails, picnic facilities, sports fields, launches, ramps, comfort stations and parking areas. The project is currently being reformulated and a new project has been identified in a General Reevaluation Study. The new project will consist of approximately 3.2 miles of stream enlargement in the upper reaches of the bayou between Veterans Memorial Drive and Cutten Road. A flood detention basin will be located near the downstream terminus of the stream enlargement. Aesthetic vegetation is included. Recreation facilities are not currently included in the project as a local sponsor has not been confirmed. Estimated planning and engineering cost is $8,159,000. Planning and engineering studies were initiated in FY 1990. Fiscal year costs were $631,069.

South Main Channel, Texas – The authorized project consists of channel improvements, which will provide flood protection to the cities of McAllen, Edinburg, Edcouch, La Villa and Lyford, as well as the rural areas of Hidalgo and Willacy Counties north of U.S. Highway 83. The authorized plan is currently being revised to reflect a smaller project and will include construction of new channels only in Willacy County, and a local protection project for Lyford, Texas. Estimated planning and engineering cost estimate is $8,780,000. Planning and Engineering studies were initiated in FY 1990. Fiscal year costs were $93,628.

Raymondville Drain, Texas - The project consists of 43.8 miles of channel work, including enlargement of existing channels, and construction of new channels, a 3.88-mile long levee, and diversion ditches along the west side of Raymondville, Texas. Estimated planning and engineering estimate is $2,632,000. Planning and engineering studies were initiated in FY 1997. Fiscal year costs were $273,123.

Hunting Bayou, Texas - The project was authorized for construction in the Water Resources Development Act of 1990 (PL 101-640). The authorized project provides for 14.3 miles of stream improvements, recreation trails, picnic facilities, a comfort station, access and parking areas. The Local Sponsor was authorized to design and construct an alternative to the project and be reimbursed for the Federal share by the Water Resources Development Act of 1996 (PL 104-303). The project is currently being reformulated and will be identified by the General Reevaluation Study. Estimated planning and engineering estimate is $2,070,000. Planning and engineering studies were initiated in FY 1998. Fiscal year costs were $138,901.

North Padre Island, Texas - The project was authorized for ecosystem restoration and storm damage reduction at North Padre Island, Corpus Christi Bay, by the Water Resources Development Act of 1999 (PL 106-53). The project will consist of a jettied channel from the Gulf of Mexico through Padre Island connecting with the Gulf Intracoastal Waterway at approximately mile 553; storm damage reduction measures on the south side of the area; and ecosystem restoration measures at various locations adjacent to the project area. Estimated planning and engineering estimate is $1,754,000. Planning and engineering studies were initiated in FY 2000 and completed in FY 2003. Fiscal year costs were $7,078.

Colonias Along U.S. and Mexico Border, Texas - The project was authorized in accordance with the Water Resources Development Act of 1992, Section 219 (PL 102-580). Assistance is to be provided to non-Federal interests for carrying out water related environmental infrastructure and resource protection and development projects for selected areas along the Texas/Mexico borders. Estimated planning and engineering cost estimate is $2,550,000. Planning and engineering studies were initiated in FY 2001. Fiscal year costs were $27,808.

GIWW, Matagorda Bay, Texas - The project consist of realigning the navigation channel from mile 460 to mile 472 with a channel approximately 6,000 feet north of and paralleling the existing route. Channel dimensions are 12 feet deep by 125 feet wide for most of the channel, with a widening to 300 feet where it crosses the Matagorda Ship Channel, and flares at each of the places where the channel changes direction. Material dredged from the channel will be used to create marshes in Matagorda Bay and to combat erosion along Matagorda Peninsula. The existing channel from mile 460 to 473 would be abandoned. . Estimated planning and engineering cost estimate is $1,070,000. Planning and engineering studies were initiated in FY 2002. Fiscal year costs were $549,834.

Texas City Channel, Texas - The project was authorized in accordance with the Water Resources Development Act of 1986. Planning, engineering and design has been on hold since 1990 at the request of the Local Sponsor, the City of Texas City. Planning, engineering and design was resumed in FY 02. A reconnaissance level study was performed and it was determined that the authorized project is in the Federal interest and meets current needs. Estimated planning and engineering cost estimate is $11,375,000. Planning and engineering studies were initiated in FY 2002. Fiscal year costs were $320,642.

Corpus Christi Ship Channel, Texas - The Corpus Christi Ship Channel (45-foot) project, 40 miles long, is a Federally constructed deep-draft navigation project serving the ports at Harbor Island, Ingleside, and Corpus Christi in Nueces County. The recommended plan of improvement will deepen the channel to 52 feet, widen to 530 feet, add barge lanes on both sides o the channel across Corpus Christi Bay, and extend the La Quinta channel one and one-half miles at a dept of 39 feet. Estimated planning and engineering cost estimate is $1,836,000. Planning and engineering studies were initiated in FY 2003. Fiscal year costs were $6,306.

TABLE 40-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003[29]
	1. Aquatic Plant Control (Southwestern Division) 1965 Act	**New Work:**					
		Approp.	–	–	273,000	326,000	5,132,600[1]
		Cost	9,810	183	8,212	496,056	5,023,638[1]
	2. Brazos Island Harbor, TX	**New Work:**					
		Approp	–	–	–	–	27,871,202[2]
		Cost	–	–	–	–	27,871,202[2]
		Maint:					
		Approp	392,940	4,532,760	2,526,700	3,462,924	71,462,859[3]
		Cost	391,064	4,531,684	2,529,867	3,461,570	71,461,008[3]
		Major Rehab:					
		Approp.	–	–	–	–	2,170,080
		Cost	–	–	–	–	2,170,080
	3. Cedar Bayou, TX	**New Work:**					
		Approp.	–	–	–	–	681,263[4]
		Cost	–	–	–	–	681,263[4]
		Maint:					
		Approp.	159,600	30,751	806,566	(1,545)	5,060,348[5]
		Cost	159,604	30,824	806,568	(1,544)	5,060,348[5]
	4. Channel to Port Bolivar, TX	**New Work:**					
		Approp.	–	–	–	–	133,925[6]
		Cost	–	–	–	–	133,925[6]
		Maint:					
		Approp.	138,448	167,770	285,660	106,792	1,941,931[7]
		Cost	138,498	167,792	285,667	106,793	1,941,931[7]
	5. Clear Creek and Clear Lake, TX	**New Work:**					
		Approp.	–	–	–	–	66,934
		Cost	–	–	–	–	66,934
		Maint:					
		Approp.	(40)	–	–	–	549,599
		Cost	–	–	–	–	549,599
	6. Corpus Christi Ship Channel, TX (Regular Funds)	**New Work:**					
		Approp.	–	–	–	–	77,474,639[8]
		Cost	–	–	–	–	77,472,463[8]
		Maint:					
		Approp.	696,300	6,931,513	3,547,120	4,854,048	140,993,671[9]
		Cost	694,812	6,928,655	3,553,262	4,834,666	140,974,143[9]
		Major Rehab:					
		Approp.	–	–	–	–	3,576,684
		Cost	–	–	–	–	3,576,684
	(Contributed Funds)	**New Work:**					
		Contrib.	–	–	–	–	6,279,088
		Cost	–	–	–	–	6,143,152

TABLE 40-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost To Sep. 30, 2003[29]
7.	**Double Bayou, TX**	**New Work:**					
	(Regular Funds)	Approp.	–	–	–	–	226,558
		Cost	–	–	–	–	226,558
		Maint:					
		Approp.	–	936,469	301,944	(241)	3,099,074
		Cost	–	935,495	302,917	(240)	3,099,074
	(Contributed Funds)	**Maint:**					
		Contrib.	(23,569)	–	–	–	233,325
		Cost	–	–	–	–	233,325
8.	**Freeport Harbor, TX**	**New Work:**					
		Approp.	20,000	450,000	–	140,000	65,371,956[10]
		Cost	30,077	65,758	148,631	362,402	65,342,763[10]
		Maint:					
		Approp.	4,947,000	2,595,569	4,391,801	2,179,557	93,890,966[11]
		Cost	4,946,198	2,595,332	4,393,656	2,177,984	93,889,352[11]
	Minor Rehab:						
		Approp.	–	–	–	–	8,935
		Cost	–	–	–	–	8,935
9.	**Galveston Harbor and Channel, TX**	**New Work:**					
		Approp.	–	–	–	–	29,096,392[12]
		Cost	–	–	–	–	29,096,392[12]
		Maint:					
		Approp.	6,697,753	419,233	215,343	4,502,050	123,885,673[13]
		Cost	6,698,589	413,099	223,965	4,502,094	123,885,673[13]
		Major Rehab:					
		Approp.	–	–	–	–	7,969,329
		Cost	–	–	–	–	7,969,329
10.	**Gulf Intracoastal Waterway between Apalachee Bay, FL and the Mexican Border (Galveston District) (Regular Funds)**	**New Work:**					
		Approp.	9,506,490	6,951,000	4,761,329	688,000	155,954,046[14]
		Cost	9,609,040	7,025,080	3,911,229	1,477,966	150,667,512[14]
	(Inland Waterways Trust Fund)	**New Work:**					
		Approp	(130,510)	–	–	–	28,634,490
		Cost	384	–	–	–	28,634,490
	(Regular Funds)	**Maint:**					
		Appr	28,670,518	39,485,406	37,884,343	31,437,912	598,488,988[15]
		Cost	28,634,639	39,457,492	37,888,158	31,224,591	598,151,713[16]
		Major Rehab:					
		Approp.	–	–	–	–	3,390,338
		Cost	–	–	–	–	3,390,338
	(Inland Waterways Trust Fund)	**Major Rehab:**					
		Approp.	–	–	–	–	2,955,700
		Cost	–	–	–	–	2,955,700
	(Regular Funds)	**Minor Rehab:**					
		Approp.	–	–	–	–	835,873
		Cost	–	–	–	–	835,873

TABLE 40-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost To Sep. 30, 2003[29]
11.	Houston-Galveston Navigation Channels, TX (Regular Funds)	New Work:					
		Approp.	38,003,700	21,728,000	28,385,000	47,554,000	218,915,300
		Cost	67,341,990	21,446,315	27,360,567	48,528,490	218,390,016
	(Contributed Funds)	New Work:					
		Approp.	19,100,000	10,030,000	12,640,000	9,500,000	72,250,000
		Cost	26,939,013	6,592,594	8,387,114	16,949,168	69,515,206
12.	Houston Ship Channel, TX (Regular Funds)	New Work:					
		Approp.	–	–	–	–	35,760,382[17]
		Cost	–	–	–	–	35,760,382[17]
		Maint:					
		Approp.	8,543,922	9,683,318	4,217,772	11,726,132	224,591,655[18]
		Cost	8,535,868	9,677,466	4,215,396	11,661,868	224,508,498[18]
13.	Matagorda, Ship Channel, TX (Regular Funds)	New Work:					
		Approp.	–	–	–	–	18,058,777[19]
		Cost	–	–	–	–	18,058,777[19]
		Maint:					
		Approp.	1,409,404	5,687,048	1,379,518	3,225,683	77,005,278[20]
		Cost	1,395,380	5,700,179	1,380,419	3,225,636	77,002,962[20]
14.	Neches River Saltwater Barrier, TX (Regular Funds)	New Work:					
		Approp.	1,715,000	11,542,000	13,077,000	6,568,500	39,009,343
		Cost	1,452,433	11,659,773	13,096,099	6,615,670	38,930,516
	(Contributed Funds)	New Work:					
		Approp.	800,000	4,000,000	5,000,000	1,860,000	11,660,000
		Cost	195,260	2,503,543	6,307,962	2,623,005	11,629,770
15.	Sabine-Neches Waterway, TX (Regular Funds)	New Work:					
		Approp.	–	–	–	–	56,136,815[21]
		Cost	–	–	–	–	56,136,815[21]
		Maint:					
		Approp.	11,238,821	6,368,939	13,160,729	13,730,360	279,519,719[22]
		Cost	11,232,884	6,361,207	13,177,850	13,716,688	279,504,985[22]
16.	Texas City Channel, TX	New Work:					
		Approp.	–	–	157,000	375,500	15,689,472[23]
		Cost	–	–	148,712	320,642	15,626,326[23]
		Maint:					
		Approp.	42,050	2,812,602	44,118	201,838	35,920,224[24]
		Cost	42,040	2,810,107	46,622	201,836	35,920,221[24]
		Major Rehab:					
		Approp.	–	–	–	–	726,158
		Cost	–	–	–	–	726,158
17.	Trinity River and Tributaries, TX (Includes Wallisville)	New Work:					
		Approp.	3,989,000	1,350,000	999,000	1,519,500	84,481,176[25]
		Cost	4,789,998	1,457,012	908,519	2,040,754	84,449,098[25]
		Maint:					
		Approp.	2,473,000	1,465,083	1,416,575	5,732,231	34,119,775[26]
		Cost	2,470,717	1,432,620	1,435,784	5,732,564	34,101,537[26]

TABLE 40-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost To Sep. 30, 2003[29]
21.	Buffalo Bayou and Tributaries, TX	**New Work:**					
		Approp.	5,520,000	(618,000)	489,000	4,553,500	84,011,771[27]
		Cost	5,813,860	4,947,070	913,129	4,764,191	83,416,112[27]
		Recreation:					
		Approp.	–	–	–	–	377,804
		Cost	–	–	–	(167,674)	210,123
		Maint:					
		Approp.	1,985,927	3,147,637	2,804,158	3,495,653	54,704,671
		Cost	1,930,374	3,203,112	2,789,998	3,504,571	54,677,998
		Major Rehab:					
		Approp.	–	–	–	–	12,475,000
		Cost	–	–	–	–	12,475,000
		Dam Safety:					
		Approp.	–	–	–	–	12,693,700
		Cost	–	–	–	–	12,693,700
22.	Buffalo Bayou at Lynchburg,TX	**New Work:**					
	(Regular Funds)	Approp.	–	60,000	110,000	2,809,907	3,738,507
		Cost	222	0	69,888	2,600,312	3,426,902
	(Contributed Funds)	**New Work:**					
		Approp.	–	–	43,000	2,775,000	3,091,346
		Cost	–	–	0	2,335,149	2,588,435
23.	Clear Creek, TX	**New Work:**					
	(Regular Funds)	Approp.	788,300	1,178,000	1,296,941	1,549,000	26,999,977
		Cost	118,772	1,553,992	1,472,145	1,319,933	26,635,284
	(Contributed Funds)	**New Work:**					
		Approp.	–	–	–	466,000	1,781,000
		Cost	–	–	49,196	336,368	1,619,946
24.	Cypress Creek, TX	**New Work:**					
	(Regular Funds)	Approp.	3,832,000	300,000	(484,270)	301,000	6,243,830
		Cost	39,350	3,929,795	(321,405)	301,014	6,243,830
	(Contributed Funds)	**New Work:**					
		Approp.	–	–	–	–	835,000
		Cost	65	–	–	–	835,000
25.	Lower Rio Grande Basin, TX	**New Work:**					
		Approp.	1,192,000	786,000	783,000	348,000	10,123,463
		Cost	1,166,325	769,058	797,489	366,752	10,113,589
26.	Sims Bayou, TX	**New Work:**					
	(Regular Funds)	Approp.	11,410,000	16,106,000	24,027,000	9,868,000	132,203,417
		Cost	12,294,414	15,738,706	24,275,952	10,158,806	131,839,751
	(Contributed Funds)	**New Work:**					
		Approp.	550,000	400,000	1,200,000	2,800,000	9,691,360[28]
		Cost	510,799	682,068	1,107,418	1,888,078	8,550,500[28]
32.	North Padre Island, TX	**New Work:**					
	(Regular Funds)	Approp.	320,000	1,399,000	997,000	2,811,000	5,527,000
		Cost	306,580	1,196,390	758,593	1,076,067	3,337,630
	(Contributed Funds)	**New Work:**					
		Approp.	–	–	–	2,458,584	2,458,584
		Cost	–	–	–	41,152	41,152

TABLE 40-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost To Sep. 30, 2003[29]
34.	**SNWW- Texas Point Wildlife Refuge (Regular Funds)**	**New Work:**					
		Approp.	875,000	(52,517)	(38,153)	–	784,330
		Cost.	121,970	662,260	100	–	784,330
	(Contributed Funds)	**New Work:**					
		Approp.	230,159	31,284	0	–	261,443
		Cost.	–	229,254	0	–	229,254
35.	**SNWW- Bessie Heights Marsh (Regular Funds)**	**New Work:**					
		Approp.	–	15,000	98,154	692,567	805,721
		Cost.	–	7,195	83,799	653,301	744,295
	(Contributed Funds)	**New Work:**					
		Approp.	–	–	–	300,000	300,000
		Cost.	–	–	–	191,750	191,750

[1] Excludes $1,637,270 credit for contributed work.

[2] Includes $675,855 for previous projects. In addition, $10,571,509 expended from contributed funds, of which $123,361 was for previous projects. Excludes $874,258 expended from contributed funds for dock removal for the local sponsor.

[3] In addition, $1,681,103 expended from contributed funds and $34,000 expended from contributed funds for Port Isabel. In addition $1,208,789 expended from contributed funds from the City of South Padre Island for beneficial placement of dredged material on the South Padre Island Beach. Also, in addition $976,225 expended from contributed funds from Texas General Land Office.

[4] Includes $39,087 for previous projects. In addition $25,000 expended from contributed funds.

[5] Includes $69,784 for previous projects.

[6] Includes $48,711 for previous projects.

[7] Includes $46,101 for previous projects.

[8] Includes $1,372,534 for previous projects. Includes $456,515 for Sec. 107 project for Port Aransas Breakwaters. In addition $768 expended from contributed funds for Port Aransas Breakwaters.

[9] Includes $62,452 for previous projects. In addition, $1,549,550 expended from contributed funds.

[10] Includes $147,098 for previous projects. In addition, $21,007,011 expended from contributed funds. ($581,615 on 45-foot project.)

[11] In addition, $229,311 expended from contributed funds.

[12] Includes $8,421,996 for previous projects. In addition, $4,048,734 expended from contributed funds.

[13] Includes $86,126 for previous projects. In addition, $2,982,425 expended from contributed funds.

[14] Includes $706,709 for previous projects. Includes Sec. 107 projects for Port Isabel Small Boat Basin ($46,559); Port Isabel Side Channel ($8,414); Offatts Bayou ($356,466); and Channel to Aransas Pass ($658,573). In addition contributed funds expended for Port Isabel Small Boat Basin ($46,559); Offatts Bayou ($49,665); Channel to Aransas Pass ($347,950); Chocolate Bayou ($658,310); Mouth of Colorado River ($3,397,080); ($2,673,913) Channel to Victoria; ($862,716) expended for the local sponsor's levee requirement on Channel to Victoria; and $1,456,964 expended for expanding the turning basin

[15] Includes $1,526,564 for previous projects. In addition $22,672 contributed funds for main channel, $609,100 contributed funds for Rollover Pass (beginning 1997), and $175,300 contributed funds for marsh restoration in an area between Bastrop Bayou and Galveston. Includes following amounts for tributary channels separately funded starting in fiscal year 1987: Channel to Victoria $22,672,489. Channel to Aransas Pass $2,600. Chocolate Bayou Channel $4,812,062. In addition $1,515,574 was contributed for Chocolate Bayou Channel. Includes following amounts for tributary channels separately funded starting in fiscal year 1989: Channel to Harlingen $8,680,708. Channel to Port Mansfield $10,686,650. Also

includes $21,801,361 for Mouth of Colorado River, separately funded beginning in fiscal year 1992 and $28,140 contributed funds for Channel to Harlingen beginning in fiscal year 1998.

[16] Includes $1,526,564 for previous projects. In addition $22,672 expended from contributed funds for main channel, $556,699 contributed funds for Rollover Pass (beginning 1997) for the beneficial placement of dredge material at Rollover Pass., and $159,855 contributed funds for marsh restoration in an area between Bastrop Bayou and Galveston. Includes following amounts for tributary channels separately funded starting in fiscal year 1987: Channel to Victoria $22,659,011, Channel to Aransas Pass $2,600, Chocolate Bayou Channel $4,811,269. In addition $1,515,574 was expended from contributed funds for Chocolate Bayou Channel. Also includes amounts for tributary channels separately funded starting in fiscal year 1989: Channel to Harlingen $8,860,708. Channel to Port Mansfield $10,686,335. Also includes an expended amount of $21,657,945 for Mouth of Colorado River, separately funded in fiscal year 1992. In addition, includes $28,140 contributed funds expended beginning in fiscal year 1998 for Channel to Harlingen.

[17] Includes $4,105,157 for previous projects. In addition, $2,591,939 expended from contributed funds, of which $1,209,179 was for previous projects.

[18] Includes $1,213,142 for previous projects. In addition, $534,641 expended from contributed funds for Houston Ship Channel, of which $200,000 was for previous projects and $125,000 expended from contributed funds for Greens Bayou Channel. Includes appropriated funds for tributary channels separately funded starting in fiscal year 1992: Greens Bayou Channel $1,837,066. Barbour Terminal Channel $3,319,053. Bayport Ship Channel $17,961,466. Also, includes $91,942 contributed funds for Bayport Ship Channel beginning in FY 1998. Expenditures for tributary channels separately funded starting in fiscal year 1992: Greens Bayou Channel $1,806,090. Barbour Terminal Channel $3,316,137. Bayport Ship Channel $17,961,210. In addition $91,942 expended from contributed funds for Bayport Ship Channel beginning in FY 1998.

[19] In addition, $12,409,619 expended from contributed funds and $182,800 for contributed lands.

[20] Starting in fiscal year 1990 includes an appropriation of $2,303,797 and expenditures of $2,303,797 for Channel to Red Bluff.

[21] Includes $5,180,832 for previous projects. In addition, $2,680,942 expended from contributed funds, of which $577,507 was for previous projects.

[22] Includes $2,379,677 for previous projects. In addition, $6,746,165 expended from contributed funds and $7,944 expended from contributed funds for real estate acquisition for the local sponsor. In addition $346,579 contributed funds from the Port of Port Arthur of which$158,730 have been expended.

[23] Includes $366,823 for previous projects. In addition, $1,023,819 expended from contributed funds, of which $99,000 was for mitigation measures.

[24] Includes $195,083 for previous projects.

[25] Includes $1,966,306 for previous projects. In addition, $66,000 expended from contributed funds.

[26] Includes $543,662 for previous projects. Includes $9,747,974 appropriated (and $9,730,362 expended) for Wallisville Lake project beginning in FY 1983.

[27] Includes $4,400,000 of advanced funds repaid to Harris County Flood Control District. In addition, $63,661 contributed funds expended for Brays Bayou and $12,900 Federal funds and $19,104 contributed funds expended for enlargement of Clodine Ditch.

[28] Excludes $2,001,622 expended from contributed funds for real estate acquisition for the local sponsor.

[29] Includes funds ($12,544,400) provided by the Jobs Act (P.L. 98-8, dated March 24, 1983) for projects listed in Table 15-I of Annual Report for 1985.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**AQUATIC PLANT CONTROL, TX**	
	Oct. 27, 1965	Provides for control of progressive eradication of aquatic plant growth from the navigable waters and streams in the U.S.	H. Doc. 251, 89th Cong., 1st Sess.
	Nov. 17, 1986	Amended cost sharing requirements to provide for 50 percent Federal and 50 percent non-Federal participation in control operations.	Sec. 103(c), PL 99-662
2.		**BRAZOS ISLAND HARBOR, TX**	
	Jun. 3, 1930	Jetties and jetty channel, inside channels and basins.	Rivers and Harbors Committee Doc. 16, 71st Cong., 2nd Sess.
	May 24, 1934 (PWA) Aug. 30, 1935	Local cooperation requirement modified to provide contribution of funds to cover cost of original dredging of all inside channels and basins.	Rivers and Harbors Committee Doc. 10, 71st Cong., 1st Sess.
	Aug. 26, 1937	Deepen jetty channel to 31 feet and inner channels and Brownsville and Port Isabel turning basins to 28 feet.	Rivers and Harbors Committee Doc. 32, 75th Cong., 1st Sess.
	Mar. 2, 1945	Enlarge Port Isabel turning basin.	H. Doc. 335, 76th Cong., 1st Sess.
	Mar. 2, 1945	Deepen entrance channel to 35 feet; deepen to 33 feet channel across Laguna Madre; deepen to 32 feet channels from Laguna Madre to turning basins at Brownsville and Port Isabel; widen turning basins; and dredging present shallow-draft channel south of Port Isabel from railroad bridge to Laguna Madre and connecting channel to Port Isabel turning basin.	H. Doc. 347, 77th Cong., 1st Sess.
	Jul. 24, 1946	Additional connecting channel between Port Isabel and Brownsville channels; and transfer shallow-draft channels at Port Isabel to GIWW.	H. Doc. 627, 79th Cong., 2nd Sess.
	May 17, 1950	Deepen to 38 feet in outer bar channels and 36 feet in all other authorized channels and basins; extend existing turning basins at Brownsville and Port Isabel; and construct small-boat basin with a connecting channel next to Brownsville ship channel.	H. Doc. 192, 81st Cong., 1st Sess.
	Jul. 14, 1960	Widen Brownsville Channel to 300 feet at a depth of 36 feet from former Goose Island passing basin to turning basin extension, thence at a width of 500 feet and same depth to turning basin proper, deepen to 36 feet in area in southeast corner of turning basin, maintain two existing basins of fishing harbor, and a connecting channel, and construct a third basin, with necessary connecting channel and extend Brazos Island Harbor north jetty seaward 1,000 feet.[27]	H. Doc. 428, 86th Cong., 2nd Sess.[1]

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		BRAZOS ISLAND HARBOR, TX (Continued)	
	Nov. 17, 1986	Enlargement of the entrance channel from deep water in the Gulf of Mexico to the Laguna Madre to a depth of 44 feet and a width of 400 feet; enlargement of the Turning Basin Extension to a point 800 feet beyond the grain elevator to a depth of 42 feet at widths varying from 325 to 400 feet; removal of Brownsville Navigation District Wharves 5, 6, and 9 to permit widening of the adjacent portion of the Turning Basin to 1,200 feet at a depth of 36 feet; construction of asphalt walkways with handrails on the crown of the North and South Jetties, and construction of park-type public use facilities at the inner end of the North Jetty.	Sec. 201, PL 99-662
3.		**CEDAR BAYOU, TX**	
	Jul. 3, 1930	Channel 10 feet deep and 100 feet wide from Houston Ship Channel to a point on bayou 11 miles above mouth.[29]	S. Doc 107, 71st Cong., 2nd Sess.[1]
	Dec. 11, 2000	Channel 12 feet deep and 125 feet wide from Houston Ship channel to a point on bayou 11 miles above mouth.	S. 349 (a)(2), PL 106-541
4.		**CHANNEL TO PORT BOLIVAR, TX**	
	Jun. 25, 1910	A channel 30 feet deep and 200 feet wide from deep water in Galveston Harbor extending to a turning basin 1,000 feet square and 30 feet deep.[30]	H. Doc. 328, 61st Cong., 2nd Sess.
	Mar. 4, 1919	Enlargement, extension and protection of turning basin.[30]	H. Doc. 1122, 65th Cong., 2nd Sess.[1]
5.		**CLEAR CREEK AND CLEAR LAKE, TX**	
	Jun. 13, 1902	A channel 4 feet deep and 50 feet wide.	H. Doc. 449, 56th Cong., 1st Sess.
	Aug. 30, 1935	Enlargement of channel to 6 feet deep and 60 feet wide.	H. Doc. 264, 73rd Cong., 2nd Sess.
	Mar. 2, 1945	Realignment, enlargement, and extension of channel to highway bridge near League City.	H. Doc. 319, 77th Cong., 1st Sess.[1]
6.		**CORPUS CHRISTI SHIP CHANNEL, TX**	
	Mar. 3, 1899	Acquisition of old curved portion of north jetty previously constructed by private parties.	Specified in Act.
	Jun. 13, 1902	Complete north jetty in accordance with builder's plans.	Specified in Act.
	Mar. 3, 1905	Complete north jetty in accordance with builder's plans.	Specified in Act.
	Mar. 2, 1907	Connect old curve to St. Joseph Island, and construct south jetty.	Rivers and Harbors Committee Doc. 5 59th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		CORPUS CHRISTI SHIP CHANNEL, TX (Continued)	
	Feb. 27, 1911	Dredge roadstead in Harbor Island Basin to 20 feet deep and construct 10,000 linear feet of stone dike on St. Joseph Island.	H. Doc. 1094, 61st Cong., 3rd Sess.
	Mar. 4, 1913[2]	Channel between jetties and Harbor Island Basin to 25 feet deep, extend jetties seaward, extend dike on St. Joseph Island 9,100 feet, and dredge approach channel 12 feet deep to town of Port Aransas.	H. Doc. 1125, 62nd Cong., 3rd Sess.
	Sep. 23, 1922	Dredging channel from Aransas Pass to Corpus Christi, 25 feet deep, 200 feet bottom width.	H. Doc. 321, 67th Cong., 2nd Sess.
	Jul. 3, 1930[3]	Deepen entrance channel from gulf to Harbor Island and provide an inner basin at Harbor Island of reduced area but greater depth.	H. Doc. 214, 70th Cong., 1st Sess.
	Jul. 3, 1930	Channel from Aransas Pass to Corpus Christi Channel with depth 30 feet.	Rivers and Harbors Committee Doc. 9, 71st Cong., 1st Sess.
	Aug. 30, 1935[4]	Enlarge all channels from gulf to western end of basin dredge by Humble Oil and Refining Co., at its docks on Harbor Island.	Committee Docs. 35, 72nd Cong., 1st Sess., and 40, 73rd Cong., 2nd Sess.
	Aug. 30, 1935	Maintain channel and maneuvering basin between breakwater and western shoreline of Corpus Christi Bay.	H. Doc. 130, 72nd Cong., 1st Sess.
	Aug. 30, 1935	Maintain 30-foot depth of approach channel, turning basin at Corpus Christi, Industrial Canal and turning basin at Avery Point.	Rivers and Harbors Committee Doc. 13, 74th Cong., 1st Sess.
	Aug 30, 1935	Maintain and deepen to 32 feet channel from deep water at Port Aransas to and including turning basin at Corpus Christi.	Rivers and Harbors Committee Doc. 63, 74th Cong., 1st Sess.
	Jun. 20, 1938	Extend main turning basin at Corpus Christi westward 2,500 feet at its present width and depth, deepen existing Industrial Canal and turning basin to 32 feet and extend this canal at a depth of 32 feet and general width of 150 feet, westward along Nueces Bay shore to a turning basin 32 feet by 900 feet, and 1,000 feet long near Tule Lake.	H. Doc. 574, 75th Cong., 3rd Sess.
	Mar. 2, 1945	Provide depth of 34 feet in all project channels and basins from Port Aransas to and including Tule Lake turning basin, for a width of 250 feet from Port Aransas to breakwater at Corpus Christi, for a width of 200 feet in Industrial Canal and in channel between Avery Point and Tule Lake turning basins, and widen Avery Point turning basin to 1,000 feet.	H. Doc. 544, 78th Cong., 2nd Sess.
	Jun 30, 1948	Deepen entrance channel to 38 feet from gulf to outer end of jetty; 38 feet decreasing to 36 feet thence to station 90 north jetty; and 36 feet in all other deep water channels and basins except 2,000-foot undredged part of inner basin at Harbor Island, and a width of 400 feet in channel from Port Aransas to Maneuvering basin at Corpus Christi.	H. Doc. 560, 80th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		CORPUS CHRISTI SHIP CHANNEL, TX (Continued)	
	Sep. 3, 1954	An anchorage basin 12 feet deep, from 300 to 400 feet wide, and 900 feet long in Turtle Cove at Port Aransas, Texas.	H. Doc. 654, 81st Cong., 1st Sess.
	Sep. 3, 1954[5]	Branch channel 32 feet by 150 feet, extending northerly from main channel in vicinity of Port Ingleside, along north shore of Corpus Christi Bay to Reynolds Metals Co. plant and turning basin 32 feet deep and 800 feet square near plant in general vicinity of LaQuinta, Texas.	H. Doc. 89, 83rd Cong., 1st Sess.
	Sep. 3, 1954	An entrance channel 36 by 400 feet on a tangent alignment from 400-foot channel in Corpus Christi Bay, near Corpus Christi breakwater to flared approach channel to Corpus Christi turning basin.	H. Doc. 487, 83rd Cong., 2nd Sess.
	Jul. 3, 1958	Deepen and widen LaQuinta Channel to 36 by 200 feet; enlarge LaQuinta turning basin to 36 by 800 by 1,000 feet; a flared entrance to channel; and widening at curves.	S. Doc. 33, 85th Cong., 1st Sess.
	Jul. 3, 1958	Deepen entrance channel to 42 feet from gulf to outer end of jetty; 40 feet in all other deep-water channels and basins except undredged northward extension to inner basin at Harbor Island and branch channel to LaQuinta; and widen Industrial Channel to 400 feet with flared entrances to Corpus Christi and Avery Point turning basins.	H. Doc. 361, 85th Cong., 2nd Sess.
	Jul. 3, 1958	Channel 40 by 200 feet extending 2.2 miles from Tule Lake turning basin to a turning basin 40 feet deep, 700 to 900 feet wide, 1,000 feet long at Viola, Texas.	H. Doc. 361, 85th Cong., 2nd Sess.
	Jul. 3, 1958	Depth of 12 feet and a width of 100 feet in locally dredged Jewel Fulton Canal from LaQuinta Channel to a turning basin 12 by 200 by 400 feet, and assumption of maintenance by United States.	H. Doc. 361, 85th Cong., 2nd Sess.
	Jul. 14, 1960 (As amended by Dec. 31, 1970)	Construction of a breakwater at entrance to harbor area at Port Aransas, and realignment of existing 12-foot by 100-foot project channel.	Sec. 107, PL-86-645
	Aug. 13, 1968	Provides for a project depth of 45 feet in the existing deep-draft channels and basins, for construction of a new deep-draft turning point, for construction of a deep draft mooring area and mooring facilities and for widening of the channels and basins at certain locations. The Act also deauthorized the undredged northward extension of Inner Basin at Harbor Island and the undredged west turnout (Wye connection) between the LaQuinta Channel and the main channel of the waterway.	S. Doc. 99, 90th Cong., 2nd Sess.[1]
	Oct. 22, 1976	Modified local cooperation requirements for 1968 Act. Shifted responsibility for cost of disposal areas and confinement works from sponsor to joint 75 percent Federal and 25 percent non-Federal responsibility.	Sec. 124, PL 94-587
	Sep. 15, 1994	Assume maintenance of 17-foot by 100-foot Jewel Fulton Canal, after construction by local interest.	Sec. 204, PL 99-662 as amended

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
7.		**DOUBLE BAYOU, TX.**	
	Mar. 3, 1899	A channel 6-feet deep and 100-feet wide through the bar at mouth of Double Bayou.	H. Doc. 387, 55th Cong., 2nd Sess.
	Jul. 14, 1960 (As amended Oct. 25, 1965)	7-foot by 125-foot channel from the 7-foot depth in Trinity Bay to the intersection of Double Bayou Channel with the channel to Liberty; and thence a 7- by 100-foot channel upstream for 2.0 miles.	Sec. 107, PL 86-646
8.		**FREEPORT HARBOR, TX**	
	Mar. 3, 1899	Dredging and other work necessary in judgment of Secretary of War for improving harbor; for taking over jetties and privately built works at mouth of river.	Specified in Act.
	Mar. 2, 1907	Examination authorized. Work later confined to maintenance of jetties.	H. Doc. 1087, 60th Cong., 2nd Sess.
	Feb. 27, 1911	Repairs to jetties and dredging.	Specified in Act.
	Mar. 4, 1913	Construct seagoing hopper dredge.	Specified in Act.
	Aug. 8, 1917	Purchase of one 15-inch pipeline dredge and equipment, its operation of 3 years, operation of seagoing dredge one-half time for 3 years, and repairs to jetties.	Specified in Act.
	Mar. 3, 1925[6]	Diversion dam, diversion channel, and necessary auxiliary works.	Rivers and Harbors Committee Doc. 10, 68th Cong., 2nd Sess.
	Jul. 3, 1930	Maintenance of diversion channel at expense of local interest.	Rivers and Harbors Committee Doc. 18, 70th Cong., 1st Sess.
	Aug. 30, 1935	Deepening channels and basins.	Rivers and Harbors Committee Doc. 15, 72nd Cong., 1st Sess.
	Aug. 30, 1935	Maintenance of present project dimensions of channels and basins at Federal expense.	Rivers and Harbors Committee Docs. 15, 72nd Cong., 1st Sess., and 29, 73rd Cong., 2nd Sess.
	May 17, 1950	Deepen outer bar channel to 38 feet from gulf to a point within jetties, thence 36 feet in authorized channels to and including upper turning basin.	H. Doc. 195, 81st Cong., 1st Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		FREEPORT HARBOR, TX (continued)	
	Jul. 3, 1958	Relocate outer bar channel on straight alignment with jetty channel and maintain Brazos Harbor entrance channel and turning basin (constructed by local interests).	H. Doc. 433, 84th Cong., 2nd Sess.
	Oct. 5, 1961	Modification of HD 1469. Revoking certain provisions of local cooperation.	PL 394, 87th Cong.
	Dec. 31, 1970	Relocation of entrance channel and deepen to 47 feet; enlargement to a depth of 45 feet and relocation of jetty channel and inside main channel; deepening to 45 feet of channel to Brazosport; enlargement of the widened area of Quintana Point to provide a depth of 45 feet with a 750-foot diameter turning area; Brazosport turning basin to 45 feet deep with a 1,000 foot turning area; a new turning basin with a 1,200 foot diameter turning area and 45 feet deep; deepening Brazosport channel to 36 by 750 feet diameter; flared approaches from Brazos Harbor Channel; relocation of north jetty and rehabilitation of south jetty.	H. Doc. 289, 93rd Cong., 2nd Sess.[2]
	Nov. 17, 1986	Modified local cooperation requirements for the 1970 Act.	Sec. 101, PL 99-662
9.		**GALVESTON HARBOR AND CHANNEL, TX**	
	Aug. 5, 1886	Construct 2 rubblestone jetties at entrance to Galveston Harbor.	H. Doc. 85, 49th Cong., 1st Sess., and Annual Report, 1886, p. 1311.
	Jun. 13, 1902	A channel 1,200 by 30 feet from Bolivar Roads (outer end of old inner bar near Fort Point) at 51st Street.[8]	H. Doc. 264, 56th Cong., 2nd Sess.
	Mar. 3, 1905	Purchase or construct hydraulic pipeline dredge.	Specified in Act.
	Mar. 2, 1907	Extension of jetties to present project length and construction and operation of a dredge.	H. Doc. 340, 59th Cong., 2nd Sess., and Rivers and Harbors Committee Doc. 11, 59th Cong., 2nd Sess.
	Mar. 2, 1907[9]	Extension of Galveston Channel from 51st to 57th Sts., with depth of 30 feet and width of 700 feet.	H. Doc. 768, 59th Cong., 2nd Sess.
	Jun. 25, 1910[9]	Conditional extension of Galveston Channel between 51st and 57th Sts., 30 feet deep and 1,000 feet wide.	H. Doc. 328, 61st Cong., 2nd Sess
	Jul. 27, 1916	Extend seawall at Galveston from angle at 6th St., and Broadway to vicinity of Fort San Jacinto.	H. Doc. 1390, 62nd Cong., 3rd Sess.
	Jul. 18, 1918	Deepen harbor channel to 35 feet and widen to 800 feet.	H. Doc 758, 65th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		GALVESTON HARBOR AND CHANNEL, TX (continued)	
	Sep. 22, 1922	Further extension of seawall at Galveston to a junction with south jetty; and repairing seawall in front of Fort Crockett reservation.	H. Doc. 693, 66th Cong., 2nd Sess.
	Jan. 21, 1927[11]	Deepen Galveston Channel to 32 feet; and maintain Galveston Harbor channels to dimensions of 800 feet wide, 35 feet deep on outer bar and 34 feet deep in inner bar.[10]	H. Doc. 307, 69th Cong., 1st Sess.
	Aug 30, 1935	Maintain State Highway Ferry Landing Channels to dimensions of 12 by 100 feet.	River and Harbors Committee Doc. 31, 72nd Cong. 1st Sess.
	Aug 30, 1935	Construct 13 groins along gulf shore from 12th to 61st Sts. in city of Galveston at a limited cost of $234,000 (10 Groins constructed)	H. Doc. 400, 73rd Cong., 2nd Sess.
	Aug. 30, 1935	Deepen Galveston Channel to 34 feet (Bolivar Roads to 43rd St.).	Rivers and Harbors Committee Doc. 61, 74th Cong., 1st Sess.
	Aug. 30, 1935	Deepen Galveston entrance channel to 36 feet.	Rivers and Harbors Committee Doc. 57, 74th Cong., 1st Sess.
	Apr. 4, 1938	Completion of project for construction of 13 groins.	PL 463, 75th Cong.
	Jun. 30, 1948	Deepen Galveston Harbor to 38 feet from gulf to a point 2 miles west of seaward end of north jetty; thence 36 feet to Bolivar Roads; revoking authority for maintenance of ferry channels; and Galveston channel to 36 feet deep from Bolivar Roads to 43rd Street.	H. Doc. 561, 80th Cong., 2nd Sess.
	May 17, 1950	Deepen outer bar channel to 38 feet from gulf to a point within jetties, thence 36 feet in authorized channels to and including upper turning basin.	H. Doc. 195, 81st Cong., 1st Sess.
	Jul. 3, 1958	Dredge to a depth of 42 feet over the authorized width of 800 feet from the Gulf of Mexico to a point 2 miles west of the seawall and of the North jetty thence at a depth of 40 feet to the junction of the Houston Ship Channel, with widths of 800 feet to Bolivar Roads, thence decreasing to 400 feet at the junction with the Houston Ship Channel.	H. Doc. 350, 85th Cong., 2nd Sess.
	Jun. 23, 1971 (House Res.) Nov. 18, 1971 (Senate Res.)	Deepen Galveston Channel to 40 feet from Bolivar to 43rd Street.	H. Doc. 121, 92nd Cong
	Oct. 12, 1996	Provides for navigation and environmental restoration improvements. The navigation improvements consist of deepening and widening the Entrance Channel to 47 feet deep and 800 feet wide; the Houston Ship Channel to 45 feet deep and 530 feet wide; and the Galveston Channel to 45 feet deep. The environmental restoration portion consist of initial construction of marsh habitat and a colonial water bird nesting island through the beneficial use of new work dredged material, and incremental development (deferred construction) of additional marsh over the life of the navigation project through the beneficial use of maintenance materials dredged from Galveston Bay. The project is referred to as Houston-Galveston Navigation Channels.	Sec. 101 (30) PL 104-303

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
10.		**GULF INTRACOASTAL WATERWAY BETWEEN APALACHEE BAY, FL AND MEXICAN BORDER**	
	Mar. 2, 1907	Channel 4 by 100 feet from West Galveston Bay across Chocolate Bay to 4 feet of water in Chocolate Bay.	H. Doc. 445, 56th Cong., 1st Sess.
	Mar. 3, 1925	Channel 9 by 100 feet, Sabine River to Galveston Bay, and a 20-inch pipeline dredge. Such passing places, widening at bends, locks or guard locks and railway bridges over artificial cuts as are necessary.	H. Doc. 238, 68th Cong., 1st Sess.
	Jan. 21, 1927	Channel 9 by 100 feet, Galveston Bay to Corpus Christi.	H. Doc. 238, 68th Cong., 1st Sess.
	Aug. 26, 1937	Maintenance of a flood-discharge channel in Colorado River.	S. Committee print, 75th Cong., 1st Sess.
	Jun. 20, 1938[13]	Channel 9 by 100 feet in San Bernard River, Texas.	H. Doc. 640, 75th Cong., 3rd Sess.
	Jun. 20, 1938	Channel in Colorado River, 9 by 100 feet, with basin.	H. Doc. 642, 75th Cong., 3rd Sess.
	Jun. 20, 1938	Channel 9 by 100 feet from Palacios through Trepalacios and Matagorda Bays.	H. Doc. 564, 75th Cong., 3rd Sess.
	Jun. 20, 1938	Channel 9 by 200 feet from main channel to harbor at Rockport and improve harbor to 9-foot depth.	H. Doc. 641, 75th Cong., 3rd Sess.
	Jun. 20, 1938	Channel 6 by 100 feet from main channel to Aransas Pass, Texas.	H. Doc. 643, 75th Cong., 3rd Sess.
	Mar. 23, 1939	Enlarge waterway to depth of 12 feet and a width of 125 feet from Sabine River to Corpus Christi.	H. Doc. 230, 76th Cong., 1st Sess.
	Jul. 23, 1942	Construct waterway from Corpus Christi to vicinity of Mexican border to provide a depth of 12 feet and width of 125 feet throughout.	PL 675, 77th Cong.
	Mar. 2, 1945	Channel 6 by 60 feet from GIWW to a point in Chocolate Bayou near Liverpool.	H. Doc. 337, 76th Cong., 1st Sess.
	Mar. 2, 1945[9]	Channel 6 feet deep and 60 feet wide from main channel near Port O'Connor, Texas, in Barroom Bay.	H. Doc. 428, 76th Cong., 1st Sess.
	Mar. 2, 1945	Enlarge channel from main channel to Aransas Pass, Texas, providing a depth of 9 feet and width of 100 feet.	H. Doc. 383, 77th Cong., 1st Sess.
	Mar. 2, 1945	Channel 12 by 125 feet from main channel to Red Fish Landing, Texas, with basin.	S. Doc 248, 78th Cong., 2nd Sess.
	Mar. 2, 1945[14]	Channel 12 feet deep and 125 feet wide from main channel to vicinity of Harlingen, Texas, via Arroyo Colorado with basin.	H. Doc. 402, 77th Cong., 1st Sess. (See PL 14, 79th Cong.)

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		GULF INTRACOASTAL WATERWAY (continued)	
	Jul. 24, 1946	Fill a portion of shallow-draft channel adjacent to Port Isabel Turning Basin, construct a channel to connect shallow-draft channel with main channel near shoreline of Laguna Madre, and enlarge shallow-draft channel west of this connection, all to 12-foot depth and bottom width of 125 feet.	H. Doc. 627, 79th Cong., 2nd Sess.
	Jul. 24, 1946	Reroute main channel to north shore of Red Fish Bay between Aransas Bay and Corpus Christi Bay; deepen tributary channel from Port Aransas to Aransas Pass, Texas, 12 feet and extended basin at same depth.	H. Doc. 700, 79th Cong., 2nd Sess.
	May 17, 1950	Deauthorized 6 by 60 foot channel in Chocolate Bayou and reauthorized the 4 by 100-foot channel.	H. Doc. 768, 80th Cong., 2nd Sess.
	May 17, 1950	Alternate channel across South Galveston Bay between Port Bolivar and Galveston causeway.	H. Doc. 196, 81st Cong., 1st Sess.
	May 17, 1950	"Red Fish Landing" changed to "Port Mansfield, Texas."	PL 516, 81st Cong.
	Jul. 12, 1952	Incorporate as part of Intracoastal Waterway a channel 9 by 100 feet from main channel via Seadrift to point on Guadalupe River 3 miles above Victoria, Texas, authorized by River and Harbor Act of 1945.	PL 527, 82nd Cong., 2nd Sess.
	Sep. 3, 1954[15]	Small craft harbor 9 by 200 by 1,000 feet at Seadrift with an entrance channel 9 by 100 feet.	H. Doc. 478, 81st Cong., 2nd Sess.
	Sep. 3, 1954	Widen tributary channel between Port Aransas and Aransas Pass, Texas, to 125 feet; straighten and widen to 125 feet connecting channel to Conn Brown Harbor, and maintain Conn Brown Harbor at Federal expense, all to 12 feet deep.	H. Doc. 376, 83rd Cong., 2nd Sess.
	Sep. 9, 1959	Improve channels and basins comprising channel to Port Mansfield constructed in part by Federal Government and in part by local interest; constructing turnout curves at Gulf Intracoastal Waterway intersection and bend easing at entrance to turning basin; construct parallel jetties at gulf entrance; maintenance of locally dredged jetty channel 16 by 250 feet; and maintenance of small craft basin.	S. Doc. 11, 86th Cong., 1st Sess.
	Jul. 14, 1960	Entrance channel 7 feet deep by 75 feet wide from main channel to Gulf of Mexico to inside shoreline at Port Isabel, Texas, an inner channel 6 feet deep by 50 feet wide from entrance channel to East Harbor Basin, and an irregular-shaped harbor basin 6 feet deep having a surface area of about 7 acres.	Sec. 107, PL 645, 86th Cong.
	Jul. 14, 1960 (As amended Dec. 31, 1970)	Deepen the existing 6-foot channel at Port Isabel to 12 feet and removing the submerged bars at each end of the island to a depth of -12 feet MLT.	Sec. 107, PL 86-645
	Jul. 14, 1960 (As amended Dec. 31, 1970)	Deepening the existing channel to 12 by 125 feet, and extend southeasterly from the Gulf Intracoastal Waterway main channel in West Galveston Bay, into Offatts Bayou, a distance of 2.2 miles, and a west turnout 12 by 125 feet between the proposed Offatts Bayou Channel and the Gulf Intracoastal Waterway.	Sec. 107, PL 86-645

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		GULF INTRACOASTAL WATERWAY (continued)	
	Jul. 14, 1960 (As amended Dec. 31, 1970)	Deepening Aransas Pass tributary channel to 14 feet from mile 0 at Harbor Island to mile 6.1 at the city of Aransas Pass; widening to 175 feet between miles 3.5 and 4.6; and deepening Conn Brown Harbor, turning basin and connecting channel between Conn Brown Harbor and turning basin.	Sec. 107, PL 86-645
	Oct. 23, 1962[16]	Improve main channel 16 feet deep and 150 feet wide from Sabine River to Houston Ship Channel; with two relocations; relocate main channel in Matagorda Bay and Corpus Christi Bay; and maintaining existing Lydia Ann Channel.	H. Doc. 556, 87th Cong., 2nd Sess.
	Oct. 23, 1962	Deepen and widen channel to Palacios; construct two protective breakwaters; maintain and deepen existing basins; and deepen, enlarge and maintain existing approach channel to basin No. 2.	H. Doc. 504, 87th Cong., 2nd Sess.
	Oct. 23, 1962	Eliminates requirement of local interest to construct bridge at mile 29.2 turning basin at Victoria, and maintain turning basins at Victoria and Seadrift; provide: Federal construction of vertical-lift railroad bridge at Missouri-Pacific Railroad mainline crossing, mile 29.2; construction and future maintenance of basin near Victoria, Texas, and maintenance of basin constructed by local interests at Seadrift, Texas.	H. Doc. 288, 87th Cong., 2nd Sess.
	Oct. 27, 1965[17]	Modify existing Federal navigation project to provide a channel extending from Gulf Intracoastal Waterway through Chocolate Bay and Chocolate Bayou to project channel mile 8.2, thence to a turning basin near channel mile 13.2 and for salt water barrier in Chocolate Bayou about 3.7 miles upstream from basin (channel mile 16.9).	H. Doc. 217, 89th Cong., 1st Sess.
	Aug. 13, 1968	Entrance channel 15 feet deep and 200 feet wide at the mouth of Colorado River Channel protected by an east jetty 3,500 feet long extending to 12-foot depth and a west jetty 2,900 feet long extending to 5-foot contour; make channel 12 feet by 100 feet from gulf shore to Matagorda, including recreation facility, a turning basin 12 feet by 300 feet wide and 1,450 feet long, and a new diversion channel 250 feet wide and varying in depth from 20 to 23 feet including a closure dam across the present river channel.	S. Doc. 102, 90th Cong., 2nd Sess.
	Nov. 17, 1986	Modified 1968 authorization to provide that diversion features be constructed at Federal expense and operation and maintenance be shared 75 percent Federal and 25 percent non-Federal.	Sec. 812, PL 99-662
	Nov. 17, 1988	Enlarge existing Channel to Victoria from a depth of 9 feet and width of 100 feet to a depth of 12 feet and width of 125 feet.	Sec. 3, PL 100-676
	Oct. 31, 1992	Provide 8 miles of erosion protection for the existing waterway in the vicinity of Sargent, Texas.	Sec. 101 (20), PL 102-580
	Oct. 12, 1996	Provides for erosion protection along a 31-mile reach of the Gulf Intracoastal Waterway, which crosses the critical wintering habitat of the endangered whooping crane, including a 13.25-mile reach within the boundary of the Aransas National Wildlife Refuge. Also, provides for limited oil spill containment features and equipment to protect those areas from accidental hazardous spills.	Sec. 101 (29), PL 104-303

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
11.		**HOUSTON-GALVESTON NAVIGATION CHANNELS, TX**	
	Oct. 12, 1996	Provides for navigation and environmental restoration improvements. The navigation improvements consist of deepening and widening the Entrance Channel to 47 feet deep and 800 feet wide; the Houston Ship Channel to 45 feet deep and 530 feet wide; and the Galveston Channel to 45 feet deep. The environmental restoration portion consist of initial construction of marsh habitat and a colonial water bird nesting island through the beneficial use of new work dredged material, and incremental development (deferred construction) of additional marsh over the life of the navigation project through the beneficial use of maintenance materials dredged from Galveston Bay.	Sec. 101 (29) PL 104-303
	Oct. 27, 2000	Provides for barge lanes immediately adjacent to either side of the Houston Ship Channel, from Bolivar roads to Morgan Point, to a depth of 12 feet.	Appendix B, PL 106-377
12.		**HOUSTON SHIP CHANNEL, TX**	
	Mar. 5, 1905	Easing or cutting off sharp bends and construction of a pile dike.[18]	Rivers and Harbors Committee Doc. 35, 61st Cong., 2nd Sess.
	Mar. 2, 1919	A channel 30 feet deep, widen bend at Manchester and enlarge turning basin.	H. Doc. 1632, 65th Cong., 3rd Sess.
	Mar. 3, 1925	A light-draft extension of channel to mouth of White Oak Bayou.[19]	H. Doc. 93, 67th Cong., 1st Sess.
	Jul. 3, 1930	Widen channel through Morgan Point and to a point 4,000 feet above Baytown and widen certain bends.	H. Doc. 13, 71st Cong., 1st Sess.
	Aug. 30, 1935[11]	Deepen to 32 feet in main channel and turning basin, and a 400-foot width through Galveston Bay.	Rivers and Harbors Committee Doc. 28, 72nd Cong., 1st Sess.
	Aug. 30, 1935	Deepen to 34 feet in main channel and widen from Morgan Point to turning basin	Rivers and Harbors Committee Doc. 58, 74th Cong., 1st Sess.
	Mar. 2, 1945	Branch channel 10 by 60 feet behind Brady Island.	H. Doc. 226, 76th Cong., 1st Sess.
	Mar 2, 1945	Widen channel from Morgan Point to lower end of Fidelity Island with turning points at mouth of Hunting Bayou and lower end of Brady Island.	H. Doc. 226, 76th Cong., 1st Sess.
	Mar. 2, 1945	Widen channel from lower end of Fidelity Island to Houston turning basin and dredge off-channel silting basins.	H. Doc. 737, 79th Cong., 2nd Sess.
	Jun. 30, 1948	Deepen to 36 feet from Bolivar Roads to and including main turning basin at Houston, Texas, including turning points at Hunting Bayou and Brady Island.	H. Doc. 561, 80th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		HOUSTON SHIP CHANNEL, TX (continued)	
	Jul. 3, 1958[20]	Deepen to 40 feet from Bolivar Roads to Brady Island, construct Clinton Island turning basin, a channel 8 by 125 feet at Five Mile Cut, and improve shallow-draft channel at Turkey Bend.	H. Doc. 350, 85th Cong., 2nd Sess.[1]
	Jul. 14, 1960	Barbour Terminal at Morgan Point.	Sec. 107, PL 86-645
	Oct. 27, 1965H. Doc. 257, 89th Cong., 1st Sess.	Restoring existing locally dredged channel from mile 0 to 0.34 to 36 feet deep and dredging a 15-12 ft. channel from mile 0.34 to 2.81, in Greens Bayou.[21]	H. Doc. 257, 89th Cong., 1st Sess.
	Nov. 17, 1986	Maintenance of Greens Bayou, Barbour Terminal Channel, and Bayport Ship Channel to forty-foot depths at Federal expense.	Sec. 819, PL 99-662
	Oct. 12, 1996	Provides for navigation and environmental restoration improvements. The navigation improvements consist of deepening and widening the Entrance Channel to 47 feet deep and 800 feet wide; the Houston Ship Channel to 45 feet deep and 530 feet wide; and the Galveston Channel to 45 feet deep. The environmental restoration portion consist of initial construction of marsh habitat and a colonial water bird nesting island through the beneficial use of new work dredged material, and incremental development (deferred construction) of additional marsh over the life of the navigation project through the beneficial use of maintenance materials dredged from Galveston Bay. The project is referred to as Houston-Galveston Navigation Channels.	Sec. 101 (30) PL 104-303
13.		**MATAGORDA SHIP CHANNEL, TX**	
	Jun. 25, 1910	Channel to Port Lavaca, Texas 7 feet deep and 89 feet bottom width.	H. Doc. 1082, 60th Cong., 2nd Sess.
	Aug. 30, 1935	Extend 7-foot channel to shoreline of Lavaca Bay at mouth of Lynns Bayou.	Rivers and Harbors Committee Doc. 28, 74th Cong., 1st Sess.
	Aug. 26, 1937	Deepen and widen channel to present project dimensions.	Rivers and Harbors Committee Doc. 37, 75th Cong., 1st Sess.
	Mar. 2, 1945	Extend channel 6 by 100 feet from Port Lavaca via Lavaca Bay, Lavaca and Navidad Rivers to Red Bluff, a distance of 20 miles.	H. Doc. 314, 76th Cong., 1st Sess.
	Mar. 2, 1945	A harbor of refuge 9 feet deep near Port Lavaca and an approach channel 100 feet wide and equal depth.	H. Doc. 731, 79th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		MATAGORDA SHIP CHANNEL, TX (Continued)	
	Jul. 3, 1958	Deepen to 12 feet and widen to 125 feet Port Lavaca Channel and approach channel to harbor of refuge; deepen to 12 feet Port Lavaca turning basin and basins at harbor of refuge.	H. Doc. 131, 84th Cong., 1st Sess.
	Jul. 3, 1958	An entrance channel 38 by 300 feet, a channel 36 by 200 feet, 22 miles long across Matagorda and Lavaca Bays to Point Comfort, Texas, a turning basin 36 feet deep and 1,000 feet square at Point Comfort, and dual jetties at entrance from gulf.	H. Doc. 388, 84th Cong., 2nd Sess.
14.		**NECHES RIVER AND TRIBUTARIES, SALT WATER BARRIER AT BEAUMONT, TX**	
	Oct. 22, 1976	Construct gated salt water barrier in Neches River consisting of seven 40 x 24.5 foot tainter gates; gated navigation by-pass channel with clear opening of 56 feet and depth of 16 feet; access road and levee; and auxiliary dam across canal which drains adjacent bayou.	Sec. 102, PL 94-587
15.		**SABINE-NECHES WATERWAY, TX.**	
	Jul. 25, 1912	Existing project dimensions of jetties, a 26-foot channel through Sabine Pass, Port Arthur Canal and Port Arthur turning basin; and a 26-foot turning basin at Port Arthur. A depth of 25-feet in Sabine-Neches Canal, Neches River to Beaumont and Sabine River to Orange, including cutoffs and widening channels.	H. Doc. 773, 61st Cong., 2nd Sess.
	Sep. 22, 1922	Deepen channels to 30 feet from gulf to Beaumont, with increased widths and an anchorage basin in Sabine Pass.	H. Doc. 975, 66th Cong., 3rd Sess.
	Sep. 22, 1922	Deepen Port Arthur east and west turning basins and approach channel to 30 feet. Take over and deepen to 30 feet channel connecting west turning basin with Taylors Bayou turning basin. For a 30-foot depth in channel from mouth of Neches River to cutoff in Sabine River near Orange.	S. Doc. 152, 67th Cong., 2nd Sess.
	Mar. 3, 1925	Removal of guard lock in Sabine-Neches Canal.	H. Doc. 234, 68th Cong., 1st Sess.
	Jan. 21, 1927	Widen Sabine Pass and jetty channel, Port Arthur Canal, and Sabine-Neches Canal. For dredging 2 passing places in Sabine-Neches Canal, easing of bends, removal and reconstructing Port Arthur field office, extending Beaumont turning basin upstream 200 feet above new city wharves, and an anchorage basin in Sabine Pass.	H. Doc 287, 69th Cong., 1st Sess.
	Aug. 30, 1935[11]	A depth of 32 feet in channels from gulf to Beaumont turning basin, including all turning basins at Port Arthur.	Rivers and Harbors Committee Doc. 27, 72nd Cong., 1st Sess.
	Aug. 30, 1935[11]	Deepen channels to 34 feet with increased widths from gulf to Beaumont turning basin.	Rivers and Harbors Committee Doc. 12, 74th Cong., 1st Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		SABINE-NECHES WATERWAY, TX (continued)	
	Aug. 30, 1935	Construct suitable permanent protective works along Sabine Lake. Maintain Taylors Bayou turning basin.	Specified in Act.
	Aug. 26, 1937	Maintain channel from Sabine River to Orange Municipal wharf.	Rivers and Harbors Committee Doc. 3, 75th Cong., 1st Sess.
	Aug. 26, 1937	Dredging 500 feet from eastern end of Harbor Island and abandonment of channel south and west of Harbor Island.	Rivers and Harbors Committee Doc. 20, 75th Cong., 1st Sess.
	Jun. 20, 1938[22]	Increased widths of channels from gulf to Beaumont turning basin and channel connecting Port Arthur west turning basin and Taylors Bayou turning basin, deepen Beaumont turning basin and Beaumont turning extension to 34 feet; and dredge a new cutoff from Smith's Bluff cutoff to McFadden Bend.	H. Doc. 581, 75th Cong., 3rd Sess.
	Oct. 17, 1940	Abandon Orange turning basin; dredge a channel 25 by 150 feet, suitably widened on bends to highway bridge, and dredge a cutoff channel opposite Orange.	S. Doc 14, 77th Cong., 1st Sess.
	Mar. 2, 1945	Extend Beaumont turning basin upstream 300 feet.	H. Doc. 685, 76th Cong., 3rd Sess.
	Mar. 2, 1945	Widen Port Arthur west turning basin to 600 feet.	S. Doc 60, 77th Cong., 1st Sess.
	Mar. 2, 1945	Dredge a channel from Beaumont turning basin to vicinity of Pennsylvania Shipyard.	S. Doc 158, 77th Cong. 2nd Sess.
	Jul. 24, 1946[23]	Deepen Sabine Pass outer bar channel to 37 feet, Sabine Pass jetty channel to 36 feet at inner end, deepen to 36 feet Sabine Pass Channel, Port Arthur Canal, Port Arthur east and west turning basins, Taylors Bayou turning basin and channel from Port Arthur west turning basin to Taylors Bayou turning basin, deepen to 36 feet and widen to 400 feet Sabine-Neches Canal from Port Arthur Canal to mouth of Neches River except through Port Arthur Bridge; deepen Neches River channel from mouth to Beaumont turning basin to 36 feet widening to 350 feet from Smith's Bluff to Beaumont turning basin; deepen junction area on Neches River at Beaumont turning basin to 36 feet; and widen Sabine-Neches Canal between Neches and Sabine Rivers to 150 feet.	H. Doc. 571, 79th Cong., 2nd Sess.
	Jul. 24, 1946[24]	Improve Cow Bayou, Texas, by construction of a channel 100 feet wide and 13 feet deep extending from navigation channel in Sabine River to a point 0.5 mile above county bridge at Orangefield, Texas, with a turning basin.	H. Doc. 702, 79th Cong., 2nd Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		SABINE-NECHES WATERWAY, TX (continued)	
	Jul. 24, 1946	Improve Adams Bayou, Texas, to provide a channel 12 feet deep and 100 feet wide extending from 12-foot depth in Sabine River to first county highway bridge across bayou.	H. Doc. 626, 79th Cong., 2nd Sess.
	May 17, 1950	Deepen to 36 feet and widen to 400 feet the Sabine-Neches Canal near Port Arthur bridge; reconstruct Port Arthur Bridge and relocate Port Arthur field office.	H. Doc. 174, 81st Cong., 1st Sess.
	Sep. 3, 1954[25]	Rectification of certain reaches of existing Sabine Pass Channel, Sabine-Neches Canal, and Neches River and Sabine River Channel; widen to 350 feet entrance channel to Port Arthur turning basins; widen curve at junction of Port Arthur and Sabine-Neches Canals; relocate and enlarge Sabine Pass anchorage basin to 34 by 1,500 by 3,000 feet; widen to 200 feet Sabine-Neches Canal from mouth of Neches River to mouth of Sabine River and Sabine River Channel to upper end of existing project at Orange, except for channel around Harbor Island at Orange; deepen to 30 feet Sabine River Channel from cutoff near Orange municipal slip to upper end of project, except around Harbor Island; and enlarge area at entrance to Orange municipal slip to provide a maneuvering basin.	S. Doc. 80, 83rd Cong., 2nd Sess.
	Oct. 23, 1962[26]	Improve outer bar channel to 42 and 40 feet for all inland channels to Port Arthur and Beaumont; width of 500 feet in Port Arthur Canal and 400 feet in Neches River Channel to Beaumont with three turning points in Neches River; a channel, 12 by 125 feet, extending in Sabine River to Echo; and replace an obstructive bridge at Port Arthur, Texas. Deauthorization of uncompleted portion of channel between Port Arthur west turning basin and Taylors Bayou turning basin and enlargement of entrance channel to Port Arthur turning basins.	H. Doc. 553, 87th Cong., 2nd Sess.[1]
16.		**TEXAS CITY CHANNEL, TX**	
	Mar. 4, 1913	A channel 300 by 30 feet and construct a pile dike 28,200 feet long north to channel.	H. Doc. 1390, 62nd Cong., 3rd Sess.
	Jul. 3, 1930	A harbor 800 by 30 feet at Texas City, and construct a rubblemound dike.	H. Doc. 107, 71st Cong., 1st Sess.
	Aug. 30, 1935[11]	Extension of rubblemound dike to shoreline.	Rivers and Harbors Committee Doc. 4, 73rd Cong., 1st Sess.
	Aug. 30, 1935	Deepen channel and harbor to 32 feet.	Rivers and Harbors Committee Doc. 46, 73rd Cong., 2nd Sess.
	Aug. 30, 1935	Deepen channel and harbor to 34 feet.	Rivers and Harbors Committee Doc. 62, 74th Cong., 1st Sess.

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		TEXAS CITY CHANNEL, TX (continued)	
	Aug. 26, 1937	Extend harbor 1,000 feet southward, 800 by 34 feet.	Rivers and Harbors Committee Doc. 47, 75th Cong., 1st Sess.
	Jun. 30, 1948	Deepen channel and harbor to 36 feet, widen channel to 400 feet and harbor to 1,000 feet and changing name of project to "TEXAS CITY CHANNEL, TEXAS."	H. Doc. 561, 80th Cong., 2nd Sess.[1]
	Jul. 14, 1960	Deepen channel and turning basin to 40 feet and construct 16-foot Industrial Barge Canal.	H. Doc. 427, 86th Cong., 2nd Sess.
	Oct. 12, 1972 Senate Res.) Oct. 12, 1972 (House Res.)	Widen the existing main turning basin to 1,200 feet including relocation of the basin 85 feet to the east; providing a 40-foot deep channel in the Industrial Canal at widths of 300-400 feet, with a turning basin at the head of the canal 40 feet deep, 1,150 feet long, and 1,000 feet wide, and easing of the bend at the entrance to the canal, and deauthorization of shallow-draft Industrial Barge Canal not incorporated in the plan of improvement above.	H. Doc. 199, 92nd Cong., 2nd Sess. (Sec. 201, PL 89-298)
	Nov. 17, 1986	Deepening the Texas City Turning Basin to 50 feet, enlarging the 6.7 mile long Texas City Channel to 50 feet by 600 feet; deepening the existing 800-foot wide Bolivar Roads Channel and Inner Bar Channel to 50 feet; deepening the existing 800-foot wide Outer Bar and Galveston Entrance Channels to 52 feet; extending the Galveston Entrance Channel to a 52 foot depth for 4.1 miles at a width of 800 feet and an additional reach at a width of 600 feet to the 52 foot contour in the Gulf of Mexico; and establishment of 600 acres of wetland and development of water-oriented recreational facilities on a 90-acre enlargement of the Texas City Dike.	Sec. 201, PL 99-662
17.		**TRINITY RIVER AND TRIBUTARIES, TX**	
	Jun. 18, 1878	Dredging of a channel through the bar at the mouth of the Trinity River.	
	1889	Modified to include two parallel jetties 275 feet apart, the westerly one of length 7,359 feet and the other of length 300 feet.	
	Jun. 13, 1902 (As amended Mar. 3, 1905, Mar. 2, 1907, Jun. 25, 1910, Jul. 25, 1912, Mar. 4, 1913, and Jul. 27, 1916)	Improvement of the Trinity River in the interest of providing navigation from the mouth of the Trinity River to Dallas. The plan provided for the construction of 37 locks and dams, with auxiliary dredging and other open-channel work necessary to obtain a 6-foot depth for continuous navigation (excepting periods of excessive drought). Each Act also authorized the construction of certain-named locks and dams.	H. Doc. 409, 56th Cong., 1st Sess.
	Mar. 3, 1905	Authorized the Anahuac Channel. No project dimensions were specified by the Act, so a 7- by 8-foot channel, 12,238 feet long was dredged in 1905.	Specified in Act.
	Sep. 22, 1922	Abandon improvements above Liberty and terminate all improvements by lock and dam, leaving a 6-foot channel from Liberty to mouth.	H. Doc. 989 66th Cong., 3rd Sess

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		TRINITY RIVER AND TRIBUTARIES, TX (continued)	
	Mar. 2, 1945	Provides for a navigable channel from the Houston Ship Channel near Red Fish Bar in Galveston and Trinity Bays to the mouth of Trinity River and 9 feet deep and 150 feet wide in the river section, with a turning basin at Liberty.	H. Doc. 403, 77th Cong., 1st Sess.
	Jul. 24, 1946	Modification of the project to provide for a channel 9 feet deep and 150 feet wide from the Houston Ship Channel near Red Fish Bar in Galveston Bay extending along the east shore of Trinity Bay to the mouth of the Trinity River at Anahuac, including protective spoil embankment on the bay side of the channel in lieu of the 9 by 200-foot channel in Galveston and Trinity Bays.	H. Doc. 634, 79th Cong., 2nd Sess.
	Oct. 23, 1962	Provides for the multiple-purpose Wallisville Reservoir, including a navigation lock in the Wallisville Dam at Channel Mile 28.30 and advancement of the Channel to Liberty from one mile below Anahuac (Mile 23.2) to the Texas Gulf Sulphur Company's slip at Channel Mile 35.8, and incorporation into existing project Anahuac Channel and mouth of Trinity River projects.	H. Doc. 215, 87th Cong., 1st Sess.
	Oct. 27, 1965	Reevaluation of navigation benefits.	H. Doc. 276, 89th Cong., 1st Sess.
	Jul. 30, 1983	Modified Wallisville Reservoir by reducing the size to 5,600 acres and confining the reservoir to east side of Trinity River.	PL 98-63
21.		**BUFFALO BAYOU AND TRIBUTARIES, TX**	
	Jun. 20, 1938	Barker and Addicks Reservoirs, Texas.	H. Doc. 456, 75th Cong., 2nd Sess.
	Sep. 3, 1954	Clearing, straightening, enlarging and lining of Buffalo, Brays, and White Oak Bayous.	H. Doc. 250, 83rd Cong., 2nd Sess.[1]
	Oct. 27, 1965	Extend upper limits of White Oak Bayou upstream about 2.1 miles from BRI RR bridge to mouth of Cole Creek.	H. Doc. 169, 89th Cong., 1st Sess.
	Nov. 28, 1990	Flood damage reduction improvements and recreational development for the Houston, Texas urban area, divided into six separable elements – Brays, Greens, Hunting, Halls, Carpenters and Little White Oak Bayous. Flood control improvements consist of 75.3 miles of stream enlargement, 14 miles of stream clearing, 7 flood detention basins, 7 miles of diversion channels and environmental revegetation. Recreation features consist of 14.7 miles of trails, 502 picnic facilities, 12 group pavilions, 2 boat launching ramps, 10 restrooms, playgrounds, exercise stations and parking facilities.	Sec. 101, PL 101-640

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
		BUFFALO BAYOU AND TRIBUTARIES, TX (Continued)	
	Oct. 12, 1996	Authorizes non-Federal interests to undertake flood control projects in the United States, subject to obtaining any permits required pursuant to Federal and State laws in advance of actual construction. For the purpose of demonstrating the potential advantages and effectiveness of non-Federal implementation of flood control projects, the Secretary shall enter into agreements pursuant to this section with non-Federal interests for development of the following Buffalo Bayou projects: Brays Bayou, Hunting Bayou, and White Oak Bayou.	Sec. 211, PL 104-303
	Oct. 12, 1996	The non-Federal interest for the Buffalo Bayou and tributaries authorized flood control projects, may be reimbursed by up to $5,000,000 or may receive a credit of up to $5,000,000 toward required non-Federal project cost-sharing contributions for work performed by the non-Federal interest at each of the following locations if such work is compatible with 1 or more of the following authorized projects: White Oak Bayou, Brays Bayou, Hunting Bayou, Garners Bayou (not authorized), and the Upper Reach of Greens Bayou.	Sec 350, PL 104-303
23.		**CLEAR CREEK, TX**	
	Aug. 13, 1968	Channel enlargement and rectification from upper end of Clear Lake at Mile 3.8 to improved channel Mile 34.8.[28]	H. Doc. 351, 90th Cong., 2nd Sess.
	Nov. 17, 1986	Modified local cooperation requirements of the 1968 authorization.	Sec. 1001, PL 99-662
24.		**CYPRESS CREEK, TX**	
	Nov. 17, 1988	Enlargement and rectification of lower 29.4 miles of Cypress Creek channel and recreational development	Sec. 3, PL 100-676
	Aug. 17, 1999	Modified the project to authorize a nonstructural flood control project.	Sec. 355(a), PL 106-53
25.		**LOWER RIO GRANDE BASIN, TX**	
	Nov 17, 1986	Channel improvements to provide drainage protection for the area in Hidalgo and Willacy Counties north of U.S. Highway 83, and for the area between U.S. Highway 83 and the Rio Grande in Hidalgo County; and to provide flood protection for the cities of McAllen, Edinburg, Raymondville, Edcouch, La Villa, and Lyford.	Sec 401, PL 99-662
	Aug. 17, 1999	Modified the project to authorize a nonstructural flood control project.	Sec. 355(a), PL 106-53

TABLE 40-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
26.		**SIMS BAYOU, TX**	
	Nov. 17, 1986	Enlargement and rectification, with appropriate erosion control measures of 19.31 miles of Sims Bayou; environmental measures and riparian habitat along entire alignment, and recreational development.	Sec. 401, PL 99-662
	Sep. 29, 1989	Amended the Water Resources and Development Act (WRDA) of 1986 authorization as project cost estimate had exceeded limit established in Section 902 of WRDA 1986.	Sec. 103, PL 101-101
32.		**NORTH PADRE ISLAND, TX**	
	Aug. 17, 1999	Carry out a project for ecosystem restoration and storm damage reduction at North Padre Island, Corpus Christi Bay, Texas, if it is determined that the work is technically sound and environmentally acceptable.	Sec. 556, PL 106-53

[1] Contains latest published maps.

[2] Extension of north jetty 1,950 feet and south jetty 1,265 feet considered inactive. (1975 Deauthorization list)

[3] Dredging 2,000 by 650-foot northerly extension of inner basin deauthorized.

[4] Included in Public Works Administration program September 6, 1933 and February 16, 1935.

[5] West leg of Wye junction with main channel deauthorized.

[6] Construction of lock in diversion dam at local expense considered inactive.

[7] Dredging upper 1.3 mile of channel to vicinity of Stauffer Chemical plant was deauthorized under Sec. 12 of PL 93-251. Included in Public Works Administration program September 6, 1933. (1975 Deauthorization list)

[8] Dredging 43rd to 51st Streets was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[9] Deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[10] Deepening 43rd to 57th Streets was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[11] Previously authorized September 6, 1933 by Public Works Administration.

[12] H. Doc. 230, 76th Cong., 1st Sess. and project documents contain latest published maps.

[13] Dredging upper 3.4 miles was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[14] Dredging upper 5 miles was deauthorized under Sec. 1001 of PL 99-662.

[15] Inactive.

[16] Portion of 16-foot by 150-foot channel from Sabine River to Houston Ship Channel is inactive. Relocation of channel in Matagorda Bay deauthorized under Sec. 12 of PL 93-251. (1986 Deauthorization list)

[17] The 9 feet by 100 feet channel from Mile 8.2 to Mile 13.2 in Chocolate Bayou was deauthorized under Sec. 1001 of PL 99-662.

[18] Construction of pile dike was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[19] Hill Street Bridge to mouth of White Oak Bayou was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[20] Deepening channel to 40 feet from Southern Pacific Slip (mile 47) to Brady Island was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[21] The 12-foot channel from mile 1.65 to mile 2.81 deauthorized under Sec. 12 of PL 93-251. (1985 Deauthorization list)

[22] Complete widening of channel between Port Arthur west turning basin and Taylors Bayou turning basin deauthorized by 1962 R&H Act.

[23] Complete deepening of channel between Port Arthur west turning basin and Taylors Bayou turning basin deauthorized by 1962 R&H Act.

[24] Channel extension above Cow Bayou turning basin near Orangefield was deauthorized under Sec. 12 of PL 93-251. (1975 Deauthorization list)

[25] Widening to 350 feet entrance channel to Port Arthur turning basin deauthorized by 1962 R&H Act.

[26] The 12-foot channel in Sabine River from Orange to Echo, Texas deauthorized under Sec. 12 of PL 93-251. (1985 Deauthorization list)

[27] Jetty extension was deauthorized under Sec. 1001 of PL 99-662.

[28] Portion of project upstream of Brazoria/Galveston County line, approximately mile 18.5, in inactive category.

[29] Cedar Bayou, miles 3 to 11 were deauthorized under Sec. 12 of PL 93-251 and were re-authorized under Sec. 349(a)(2), PL 106-541.

[30] Channel to Port Bolivar turning basin was deauthorized under Sec. 1001 of PL 99-662.

TABLE 40-C
OTHER AUTHORIZED NAVIGATION PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation and Maintenance
Aquatic Plant Control (1958 and 1962 River and Harbor Acts)	1967	38,252	–
Bastrop Bayou, TX[2]	1931	9,920	27,129
Corpus Christi, TX, Channel to Navy Seaplane Base Encinal Peninsula	1968	1,194,344	26,467
Dickinson Bayou, TX	1954	33,942	57,553
East Bay (Hanna Reef), TX[3]	1922	2,476	847
Greens Bayou Bridges, TX	1993	450,000	–
Johnson Bayou, LA[4]	1933	2,261	54,042
Little Bay, TX[5]	1979	–	252,728
Oyster Creek, TX	1922	6,942	7,556

[1] Excludes $1,672 work contribution.

[2] Widening from 60 feet to 100 feet at 4-foot depth was deauthorized under Sec. 12 of PL 93-251.

[3] Inactive category for maintenance.

[4] Channel adequate for existing commerce.

[5] Aransas County Navigation District, Rockport, TX, constructed project as authorized by 1950 River and Harbor Act (H. Doc. 114, 81st Cong., 1st Sess.) in 1955 under Department of Army permit.

TABLE 40-D
OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation and Maintenance
Arroyo Colorado, Rio Hondo, TX[1]	1986	201,300	–
Buffalo Bayou at Piney Point, TX[2]	1996	473,800[9]	–
Colorado River, Matagorda, TX[2]	1963	273,757	–
Falfurrias, TX[1]	1995	103,454	–
Freeport and Vicinity, Texas, Hurricane-Flood Protection[2]	1984	29,285,042[3]	–
Guadalupe River at Victoria, TX[2]	1996	532,187[10]	
Guadalupe River (Remove Log Jams), TX[2]	1978	505,749	–
Highland Bayou, TX[13]	1984	12,254,390	–
Kirbyville, TX[2]	1993	1,484,613[4]	–
Lavaca-Navidad River, TX: Hallettsville Project	1961	256,043	–
Port Arthur and Vicinity Hurricane-Flood Protection, TX[2]	1997	61,400,292[11]	–
San Diego Creek, Alice, TX[2]	1963	135,175	–
State Highway 111 Bridge, Lake Texana, TX[2]	1995	214,155[5]	–
Taylors Bayou, TX[2]	1997	37,413,209[12]	–
Texas City and Vicinity, Texas, Hurricane-Flood Protection[2]	1993	38,882,400[7]	–
Tranquitas Creek, Kingsville, TX[2]	1956	130,239	–
Three Rivers, TX[5]	[6]	5,835,927[5]	–
Upper White Oak Bayou, TX[2]	1989	972,300	–
U.S. 190 Bridge, Sabine River, Merryville, LA[2]	1993	500,000[8]	–
Vince and Little Vince Bayous, TX[2]	1993	19,307,100	–

[1] Inactive.

[2] Completed.

[3] In addition, $8,695,438 expended from contributed funds, $1,126,905 estimated value of contributed lands, and $2,726,446 for relocations by local interests.

[4] In addition, $1,484,613 expended from contributed funds, estimated value of $200,096 for contributed lands, and $202,456 for relocations by local interests.

[5] In addition, $71,370 expended from contributed funds.

[6] See Annual Report for 1983, Fort Worth District, page 16-12.

[7] In addition, $14,396,307 expended from contributed funds, estimated value of $1,224,219 for contributed lands, and contributed work in the amount of $1,070,806 by local interests. Work performed at 100% Local Sponsor expense was in the amount of $320,347.

[8] In addition, $237,792 expended from contributed funds.

[9] In addition, $92,920 expended from contributed funds.

[10] In addition, $480,888 expended from contributed funds.

[11] In addition, $16,976,675 expended from contributed funds.

[12] In addition, $12,340,997 expended from contributed funds.

[13] Completed. Lower 8.6 miles of channel rectification on Highland Bayou was de-authorized April 5,1999.

TABLE 40-E
OTHER AUTHORIZED ENVIRONMENTAL RESTORATION PROJECTS

Project	For Last Full Report See Annual Report For	Cost to September 30, 2003	
		Construction	Operation and Maintenance
Corpus Christi Beach, TX (Beach Restoration) [1]	2000	2,120,641[2]	–
Laguna Madre Seagrass Restoration, TX [1]	1998	225,440[3]	–
Salt Bayou, McFadden Ranch, TX[1]	1997	1,754,000[4]	–

1 Completed
2 In addition $2,009,710 expended from contributed funds.
3 In addition $75,146 expended from contributed funds.
4 In addition, $576,877 expended from contributed funds and an estimated value of contributed lands in the amount of $8,000.

TABLE 40-F DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date And Authority	Federal Funds Expended	Contributed Funds Expended
Baytown	1980	Sec. 1001 of PL 99-662	245,000	------
Brazos River, TX, Velasco to Old Washington	1924	Sec. 1001 of PL 99-662 17 Nov 1986	216,989[1]	223,010
Corpus Christi Ship Ch - 1913 Act Jetty	------	Sec. 1001 of PL 99-662 19 Jul 1992	------	------
GIWW, Harbor Refuge at Seadrift	1978	Sec. 1001 of PL 99-662 19 Jul 1992	79,041	------
Liberty Local Protection Project, TX	1971	Sec. 1001 of PL 99-662 17 Nov 1986	98,517	------
Mill Creek Brazos River, Austin Co. 1946 Act	1952	Sec. 1001 of PL 99-662 1 Jan 1990	24,753	------
Navidad & Lavaca Rivers, Jackson and Lavaca Counties- General Channel Project	1952	Sec. 1001 of PL 99-662 1 Jan 1990	21,086	------
Peyton Creek, TX	1975	Sec. 1001 of PL 99-662 17 Nov 1986	66,377	------
Sabine River and Tributaries, TX (Echo to Morgan Bluff)	1971	Sec. 1001 of PL 99-662 17 Nov 1986	------	------

[1] Includes $123,676 for previous projects.

TABLE 40-G TOTAL COST OF EXISTING PROJECTS

See Section In Text	Project	Funds	New Work	Maintenance	Rehabilitation	Total Cost to Sep. 30, 2003
2.	Brazos Island Harbor, TX	Regular	24,346,787	71,461,008	2,170,080	97,977,875
		Public Works	2,848,560	0	0	2,848,560
		Contributed	10,571,509	1,352,092	0	11,923,601
		Total cost of project	37,766,856	72,813,100	2,170,080	112,750,036
3.	Cedar Bayou, TX	Regular	642,176	4,990,564	0	5,632,740
		Contributed	0	0	0	0
		Total cost of project	642,176	4,990,564	0	5,632,740
4.	Channel to Port Bolivar, TX	Regular	85,214	1,895,830	0	1,981,044
		Total cost of project	85,214	1,895,830	0	1,981,044
6.	Corpus Christi Ship Channel, TX	Regular	75,775,642	140,911,691	3,576,684	220,264,017
		Public Works	324,287	0	0	324,287
		Contributed	6,143,152	1,299,550	0	7,442,702
		Total	82,243,849	142,211,241	3,576,684	228,031,774
		Value of useful work performed	1,716,695	0	0	1,716,695
		Contributed land	276,720	0	0	276,720
		Total cost of project	84,237,264	142,211,241	3,576,684	230,025,189
8.	Freeport Harbor, TX	Regular	65,079,090	93,889,352	8,935	158,977,377
		Public Works	116,575	0	0	116,575
		Contributed	20,811,568	229,311	0	21,040,879
		Total	86,002,664	94,118,662	8,935	180,130,261
		Value of useful work performed	360,249	0	0	360,249
		Total cost of project	86,362,913	94,118,662	8,935	180,490,510
9.	Galveston Harbor and Channel, TX	Regular				
		Channel	11,920,187	123,274,263	7,373,356	142,567,806
		Seawall	8,754,209	512,163	595,973	9,862,345
		Public Works	0	13,121	0	13,121
		Contributed	3,648,932	2,982,425	0	6,631,357
		Total cost of project	24,323,328	126,781,972	7,969,329	159,074,629
10.	Gulf Intracoastal Waterway between Apalachee Bay, FL and the Mexican Border	Regular	154,494,326	596,625,149	3,390,338	754,509,813
		Public Works	466,477	0	0	466,477
		Inland WW. Trust Fund	28,634,490	0	2,955,700	31,590,190
		Contributed	6,705,311	1,955,617	0	8,660,928
		Total	190,300,604	598,580,766	6,346,038	795,227,408
		Value of useful work performed	395,000	0	0	395,000
		Contributed land	139,776	0	0	139,776
		Total cost of project	190,835,380	598,580,766	6,346,038	795,762,184
11.	Houston Ship Channel, TX	Regular	29,042,293	223,295,356	0	252,337,649
		Public Works	2,612,932	0	0	2,612,932
		Contributed	1,382,760	551,583	0	1,934,343
		Total cost of project	33,037,985	223,846,939	0	256,884,924

TABLE 40-G TOTAL COST OF EXISTING PROJECTS

See Section In Text	Project	Funds	New Work	Maintenance	Rehabilitation	Total Cost to Sep. 30, 2003
15.	Sabine-Neches Waterway, TX	Regular	49,592,331	277,125,308	0	326,717,639
		Public Works	1,363,652	0	0	1,363,652
		Contributed	2,103,435	5,938,114	0	8,041,549
		Total	53,059,418	283,063,422	0	336,122,840
		Value of useful work performed	32,000	0	0	32,000
		Contributed land	116,760	0	0	116,760
		Total cost of project	53,208,178	283,063,422	0	336,271,600
16.	Texas City Channel, TX	Regular	15,123,207	35,725,138	726,158	51,574,503
		Public Works	136,296	0	0	136,296
		Contributed	1,023,819	0	0	1,023,819
		Total cost of project	16,283,322	35,725,138	726,158	52,734,618
17.	Trinity River and Tributaries, TX	Regular	82,482,792	27,825,311	0	108,267,349
		Contributed	66,000	0	0	66,000
		Total cost of project	82,548,792	33,557,875	0	116,106,667

TABLE 40-H CHANNEL DIMENSIONS

See Section In Text	Project	Section of Waterway	Adopted Project Dimensions: Depth in Feet (Below Mean Low Tide)	Adopted Project Dimensions: Bottom Width (Feet)	Improved Project Dimensions: Depth in Feet (Below Mean Low Tide)	Improved Project Dimensions: Bottom Width (Feet)	Length: Feet	Length: Miles
2.	Brazos Island Harbor, TX	Outer Bar and Jetty Channel	44	400	44	400		2.5
		Padre Island to Long Island	42	250	42	250		2.1
		Long Island to Goose Island	42	250	42	250		9.6
		Goose Island to Turning Basin Extension	42	300	42	300		3.2
		Turning Basin Extension	42	325	42	375		1.3
		Brownsville Turning Basin	36	1,200	36	660-1,200	2,670	0.5
		Port Isabel Channel via East Turnout	36	200	36	200		1.4
		West Wye, from Brownsville Channel	36	200	36	200		0.8
		Port Isabel Turning Basin	36	200-1,000	36	200-1,000	1,300	0.2
		Fishing Boat Harbor:						
		West Basin	15	370-305	15	370-305	1,470	0.3
		Middle Basin	15	370-305	15	370-305	1,200	0.2
		East Basin	15	370	15	370	1,470	0.3
		Connecting Channel	15	270	15	265	1,230	0.2
		Entrance Channel	15	100	15	100	770	0.1
3.	Cedar Bayou, TX	Houston Ship Channel to Bayou Mile 3.0	10	100	10	100		5.7
		Bayou Mile 3.0 to Mile 11.0[7]	10	100	-	-		-
4.	Channel to Port Bolivar, TX	Port Bolivar Channel	30	200	30	200	-	-
		Turning Basin	30	750[1]	14	200	900	0.2
5.	Clear Creek and Clear Lake, TX	Galveston Bay to Clear Creek	7	75	7	75		1.5
		North Fork Channel	7	60	7	60		0.7
		Channel through Clear Creek and Clear Lake	7	60	7	60		7.7
6.	Corpus Christi Ship Channel, TX	Aransas Pass Outer Bar Channel	47	700	47	700		1.8
		Aransas Pass Jetty Channel	45	600-730	45	600		1.0
		Inner Basin at Harbor Island	45	730-1,720	45	Irregular	1,550	–
		Channel to Port Aransas	12	100-150	12	100		0.1
		Port Aransas Turning Basin	12	200-400[2]	12	200[2]	200	–
		Anchorage Basin at Port Aransas	12	300-400	12	300-400	900	0.2

TABLE 40-H CHANNEL DIMENSIONS

See Section In Text	Project	Section of Waterway	Adopted Project Dimensions: Depth in Feet (Below Mean Low Tide)	Adopted Project Dimensions: Bottom Width (Feet)	Improved Project Dimensions: Depth in Feet (Below Mean Low Tide)	Improved Project Dimensions: Bottom Width (Feet)	Length: Feet	Length: Miles
6.	Corpus Christi Ship Channel, TX (continued)	Inner Basin to Mile 8.5	45	600-500	45	600-500		8.5
		Mile 8.5 to LaQuinta Junction	45	500	45	500		3.6
		LaQuinta Junction to Corpus Christi Turning Basin	45	400	40-45	400		8.6
		Corpus Christi Turning Basin	45	800	45	1,000	5,423	1.0
		Industrial Canal	45	400	45	400		1.1
		Avery Point Turning Basin	45	975	45	1,000	1,150	0.2
		Channel to Chemical Turning Basin	45	400	45	350		0.6
		Chemical Turning Basin	45	1,200[5]	45	1,050[5]	1,690	0.3
		Tule Lake Channel	45	300	40	200		3.1
		Tule Lake Turning Basin	45	1,200	40	900	1,000	0.2
		Viola Channel	45	300-350	40	200-250		1.8
		Viola Turning Basin	45	1,200	40	700-900	1,000	0.2
		Channel to LaQuinta	45	300-400	45	300-400		5.6
		LaQuinta Turning Basin	45	1,200	45	1,200	800	0.1
		Turning Point at LaQuinta Channel Junction	45	1,250[3]	45	1,250[3]	1,250	0.2
		Jewel Fulton Canal	12	100	12	100	–	0.8
		Jewel Fulton Turning Basin	12	200	12	200	400	0.1
		Mooring Area at Ingleside:						
		Mooring Area (a)	45	150	45	150	–	0.8
		Mooring Area (b)	45	150	–	–	–	–
7.	Double Bayou, TX	Double Bayou Channel:						
		Mouth to 7-foot contour in Trinity Bay	7	125	7	125	–	3.9
		West Fork	7	100	7	100	–	2.0
8.	Freeport Harbor, TX	Outer Bar Channel	47	400	47	300	–	3.0
		Jetty Channel	45	400	45	200	–	0.8
		Quintana Turning Basin	45	750[4]	–	–	–	–
		Channel to Brazosport Turning Basin	45	400	45	390	–	1.2
		Brazosport Turning Basin	45	1,000[4]	45	1000	667	0.1
		Channel to Upper Turning Basin	45	285-375	45	285-375	–	1.4
		Upper Turning Basin	45	1,200[4]	45	1200[4]	800	0.1
		Channel to Stauffer Chemical Plant	30	200	30	200	–	1.1

TABLE 40-H CHANNEL DIMENSIONS

See Section In Text	Project	Section of Waterway	Adopted Project Dimensions: Depth in Feet (Below Mean Low Tide)	Adopted Project Dimensions: Bottom Width (Feet)	Improved Project Dimensions: Depth in Feet (Below Mean Low Tide)	Improved Project Dimensions: Bottom Width (Feet)	Length: Feet	Length: Miles
8.	Freeport Harbor, TX (continued)	Stauffer Turning Basin	30	500	25	500	500	0.1
		Brazos Harbor Channel	36	200	30	200	–	0.5
		Brazos Harbor Turning Basin	36	750[4]	30	750[4]	675	0.1
9.	Galveston Harbor and Channel, TX	Entrance Channel	52	800	42		–	4.7
		Outer Bar Channel	52	800	42	800	–	1.7
		Inner Bar Channel	50	800	40	800	–	3.2
		Anchorage Basin	36	2,875[1]	36	2,875	–	1.8[1]
		Bolivar Roads Channel	50	800	40	800	–	1.0
		Bolivar Roads Channel to 43rd St.	40	1,125	40	1,125	–	3.9
12.	Houston Ship Channel, TX	Bolivar Roads to Morgan Point	40	400	40	400	–	26.2
		Morgan Point to Boggy Bayou	40	400	40	400	–	12.8
		Boggy Bayou to Greens Bayou	40	300	40	300	–	2.4
		Greens Bayou to Sims Bayou	40	300	40	300	–	5.3
		Hunting Bayou Turning Point	40	900-1,000[9]	40	948-1,000[9]	1,375	–
		Clinton Island Turning Basin	40	800[9]	40	965-1,070[9]	1,592	–
		Sims Bayou to Southern Pacific Slip	40	300	40	300	–	0.6
		Southern Pacific Slip to Houston Turning Basin	36	300	36	300	–	2.9
		Houston Turning Basin	36	400-1,000	36	400-1,000	3,100	0.6
		Upper Turning Basin	36	150	36	150	1,000	0.2
		Brady Island Channel	10	60	10	60	–	0.9
		Barbour Terminal Channel	40	300	40	300	–	3.1
		Turning Basin	40	2,000	40	2,000	2,000	0.4
		Bayport Ship Channel	40	300	40	300	–	3.8
		Turning Basin	1,600	40	1,600	1,000	0.3	–
		Anchorage Area	150	40	150	–	–	1.9
		Five-Mile Cut Channel	8	125	8	125	–	
		Light-Draft Channel:						
		Upper Turning Basin to Jensen Drive	10	60	10	60	–	4.1
		Turkey Bend Channel	10	60	10	60	–	0.8
		Greens Bayou Channel:						

TABLE 40-H CHANNEL DIMENSIONS

See Section In Text	Project	Section of Waterway	Adopted Project Dimensions: Depth in Feet (Below Mean Low Tide)	Adopted Project Dimensions: Bottom Width (Feet)	Improved Project Dimensions: Depth in Feet (Below Mean Low Tide)	Improved Project Dimensions: Bottom Width (Feet)	Length: Feet	Length: Miles
12.	Houston Ship Channel, TX	Mile 0 to Mile 0.36	40	175	40	175	–	0.3
		Mile 0.36 to Mile 1.57	15	100	15	100	–	1.3
13.	Matagorda Ship Channel, TX	Outer Bar and Jetty Channel	38	300	38	300	–	3.2
		Channel to Point Comfort	36	300-200[6]	36	300-200[6]	–	20.9
		Approach Channel to Turning Basin	36	200-300	36	200-300	–	1.1
		Turning Basin	36	1,000	36	1,000	1,000	0.2
		Channel to Port Lavaca	12	125	12	125	–	4.1
		Lynn Bayou Turning Basin	12	27-340	12	27-340	532	0.1
		Channel to Harbor of Refuge	12	125	12	125	–	1.9
		North-South Basin	12	300	12	300	1,682	0.3
		East-West Basin	12	250	12	250	1,750	0.3
		Channel to Red Bluff	6	100	6	100	–	20.2
15.	Sabine-Neches Waterway, TX	Sabine Bank Channel	42	800	42	800	–	14.7
		Sabine Pass Outer Bar Channel	42	800	42	800	–	3.4
		Sabine Pass Jetty Channel	40	800-500	40	800-500	–	4.1
		Sabine Pass Anchorage Basin	40	1,500	40	1,500	3,000	–
		Sabine Pass Channel	40	500	40	500	–	5.6
		Port Arthur Canal	40	500	40	500	–	6.2
		Entrance to Port Arthur Turning Basins	40	275-678	40	275-678	–	0.3
		Port Arthur East Turning Basin	40	420	40	370-547	1,765	0.3
		Port Arthur West Turning Basin	40	600	40	350-550	1,610	0.3
		Channel connecting Port Arthur West and Taylors Bayou Turning Basins	40	200-250	40	200-250	–	0.6
		Taylors Bayou Turning Basin	40	150-1,000	40	90-1,233	3,470	0.7
		Sabine-Neches Canal, Port Arthur Canal to Neches River	40	400	40	400	–	11.2
		Turning Point at Mile 19.5	40	900[4]	40	900[4]	–	8
		Neches River, Mouth to Maneuvering Area Beaumont Turning Basin	40	400	40	400	–	18.3
		Turning Point, Mile 31.1	40	1,000[4]	40	1,000	700	8

TABLE 40-H CHANNEL DIMENSIONS

See Section In Text	Project	Section of Waterway	Adopted Project Dimensions: Depth in Feet (Below Mean Low Tide)	Adopted Project Dimensions: Bottom Width (Feet)	Improved Project Dimensions: Depth in Feet (Below Mean Low Tide)	Improved Project Dimensions: Bottom Width (Feet)	Length: Feet	Length: Miles
15.	Sabine - Neches Waterway, TX (continued)	Turning Point, Mile 36.6	40	1,000[4]	40	1,000	930	[8]
		Turning Point, Mile 40.3	40	1,000[4]	40	1,300	1,530	[8]
		Channel Extension, Mile 40.3	36	350	36	350	1,265	0.2
		Maneuvering Area at Beaumont Turning Basin	40	Irregular	40	Irregular	1,300	0.2
		Beaumont Turning Basin	34	500	34	160-535	1,500	0.3
		Beaumont Turning Basin Extension	34	350	34	300	–	0.4
		Beaumont Turning Basin Extension to End of Project						
		Channel Vicinity Bethlehem Steel Company	30	200	30	200	–	0.7
		Sabine-Neches Canal, Neches River to Sabine River	30	200	30	200	–	4.4
		Sabine River Channel, Mouth to Foot of Green Ave.	30	200	30	200	–	9.5
		Orange Turning Basin	30	Irregular	30	Irregular	1,550	0.3
		Orange Municipal Slip	30	200	30	150-200	2,435	0.5
		Old Channel Around Harbor Island	25	150-200	25	150-200	–	2.4
		Channel to Echo[7]	12	125	–	–	–	–
		Adams Bayou	12	100	12	100	–	1.7
		Cow Bayou	13	100	13	100	–	7.0
		Orangefield Turning Basin	13	300	13	300	500	0.1
16.	Texas City Channel, TX	Texas City Channel	50	600	40	400	–	6.8
		Turning Basin	50	1,000-1,200	40	1,000	4,253	.8
		Industrial Barge Canal:[10] Channel from Texas City Turning Basin to Mile 1.7	40	300-400	–	–	–	–
		Turning Basin	40	1,000	–	–	–	–
17.	Trinity River Channel, TX	Multiple Purpose Channel to Fort Worth[11]	12	200	–	–	–	–
		Channel to Liberty[12]	9	150	6	100	–	41.4
		Anahuac Channel	6	100	6	100	–	5.8

[1] Average.
[2] Includes 100-foot channel width.
[3] Includes 450-foot channel to Corpus Christi.
[4] Diameter.
[5] Includes 350-foot channel width.
[6] 300-foot width through Matagorda Peninsula.
[7] Deauthorized.
[8] Included in channel length.
[9] Includes 300-foot channel width.
[10] Channel dredged 34 feet deep by 250-200 feet wide by 9,908 feet long and basin 34 feet deep by 1,000 feet wide by 1,150 feet long by local interests.
[11] Not constructed.
[12] 9-foot by 150-foot channel completed from Houston Ship Channel to a point one mile below Anahuac, a distance of 23 miles. Upper end not connected to river channel to prevent salt intrusion into river. River channel maintained at 6 by 100-foot from mouth to Liberty, Texas.

TABLE 40-I GULF INTRACOASTAL WATERWAY APALACHEE BAY, FL. TO MEXICAN BORDER EXISTING PROJECT DIMENSIONS , PROVIDED FOR IN TRIBUTARY CHANNELS

	Adopted Project Dimensions		Improved Project Dimensions			
Tributary Channel	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Length Feet	Length Miles
Offats Bayou						
Main Channel	12	125	12	125	–	2.3
West Wye	12	125	12	125	2,200	0.4
Chocolate Bayou Channel[1]						
12-Foot Channel via East Turnout[2]	12	125	12	125	–	8.2
West Turnout[3]	12	125	12	125	–	0.8
9-Foot Channel[4]	9	100	–	–	–	–
Turning Basin	9	600	–	–	–	–
San Bernard River Channel[5]	9	100	9	100	–	26.0
Colorado River Channel[6]	9	100	9	100	–	15.5
Turning Basin	9	400	9	400	500	0.1
Silting Basin	9	150	9	150	–	1.0
Mouth of Colorado River[7]						
Navigation Channel, GIWW to Gulf	15-12	100-200-300	15-20	100-200-300	–	–
Turning Basin at Matagorda	12	350	–	–	–	–
Channel to Palacios[8]	12	125	12	125	–	16.1
Turning Basin No. 1	12	200	12	200	635	0.1
Turning Basin No. 2	12	300	12	300	1,130	0.2
Connecting Channel	12	150-480	12	130-400	–	0.1
Channel to Barroom Bay[9]	12	60	–	–	–	–
Channel to Victoria Main Channel via East Turnout	12	125	12	125	–	34.8
Turning Basin	12	600(AVG)	9	500(AVG)	800(AVG)	0.1
West Turnout Channel	12	125	12	125	–	0.8
Channel to Seadrift via South Turnout	9	100	9	100	–	2.0
Turning Basin	9	250	9	200	230	–
North Turnout Channel	9	100	9	100	–	0.5
Harbor of Refuge at Seadrift Channel	9	100	–	–	–	–
Basin	9	200	–	–	–	–
Channel to Rockport	9	200	9	200	–	2.1
Turning Basin	9	475	9	342(AVG)	1,225	0.2
Channel to Aransas Pass	14	175	14	125-175	–	6.1
Turning Basin	14	300	14	300	2,212	0.4

TABLE 40-I GULF INTRACOASTAL WATERWAY APALACHEE BAY, FL. TO MEXICAN BORDER EXISTING PROJECT DIMENSIONS , PROVIDED FOR IN TRIBUTARY CHANNELS

Tributary Channel	Adopted Project Dimensions		Improved Project Dimensions			
	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Length Feet	Length Miles
Channel to Conn Brown Harbor	14	125	14	0.2	125	–
Conn Brown Harbor	14	300	14	300	1,800	0.3
Channel to Port Mansfield[10]						
Entrance Channel	16	250	16	250	–	0.8
Approach Channel to Hopper Dredge Turning Basin	16	100	16	100	–	0.4
Hopper Dredge Turning Basin	16	300	16	300	300	0.1
Channel Across Padre Island and Laguna Madre	14	100	14	100	–	7.7
Turnout Channels, East Side of Main Channel, GIWW						
North Turnout	12	100	12	100	–	0.6
South Turnout	12	100	12	100	–	0.6
Channel West Side of Main Channel, GIWW, to P.T. of Turnout Channels	14	100	14	100	–	0.6
Turnout Channels, West Side of Main Channel, GIWW						
North Turnout	12	200	12	200	–	0.6
South Turnout	12	200	12	200	–	0.6
Channel from P.T. of Turnout Channels to Approach Channel to Main Turning Basin	14	125	14	125	–	0.6
Approach Channel to Main Turning Basin	14	200	14	200	–	0.3
Main Turning Basin	14	400	14	400	1,250	0.2
Turning Basin Extension	14	1,000	14	1,000	580	0.1
Small Craft Basin	8	160	8	160	860	0.2
Shrimp Basin	12	350	12	350	1,450	0.3
Channel to Harlingen via South Turnout from Main Channel, GIWW	12	125	12	125[11]	–	25.8[12]
Turning Basin near Rio Hondo	12	400	12	400	500	0.1
North Turnout from Main Channel	12	200	12	200	–	0.7

TABLE 40-I GULF INTRACOASTAL WATERWAY APALACHEE BAY, FL. TO MEXICAN BORDER EXISTING PROJECT DIMENSIONS , PROVIDED FOR IN TRIBUTARY CHANNELS

	Adopted Project Dimensions		Improved Project Dimensions			
Tributary Channel	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Depth in Feet (Below Mean Low Tide)	Bottom Width (Feet)	Length Feet	Length Miles
Port Isabel Side Channels						
Main Channel	12	125	12	125-90	–	0.6
Main Channel	12	233-60	12	233-60	–	0.4
South Leg	12	125	12	125	–	0.2
Port Isabel Side Channels						
Main Channel	12	125	12	125-90	–	0.6
Main Channel	12	233-60	12	233-60	–	0.4
South Leg	12	125	12	125	–	0.2
Port Isabel Small Boat Harbor						
Entrance Channel	7	75	7	75	–	1.4
Harbor Channel	6	50	6	50	–	0.3
Boat Basin	6	Variable	6	72-501	1,308	0.2

[1] Includes the construction of a salt water barrier at Mile 16.9.

[2] Constructed 10 feet deep by 100 feet wide by local interests. East turnout channel constructed 150 feet wide.

[3] Constructed by local interests.

[4] Authorized to mile 13.2. Mile 8.2 to Mile 13.2 was deauthorized.

[5] Authorized to Mile 31 above mouth (channel mile 29.41). Upper 3.4 miles was deauthorized under Section 12 of PL 93-251.

[6] Includes a discharge channel from Matagorda, Texas, to the gulf, which was dredged by local interests in 1939. (Maintenance will be discontinued upon completion of improvements authorized by R&H Act of 1968.)

[7] Authorized by R&H Act of 1968. Also provides for a dam across the present discharge channel, a new 250-foot wide by 20 to 23-feet deep discharge channel into Matagorda Bay, and a 15-foot by 200-foot wide entrance channel with parallel jetties from the gulf shoreline into the Gulf of Mexico. East jetty to be 3,500 feet long and west jetty 2,900 feet long.

[8] Includes two protective breakwaters at entrance to turning basins.

[9] In the inactive category for maintenance.

[10] Also provides for two stone jetties at the gulf entrance about 1,000 feet apart. (North jetty constructed 2,300 feet long and south jetty constructed 2,270 feet long.)

[11] South turnout is 200 feet wide.

[12] Authorized to mile 31. Mile 25.8 to Mile 31 was deauthorized.

TABLE 40-J DREDGING OPERATIONS

See Section In Text	Project	Description	Period	Cubic Yards of Materials	FY 03 Cost
2.	Brazos Island Harbor, TX (Maintenance)	Dredging Brownsville Entrance Channel	December 5, 2001 to March 20, 2002	0	$145,676[1]
		Dredging Brazos Island Harbor, Brownsville Ship Channel in Cameron County	October 1, 2002 to July 20, 2003	550,148	$1,050,634[2]
		Dredging Brownsville Inside Jetty Channel in Cameron County	September 20, 2002 to May 21, 2003	308,700	$1,600,122[3]
4.	Channel to Bolivar, TX (Maintenance)	Dredging Rollover Pass to Bolivar and Channel Fronting Highway Ferry Slip At Bolivar	November 27, 2002 to May 21, 2003	102,942	$100,000
6.	Corpus Christ Ship Channel, TX (Maintenance)	Dredging LaQuinta Junction to Beacon 82 And GIWW across Corpus Christi Bay	October 1, 2002 to December 20, 2002	503,423	$413,974
		Dredging Entrance Channel to Nueces County , TX	March 5, 2003 to September 30, 2003	1,141,795	$2,080,000
		Dredging Industrial Canal through Viola Turning Basin in Nueces County, TX	December 24, 2002 to September 30, 2003	227,095	$1,360,000[4]
8.	Freeport Harbor, TX (Maintenance)	Dredging Freeport Harbor, Inside Channel And Turing Basins in Brazoria County	January 31, 2002 to May 31, 2002	0	$244,600[5]
		Dredging Freeport Harbor Entrance And Jetty Channel in Brazoria County	July 11, 2003 to September 30, 2003	1,097,559	$1,318,593
9.	Galveston Harbor and Channel , TX (Maintenance)	Dredging Bolivar roads to Pier B, US Army Corps of Engineers Boat Basin & US Coast Guard Docking Facilities in Galveston County, TX	April 17, 2003 to September 30, 2003	838,556	$840,000[6]
		Dredging Jetty and Entrance Channels in Galveston County, TX	March 5, 2003 to September 30, 2003	2,115,504	$3,120,344
10.	Gulf Intracoastal Waterway, TX Main Channel (Maintenance)	Dredging Boggy Bayou to Matagorda Bay In Brazoria and Matagorda Counties, TX	November 1, 2002 to May 16, 2003	2,295,499	$4,192,470
		Dredging GIWW, Main Channel in Matagorda Bay and Natural Bay Bottom Route	November 29, 2002 to February 13, 2003	183,871	$1,105,309
		Dredging Rollover Pass to Bolivar and Channel Fronting Highway Ferry Slip at Pt Bolivar in Chambers and Galveston Counties, TX	November 27, 2002 May 21, 2003	1,066,710	$2,273,293
		Dredging Turnstake Island to Rattlesnake Point in Aransas and Calhoun Counties	April 25, 2003 to October 20, 2003	1,258,479	$1,429,982
		Dredging Freeport Harbor to Boggy Bayou	October 1, 2002 to August 22, 2003	112,747	$140,346

TABLE 40-J DREDGING OPERATIONS

See Section In Text	Project	Description	Period	Cubic Yards of Materials	FY 03 Cost
10.	GIWW- Main Channel (Maintenance) Continued	Dredging Main Channel in Matagorda Bay and Natural Bay Bottom in Matagorda County, TX	August 20, 2003 to September 30, 2003	0	$50,000[7]
		Dredging Main Channel Aransas Bay and Tributary Channel Aransas Pass in Nueces, Aransas, and San Patricio Co.	October 1, 2002 to August 20, 2003	608,347	$636,201[8]
		Dredging La Quinta Junction to Beacon 82 And GIWW across Corpus Christi Bay	October 1, 2002 to September 30, 2003	46, 583	$135,091
		Dredging Main Channel across Redfish Bay in Nueces and San Patricio Counties	August 1, 2003 to September 30, 2003	74,375	$150,000[9]
		Dredging Baffin Bay to Port Isabel in Nueces, Kleberg, Kenedy, and Willacy Counties	September 26, 2002 to September 30, 2003	2,310,911	$3,206,350
	Channel to Victoria, TX (Maintenance)	Dredging Channel to Victoria and Channel to Seadrift in Calhoun County	October 1, 2002 to June 20, 2003	1,808,251	$1,859,410
	Mouth of Colorado River, TX (Maintenance)	Dredging Mouth of Colorado River Navigation Channel and Impoundment Basin in Matagorda County	June 4, 2003 to August 23, 2003	497,699	$1,084,808
11.	Houston-Galveston Navigation Channels, TX (New Work)	Dredging Lower Bayou	October 1, 2002 to September 30, 2003	4,660,263	$7,182,885[10]
		Dredging Mid Bay	October 1, 2002 to September 30, 2003	12,412,841	$25,152,868[11]
		Dredging Goat Island	October 1, 2002 to September 30, 2003	0	$11,641,582[12]
12.	Houston Ship Channel (Maintenance)	Dredging Mid Bay (O&M portion)	October 1, 2002 to September 30, 2003	240,412	$485,237
		Emergency Dredging Sta 730+00 to 760+00 in Harris County	May 2, 2003 to August 21, 2003	86,971	$559,838
	Barbour Terminal Channel (Maintenance)	Dredging Barbours Terminal	October 1, 2002 to September 30, 2003	190,123	$63,185
	Bayport Ship Channel (Maintenance)	Dredging Mid Bay (O&M portion)	October 1, 2002 to September 30, 2003	2,166,015	$5,636,330
13.	Matagorda Ship Channel, TX (Maintenance)	Dredging Channel to Port Lavaca and Channel to Harbor of Refuge in Calhoun County	September 13, 2002 to September 30, 2003	1,369,413	$976,424
		Dredging Galinipper Point to Point Comfort In Calhoun County	January 17, 2003 to April 12, 2003	1,3369,413	$976,424

TABLE 40-J DREDGING OPERATIONS

See Section In Text	Project	Description	Period	Cubic Yards of Materials	FY 03 Cost
15.	Sabine-Neches Waterway, TX (Maintenance)	Dredging Sabine Neches Canal Sec B And Sabine River Channel in Jefferson and Orange Counties	April 14, 2003 to September 30, 2003	426, 130	$840,000
		Dredging Pt. Arthur Canal, Junction Area And Turning Basin in Jefferson County	October 1, 2002 to March 19, 2003	1,074,572	$1,966,405
		Dredging Sabine Neches Canal, Lower Neches River Channel, Corps of Engineers And US Coast Guard Slips	October 1, 2002 to June 7, 2003	4,270,135	$4,475,170[13]
		Dredging Middle Reach Neches River Channel in Jefferson & Orange Counties	February 21, 2003 to September 30, 2003	2,660,834	$4,023,142[14]
17.	Trinity River and Tributaries, TX (Maintenance)	Dredging Channel to Anahuac in Chambers County	October 17, 2002 to January 7, 2003	233,915	$904,090
		Dredging Trinity River and Tributaries In Chambers County	October 1, 2002 to September 30, 2003	831,930	$2,948,378

[1] Final Payment.
[2] In addition $26,000 expended contributed funds from Port of Brownsville for Beach Nourishment inside the Jetty Channel.
[3] In addition $976, 225 expended from General Land Office.
[4] In addition $250,000 expended from contributed funds.
[5] Final Payment.
[6] In addition $3929,802 contributed funds for US Coast Guard Docking facilities and $99,915 for US Coast Guard Slip.
[7] Partial cost for Mobilization.
[8] Includes $240,000 Federal funds from Maintenance Operations of Dams and Improvements of Navigable Waters.
[9] Includes $100,000 Federal funds from Maintenance Operations of Dams and Improvements of Navigable Waters.
[10] In addition $2,754,193 contributed funds
[11] In addition $9,434,268 contributed funds
[12] Only construction of levees for FY 03, In addition $4,460,191 contributed funds
[13] Includes $247,500 Federal funds from Maintenance Operations of Dams and Improvements of Navigable Waters, and $1,531 contributed funds
[12] In addition $1,413,000 contributed funds.

MISSISSIPPI RIVER COMMISSION*

The Mississippi River Commission (MRC) was created by an act of Congress on Jun. 28, 1879. The Flood Control Act of May 15, 1928, authorized the Flood Control, Mississippi River and Tributaries (MR&T) Project. The Commission consists of three officers of the Corps of Engineers, one from the former Coast and Geodetic Survey (presently the National Oceanic and Atmospheric Administration), and three civilians, two of whom must be civil engineers. All members are appointed by the President with the advice and consent of the Senate.

During the fiscal year the Commissioners were: BG Edwin J. Arnold, Jr., appointed President, Oct. 1, 2001; Mr. Sam E. Angel, reappointment as member, Nov. 1999; Mr. R. D. James, civil engineer, member designee, appointed Dec. 1, 1981, with reappointment pending; Mr. William Clifford Smith, appointed Oct. 22, 1998; BG David A. Fastabend, Commander, Northwestern Division, member designee; BG Steven R. Hawkins, Commander, Great Lakes and Ohio River Division, member designee; RADM Nicholas A. Prahl, NOAA, member designee; and COL Thomas A. Holden Jr., Secretary of the Commission (non-voting position).

The MRC is charged, under direction of the Secretary of the Army and supervision of the Chief of Engineers, with prosecution of improvements for flood control of the Mississippi River and of its tributaries and outlets in its alluvial valley, so far as they are affected by Mississippi River backwater, between Head of Passes, LA (mile 0), and Cape Girardeau, MO (1,006 miles AHP-Lower Mississippi mileage terminates at mile 954 AHP), and with prosecution of improvements in the interest of navigation between Cairo, IL (954 miles AHP), and Baton Rouge, LA (234 miles AHP); and for stabilization of the lower 7 miles of the right bank of the Ohio River, to former mouth of Cache River. It also is charged with prosecution of certain flood control works on the Mississippi River and tributaries, as far as they are affected by backwater, between Cape Girardeau, MO, and Rock Island, IL (1,437 miles AHP), and with prosecution of improvements on designated tributaries and outlets below Cape Girardeau for flood control, navigation, major drainage, and related water uses. Authorized operations of the Commission below Cape Girardeau are conducted by District Engineers of New Orleans, Vicksburg, and Memphis Districts within the areas described below, in accordance with approved directives and programs and congressional appropriations therefore.

New Orleans District: Mississippi River project levees and river channel stabilization as required from Head of Passes, mile 0 to 320 AHP, construction of three salinity-control structures for fish and wildlife enhancement, two in lower Mississippi River Delta region, and one in the Mississippi-Louisiana Estuarine Area; Bonnet Carre and Morganza Floodways; maintenance and improvements of Mississippi River navigation channel from Baton Rouge, LA (mile 234 AHP), to mile 320; Baton Rouge Harbor (Devils Swamp); navigation improvement of Atchafalaya and Old Rivers from Mississippi River to Morgan City; control of Old and Atchafalaya Rivers; Atchafalaya Basin Floodways; flood control and drainage improvements in Bayou Cocodrie and tributaries, in Bayou des Glaises, and in Upper Pointe Coupee Loop area; and freshwater distribution from Atchafalaya River to Teche-Vermilion Basins.

Vicksburg District: Mississippi River project levees and river channel stabilization as required from upper limits of New Orleans District (mile 320 AHP) in vicinity of Black Hawk, LA, to Coahoma-Bolivar County line, MS (mile 620 AHP) on left bank, and to vicinity of mouth of White River, AR (mile 599 AHP), on right bank including south bank Arkansas River levee to vicinity of Pine Bluff, AR, and north bank levee to vicinity of Tucker on left bank of Plum Bayou, AR; bank stabilization in lower 36.1 miles of Arkansas River; maintenance and improvement of Mississippi River navigation channel between miles 320 and 599 AHP; Vicksburg and Greenville Harbors; specific fish and wildlife facilities in Tensas, Yazoo, and Big Sunflower Basins; a demonstration erosion control project in the Yazoo Basin; flood control and drainage improvements in Red River backwater area including leveed portions east and west of Black River and south of Red River; Jonesville, LA, Boeuf and Tensas Rivers, Bayou Macon Basins and tributaries, AR and LA, and Bayou Lafourche, LA; Yazoo River Basin, MS, including backwater area; Big and Little Sunflower Rivers, Deer Creek, and Steele Bayou, MS; and Grand Prairie Region and Bayou Meto Basin, AR, including provision for agricultural water supply.

* Authorizing legislation (Tables 41-D and 41-E) is listed at the end of this chapter. All other tables are referenced in text and also appear at the end of the chapter.

Memphis District: Mississippi River project levees and river channel stabilization as required, from upper limits of Vicksburg District to north bank of Little River diversion channel, MO (1,003 miles AHP), a few miles below Cape Girardeau, MO, on right bank, and to Cache River diversion channel (967 miles AHP) above Cairo, IL, on left bank, including levees and revetment on right bank of Ohio River, in Mounds-Mound City area, IL; except operations above Cairo, IL, do not include channel stabilization on the Mississippi River. Maintenance and improvement of Mississippi River navigation channel between mile 599 and 954 AHP and of Memphis Harbor, TN; specific fish and wildlife facilities in St. Francis Basin; levees in White River backwater area up to vicinity of Augusta, AR, and a pumping plant near mouth of White River; levees and pumping plants at De Valls Bluff and Des Arc, AR; channel improvements in Cache River Basin, AR; channel improvements in Big Creek and tributaries, AR; improvement works in St. Francis River Basin, MO and AR, including backwater area improvements in Belle Fountain Ditch and Drainage District No. 17, AR; Little River diversion channel, MO, and L—Anguille River, AR; Wolf River Basin, TN; Obion and Forked Deer River Basins, TN; Reelfoot Lake area, including channel improvement for Bayou du Chien and Lake No. 9, TN and KY; West Kentucky tributaries, KY; Mud Lake pumping station, TN; and pumping plants and outlet structures in the Cairo-Mounds-Mounds City area, IL. Channel improvements to Eight Mile Creek, Arkansas; Whiteman's Creek Ten Mile and Fifteen Mile Bayous in West Memphis, and vicinity Arkansas; Horn Lake Creek and Tributaries, Mississippi; and Nonconnah Creek, Tennessee and Mississippi. Navigation channel and harbor improvements to Helena Harbor and vicinity, Arkansas at Mississippi River, mile 652 AHP. Channel improvements and pumping station for Helena, Phillips County, and vicinity, Arkansas and St. Johns Bayou and New Madrid Floodway, Missouri.

Field operations of the commission restricted to levee construction under Sec. 6, 1928 Flood Control Act (local interests contributing one-third of costs and furnishing rights-of-way) are conducted within the following limits by two districts reporting directly to the Commission on matters within their jurisdiction—St. Louis District: Mississippi River (Sec. 6) levees from upper limits of Memphis District to Clemens Station, MO (1,254 miles AHP), on right bank, and Hamburg Bay, IL (1,215 miles AHP), on left bank, and Illinois River from its mouth to mile 120 at Havana, IL. Rock Island District: Mississippi River (Sec. 6) levees from upper limits of St. Louis District to Rock Island, IL (1,437 miles AHP). For work accomplished see Table 42-N, page 42-50, Annual Report for 1975.

MISSISSIPPI RIVER AND ALLUVIAL VALLEY BELOW CAPE GIRARDEAU, MO

Location and description. The Mississippi River rises in Lake Itasca, MN, and flows generally southerly for 2,340 miles through the central portion of United States to empty into the Gulf of Mexico 115 miles below New Orleans. It is improved for barge navigation for 1,832 miles to Minneapolis, MN. The Mississippi River and its major tributaries, the Missouri, Ohio, St. Francis, White, Arkansas, Yazoo, and Red-Old Rivers, drain 1,245,000 square miles in all or part of 31 states between the Rocky and Appalachian Mountains and part of two Canadian provinces. Below Cape Girardeau, MO, 53 miles above Ohio River, river bottomlands widen abruptly into an alluvial valley of 35,460 square miles which was originally subjected to flood overflow. A major part of the alluvial valley has been protected from floods by levees which confine floodflows within a floodplain having an average width of 5 miles. (See map of alluvial valley of Mississippi River, scale 1:500,000.) Observations made by Mississippi River Commission to Sep. 30, 1982, show approximate all-time maximum and minimum discharges between levees as follows: Cairo to White River, 2,000,000 and 70,000 cubic feet per second; thence to Red River, 2,150,000 and 90,000 cubic feet per second; thence to the Gulf of Mexico, 1,500,000 and 50,000 cubic feet per second in Mississippi River and 660,000 and 11,000 cubic feet per second in Atchafalaya River. As the 1927 floodflow was not con-fined between levees, maximum discharges recorded do not include entire flow of the 1927 flood, maximum of record below White River. High water and flood stages usually occur in late winter or early spring, but great floods such as that of 1937 occurred as early as January. Low water stages generally prevail from August to December. Extreme all-time high in stages recorded at representative gages (rounded to nearest foot) are 60 feet at Cairo, 49 feet at Memphis, 61 feet at Red River Landing, and 21 feet at New Orleans (Carrollton). The river is nontidal above Red River Landing where tidal amplitude rarely exceeds 0.1 foot during extreme low water.

Previous projects. For details see page 1944, Annual Report for 1932.

Existing project. The Mississippi River and Tributaries Project in the alluvial valley between Head of Passes, LA, and Cape Girardeau, MO, provides protection from floods by means of levees, floodwalls, floodways, reservoirs (in Yazoo and St. Francis Basins), bank stabilization, and channel improvements in and along the river and its tributaries and outlets insofar as affected by backwater of Mississippi River, including levee work on the main stem between Cape Girardeau

and Rock Island. When completed, 23,621 square miles will be protected from the Mississippi River project flood. The project also provides for a 12- by 300-foot navigation channel between Baton Rouge, LA, and Cairo, IL; for salinity-control structures; and for channel realignment and improvement including bank stabilization and dikes to reduce flood heights, control natural tendency of river to lengthen by meandering, and protect levees from being destroyed by caving banks. Locations of major main stem Mississippi River improvements are shown in Table 41-A and those for off-main stem tributaries are shown in Table 41-B. Pertinent data on dams and lakes are shown in Table 41-C. Authorizing and incorporating legislation are shown in Tables 41-D and 41-E. Summary of presently estimated Federal cost of authorized improvements is shown in Table 41-F. Construction of the existing project began in 1928 and has continued throughout ensuing years. Through Sep. 30, 2001, physical completion of the entire project is 87.1 percent.

Recommended modifications. None.

Local cooperation. The Flood Control Act of 1928, as amended, applies. Such requirements have, in general, been complied with by local interests.

Terminal facilities. See Port Series No. 21, 1990, for Ports of Baton Rouge and Lake Charles, LA; Port Series No. 20, 1990, for Port of New Orleans, LA; also folio of Flood Control and Navigation Maps of Mississippi River from Cairo, IL, to the Gulf of Mexico (59th edition), 1992.

Project cost. Total allotted for flood control, excluding maintenance charges through Aug. 18, 1941, chargeable under authorizations to Sep. 30, 2003, was $7,446,610,287 (See Table 41-V.) (See also Tables 41-U, 41-W, and 41-X for additional financial statements.

The 359th Session was held on Nov. 27, 2000, at the Mississippi River Commission Headquarters in Vicksburg, MS. Approximately 10 people were in attendance for this meeting that was open to the public for observation but not for participation. The meeting was for the Commission's consideration of the Final Feasibility Report and Final Environmental Impact Statement for the Wolf River, Memphis, Tennessee, project.

The 360th Session was held on Apr. 2-6, 2001, on board the Motor Vessel *Mississippi* en route on the Mississippi River from Caruthersville, MO, to New Orleans, LA. Bank protection works, levees and channel conditions were observed en route. Public meetings were held at Caruthersville, MO; Helena, AR; Vicksburg, MS; and New Orleans, LA, with approximately 415 people in attendance. Commission members visited the Birds Point to Commerce levee restoration project and discussed the need for continued construction work in that area. They received briefings by Corps staff and local interests on the Thompson Bend area improvements in addition to the St. Johns-New Madrid project in Missouri. Visits were made to the White River area in Arkansas for briefings on groundwater depletion problems and discussions with farmers on flooding problems in that vicinity. A tour was also made of the South Delta area in Mississippi, with a trip to the Yazoo Backwater Pump/Steele Bayou structure site, Mahanna Wildlife Refuge, and the Delta Wildlife and Forestry facility. This session was adjourned in New Orleans, LA, Apr. 6, 2001.

The 361st Session was held Aug. 13-24, 2001, on board the Motor Vessel *Mississippi*. Public meetings were held at LaCrosse, WI; Keokuk, IA; St. Louis, MO; Memphis, TN; Greenville, MS; and Morgan City, LA, with approximately 685 people in attendance. Commission members were taken on project site visits in Minnesota to tour the Gilmore Creek 205 project and Winona flood control project in addition to a tour of the Environmental Management Program habitat project at Trempealeau. While in the Iowa area, the members participated in tours and briefings regarding Lock and Dam 12, the Bellevue Section 14 project, and the Bellevue State Park in addition to touring the Nahant Marsh and several riverfront areas. Mr. Dominic Izzo, Principal Deputy Assistant Secretary of the Army for Civil Works, joined the Commission during the inspection trip and participated with the members and staff in visiting the Sny Island Levee and the Twin Rivers Marine and Day Use Recreation Area within the St. Louis District. Briefings and overviews were also given on the Holnan Land Swap, Clarksville Refuge, and Melvin Price Locks and Dam River Center. During the second week of the inspection trip, several Commissioners and staff participated in a canoe trip on the Atchafalaya River with members of the Sierra Club and Senator Mary Landrieu. This session adjourned Aug. 24, 2001, in Morgan City, LA.

Records of Proceedings of all sessions of the Mississippi River Commission are on file in the office of the President.

Alluvial Valley Mapping

General. Contoured quadrangles and general maps of the alluvial valley are available for departmental use and public distribution under prescribed regulations. Preparation, revision, and publication of quadrangle maps (scale 1:62,500) continued. Roadmap-type information brochures of principal portions of the overall project were published along with pamphlets on the subject of flood control and navigation. Maps and supplemental data sheets for active works were updated and published as required.

Approximately 222 flight-line miles of black-and-white aerial photography (various scales); 0 flight-line miles of color true photography; and 0 hours of oblique photography were flown along the Mississippi River and tributaries in the New Orleans District.

Work accomplished in the Districts: New Orleans District: The conversion of 1:62,500 scale quadrangle maps New Orleans, Hahnville, Lac Des Allemards, Thibodaux and Napoleonville from manual to digital form were completed in FY 03.

Memphis District—There were no revisions to series conversion of U.S. Geological Survey in FY 2002.

Vicksburg District—Series Published 1:62,500 scale quadrangle maps Lake Providence, LA-MS and Alsatia, LA-MS was completed in FY 00. Revision of Vicksburg, MS, LA is in progress. The conversion of 1:62,500 scale quadrangle map, Vicksburg, from manual to digital form was completed in FY 02.

Floods

Streamflow observations during the fiscal year follow:

Memphis District—Mississippi River crest stage of 54.9 feet at Cairo gage on May 19-20, 2002, and maximum discharge of 1,472,000 cubic feet per second occurred at Hickman, KY on May 24-25, 2002, a crest stage of 38.2 feet at Memphis on May 24-25, 2002, and a maximum discharge of 1,401,000 cubic feet per second at Memphis on May 24-25, 2002.

Vicksburg District—The Mississippi River in the Vicksburg District – Peak stages and discharges on the Vicksburg District's reach of the Mississippi River were as follows: Arkansas City, 40.2 feet on Jun. 1, 2002, and maximum discharge of 1,520,000 cubic feet per second; Vicksburg, 45.4 feet on Jun. 4, 2002, and a maximum discharge of 1,515,000 cubic feet per second; and Natchez, 51.5 feet on Jun. 4, 2002, and maximum discharge of 1,510,000 cubic feet per second.

New Orleans District—On the Mississippi River, the Red River Landing gage recorded a maximum stage of 54.9 feet NGVD on Jun. 4, 2002, and the New Orleans gage recorded a maximum stage of 15.5 feet NGVD on Jun. 6, 2002. On the Atchafalaya River, the Simmesport gage recorded a maximum stage of 35.4 feet NGVD on Jun. 7, 2002.

Studies and Investigations

General investigations. Surveys and reports, authorized by laws and by Senate and House committee resolutions, were made as required. Collection and study of basic data continued.

A June 2000 resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives authorized a study to determine if improvements in the vicinity of Bono, AR, in the interest of flood control, recreation, water quality, water supply, restoration of fish and wildlife habitat, and related purposes are advisable. An initial assessment was completed under the Section 205 Flood Control Act of 1948, Small Flood Control Projects. The assessment indicated that a combination flood control and recreational reservoir desired by local interest as being economically justifiable but it did not meet the policy guidelines of the Section 205 Authority.

A July 1997 resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives authorized a study of flooding and other problems in the area west of the Atchafalaya Basin Floodway between Alexandria, Louisiana, and the Gulf of Mexico. A reconnaissance study was initiated in FY 1998 and completed in FY 1999. Initiation of a Feasibility Study was delayed until April 2003 due to lack of non-Federal funds.

A May 1998 resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives authorized a study of flooding and other problems in the area between Bayou Lafourche and the Mississippi River from Donaldsonville, Louisiana, to the Gulf of Mexico. A reconnaissance study was completed in FY 2000. Feasibility study was initiated in FY 2002, and continues in FY 2003.

An April 1992 resolution of the Public Works and Transportation of the U.S. House of Representatives Committee authorized a study of flooding and other problems east of the Atchafalaya Basin Floodway between Morganza, Louisiana, and the Gulf of Mexico. A

feasibility study was completed in FY 2003 recommending a Federal project. The Energy and Water Development Appropriation Act of 1995 and the Water Resources Development Act of 1996 directed an expedited study of a lock the Houma Navigation Canal under the authority of the Morganza, Louisiana, and the Gulf of Mexico study. An interim feasibility study on the lock was completed in FY 1997 and was approved for preconstruction engineering and design in FY 1999. A supplement to the report was prepared in 2003 adding work-in-kind, and Planning Engineering and Design on Houma Navigation Canal Lock and additional features continued in FY 2003.

A June 1998 resolution of the Committee on Environment and Public Works of the U.S. Senate authorized a study of the multipurpose flood control and agricultural water supply problems in the Boeuf-Tensas Basin of southeast Arkansas. A feasibility study was initiated in FY 2000.

Mississippi River and Tributaries Levees

Operations and results during fiscal year. This feature consists of construction of new, and enlargement of existing, levees to approved grade and section; construction and restoration of levee berms; and construction, repair, and maintenance of roads on levees. Work accomplished is summarized in Table 41-N and further broken down as follows:

New Orleans District—Continued construction of levees in the Main Stem System.

Vicksburg District—Continued construction of levees in the Main Stem System. See Table 41-L.

Memphis District—Continued construction of levees in the Main Stem System. See Table 41-M.

Condition as of Sep. 30. (See Tables 41-K, 41-L, 41-M, and 41-N.) There are 1,609.8 miles of levees authorized for the Mississippi River below Cape Girardeau, of which 1,603.0 are in place with 3,376.6 built to approved grade and section. The Main Stem Levee System consists of 2,215.7 miles, of which 2,208.9 are in place with 1,928.7 miles completed to approved grade and section. Included in this system are 85.4 miles of levees and structures along the south bank of Arkansas River miles (all completed); 59.2 along the south bank of Red River (all completed); and 449.2 miles in the Atchafalaya River Basin, with 449.2 miles in place and 395.4 miles completed to grade and section (see Table 41-N). Of the authorized 677.8 miles of berms and seepage control measures, 562.6 are complete. Graveled or hard-surfaced roads have been constructed on 2,094.8 miles of these levees.

There are an additional 1,511.0 miles of authorized tributary levees in the MR&T Project, of which 1,277.3 miles, are in place with 1,085.7 to approved grade and section. Berms have been completed on 15.3 miles and 970.1 miles of graveled or hard-surfaced roads have been constructed on the levees.

For summary of levee work Table 41-N.

Mississippi River and Tributaries—Channel Improvements

Operations and results during fiscal year. Dredging: Mississippi River Main Stem — (See Table 41-G.) Work included dredging 23,683.1 cubic yards for maintenance of channel and harbor improvements. Minimum channel depth of 9 feet was maintained. Dredging was done with the following plant: Vicksburg District, channel maintenance was performed by government-owned dredge *Jadwin*. Memphis District channel maintenance dredging was performed by the Government-owned dustpan dredge *Hurley* and leased dust pan dredge *Wallace McGeorge*.

The MR&T Harbors maintained in Memphis District was Helena Harbor, Phillips County, AR, and Memphis Harbor (McKellar Lake), by leased cutterhead dredge *Pontchartrain*. MR&T Harbors maintained in Vicksburg District were Greenville Harbor and Vicksburg by cutterhead dredge Marion.

Bank revetment and dikes: (See Table 41-H, 41-I, and 41-J.) Construction of 2.11 miles of new bank revetment and 125,219 squares of concrete mattress, for maintenance, along the Mississippi River was completed by Government plant and hired labor. Also, 2.29 miles of new dikes were constructed and required maintenance was performed.

Approximately 1.29 miles of new bank revetment was constructed on the Atchafalaya River.

Other work performed in the interest of navigation, supplementing maintenance dredging on Mississippi River between Cairo, IL, and Baton Rouge, LA, included removal of snags, wrecks, and obstructions; issuance of bulletins by the Vicksburg District providing information on available high-water velocities at selected locations; maintenance of bulletin boards showing daily gage readings at regular MRC gages; and contact pilot service furnishing navigation interests with latest information and advice on channel conditions and

navigation interests. Cost of this work is given in Table 41-U.

Condition as of Sep. 30. In carrying out authorized channel improvement program between Baton Rouge and Cairo, 16 cutoffs were developed between 1933 and 1942. These, combined with chute channel development and alignment improvements, decreased channel length between these cities by about 170 miles. However, current velocities increased the attack on the banks and the river began to regain its length. As a result, the net shortening between 1933 and 1962 was 114 miles of the theoretical 170-mile cutoff.

There are now in place 1,042.0 miles of operative bank revetment and 310.9 miles of dikes on the lower Mississippi River. This amount of channel stabilization should prevent the river from regaining much more of its length due to meandering. A navigation channel 9 by 300 feet is being accomplished by revetment and dikes and maintained by dredging as required during the low-water season. Due to growing effectiveness of channel improvement program, average maintenance dredging requirements are steadily being reduced, and an increase in navigable depth is being obtained. Approximately 143,4 miles of foreshore protection have been constructed along the lower Mississippi River.

There are 88.2 miles of revetment and 5.9 miles of dikes on tributary channels as listed in Tables 41-H, 41-I, and 41-J.

New Orleans District

ATCHAFALAYA BASIN, LA

Operations and results during fiscal year. New work by hired labor: Real estate activities and planning for construction were continued.

Construction of levee enlargements and floodwalls continued on the east and west protection levees, and levees west of Berwick.

In FY 32, two contracts were substantially completed for floodwalls at East Bayou Sale Gordy and Maryland. A levee and pumping station contract for the Todd levee was continued. Five contracts were initiated in FY 2003 as follows: Wax Lake West Drainage Structure, E69/E73, W52 2nd lift, W85 A&B, and Wax Lake Outlet West levee enlargements.

Maintenance by hired labor: Operation and maintenance of Bayou Boeuf, Berwick, and Bayou Sorrel Locks, Morganza Control Structure, condition and operation studies, and water control management activities were continued.

Condition as of Sep. 30. Construction was initiated Aug. 7, 1929, with commencement of the west protection levee from Bordelonville to Hamburg, LA. The project is 93 percent complete. The current estimated Federal cost is $1,790,000,000 and non-Federal cost is $11,000,000. Of the 449.2 miles of levees and floodwalls authorized for the Atchafalaya system, 388.4 miles are built to grade. See Table 41-K for status of levees.

Construction of the first 2.5 miles of the proposed 5 miles of channel was initiated in January 1958 and completed in July 1959, with 7,458,086 cubic yards excavated.

The remaining 2.5 miles were to be constructed when development of the initially constructed portion warrants expansion. Project expansion has not been necessary. Therefore, this feature was deauthorized on Nov. 2, 1979, under the provisions of Section 12, Public Law 93-251 (WRDA 74), as amended.

Major items remaining to be completed include completion of levees to grade and section, channel training works below Morgan City, modification of existing structures and construction of two freshwater distribution structures. Approximately 56.6 miles of bank stabilization have been placed as shown in Table 41-H.

Flood Control

ATCHAFALAYA BASIN FLOODWAY SYSTEM, LA

Location. The project lies in the lower part of the Atchafalaya Basin which is situated in south-central Louisiana. It lies in parts of Iberville, Iberia, Point Coupee, St. Martin, St. Mary and St. Landry Parishes. Further, it is limited to the part of the Atchafalaya River Basin that has been confined between protection or guide levees that are about 15 miles apart. The northern boundary, west of the Atchafalaya River, lies along the south right-of-way line for the Union Pacific Railroad near the south side of U.S. Highway 190 between the West Atchafalaya Basin Protection Levee (WABPL) and the west limits of the Town of Krotz Springs, thence southerly along the west limits of the town and easterly along the south limits of the town to the Atchafalaya River; east of the Atchafalaya River it lies along the southern right-of-way line for the Union Pacific Railroad. The eastern and western boundaries lie at the floodside toes of the East Atchafalaya Basin Pro-

tection Levee (EABPL) and WABPL, respectively. The area within these limits has been calculated at about 595,000 acres.

Existing Project. This project was authorized by the Supplemental Appropriations Act of 1985, Public Law 99-88. The project was reauthorized and amended by Section 601 of the Water Resources Development Act of 1986, Public Law 99-662 (hereafter WRDA 1986). The Corps of Engineers, New Orleans District, completed a comprehensive feasibility study report for the ABFS in January 1982 that recommended implementation for three separable elements including land acquisition, recreation, and water management units. Funding for the acquisition of the real estate feature made available by the Energy and Water Appropriations Bill of 1988, Public Law 100-202.

To date approximately 108,000 acres in developmental control and environmental easements have been acquired. 42,000 acres in additional easements are being negotiated leaving a balance of approximately 230,000 acres to acquire. Acquired 47,400 acres in fee, excluding minerals, from willing sellers. The recreational portion of the ABFS is cost-shared 50/50 between the Corps and the local sponsor. The recreation portion includes boat landings, canoe trails, 3-state type park facilities, project visitor center, primitive campgrounds, etc. Through FY 2003, planning had been initiated on several boat landings and one ABFS is constructed with 100% Federal funds and OMRR&R is cost shared 75% Federal and 25% non-Federal. Through FY 2003, planning and design had been significantly advanced for the Buffalo Cove Pilot Water Management Unit.

Local Cooperation. Various Design Agreements and PCA's will be required between the Corps and the non-federal sponsor for project implementation.

Condition as of Sep 30. Continuing Real Estate acquisition and negotiations and advancing design for Water Management with the construction of Buffalo Cove scheduled for FY 2004 and advancing the planning for recreational features with the construction of Myette Point Boat Landing scheduled for FY 2004.

BAYOU COCODRIE AND TRIBUTARIES, LA

Operations and results during fiscal year. Maintenance by hired labor consisted of water control management.

Condition as of Sep. 30. Construction was initiated in June 1946 and is 57 percent complete, based on the current estimated Federal cost of $20,400,000 and non-Federal cost of $323,000. See page 2031, Annual Report for 1961, for description of completed work.

Work required to complete the project consists of enlargement of 13.5 miles of upper Bayou Boeuf, channel improvement of 25.3 miles of Bayou Cocodrie, enlargement of Bayou Courtableau from Washington, LA, to the west protection levee, and additional culverts through the west protection levee at 100 percent Federal cost in lieu of the previously authorized diversion channel from Washington to the Bayou Courtableau drainage structure.

With the termination of the Eastern Rapides and South Central Avoyelles project, it has become necessary to provide an adequate outlet structure solely for the Bayou Cocodrie and Tributaries project. The economic effects of this change along with current benefits estimates have caused the benefit-cost ratio for the project to be less than unity. As a result, the project has now been classified as inactive. If economic conditions change, the project could be reactivated.

BONNET CARRE' SPILLWAY, LA

Operations and results during fiscal year. Maintenance by hired labor: Condition and operation studies, water control management, and ordinary maintenance of the control structure and spillway continued.

Condition as of Sep. 30. Construction of the spillway was initiated in FY 1929. The control structure was completed in 1931, levees were completed in 1932, and utility crossings were completed in 1936. The cost of the completed work is $14,212,200.

It was necessary to operate the structure to reduce flood stages in 1937, 1945, 1950, 1973, 1975, 1979, 1983 and 1997. The structure was operated in 1994 to transfer fresh water from the Mississippi River to Lake Pontchartrain. The structure was operated for one month from March 17-April 17, 1997, to reduce flood stages.

Needle replacement began in FY 96 with the purchase of about 625 needles for $80,000. The total replacement quantity required is approximately 7,000. An additional cable security system has been installed through needle eyes to prevent needles from dislodging during severe storms.

Natural Resources and Recreation Project Master Plan was approved and implemented in 1998. Operational Management Plan is under development. A staff of three Park Rangers are now stationed at the spillway

to implement the recreation and natural resource programs.

OLD RIVER, LA

Operations and results during fiscal year. Maintenance by hired labor consisted of operation and maintenance of the lock and control structures as required, condition and operation studies, water control management, maintenance of cleared areas, levee shaping, and engineering studies.

Natural Resources and Recreation Master Plan is under development. Operations and Maintenance Activity includes development of Old River Cooperative Visitor Center.

Condition as of Sep. 30. Construction began September 1955 and is complete at a Federal cost of $292,273,000. Principal items completed are as follows: Low-sill structure, June 1959; overbank structure, October 1959; auxiliary structure, September 1986; levees and levee enlargements, October 1963; inflow and outflow channels for the low-sill structure, February 1961; inflow and outflow channels for the auxiliary structure, August 1987; navigation lock completed December 1962 and opened to navigation March 1963, at which time Old River was closed to navigation with a rock and earthfill dam; highway approaches and bridge over the lock completed March 1965. Approximately 9.4 miles of bank protection have been constructed at the inflow and outflow channels. (See Table 41-H for details of bank protection.)

LOUISIANA STATE PENITENTIARY LEVEE, LOUISIANA

Location. The project is located near Angola, LA, in West Feliciana Parish, approximately 40 miles northwest of Baton Rouge, LA, and borders the Louisiana State Penitentiary along the Mississippi River and State of Mississippi state line.

Existing Project. The project provides for improving about 12 miles of existing levees along the Mississippi River which currently afford flood protection to the penitentiary on the left descending bank below Old River. The existing levees are owned and maintained by the State of Louisiana and are substandard with regard to Federal specifications. By improving the existing levees to Federal standards, the project will reduce the risk of flooding with its attendant property damage and threat to the lives of up to 5,100 inmates and about 1,750 employees and residents (527 reside on the penitentiary grounds). Funds to initiate preconstruction, engineering and design were appropriated in FY 97 and funds to initiate construction were appropriated in FY 98.

Local Cooperation. The limited Reevaluation Report was approved on July 2, 1999 and formed the basis for execution of the Project Cooperation Agreement which was approved on July 30, 1999. The local Sponsor, the Louisiana Department of Public Safety and Corrections has provided cash in the amount of $5,171,000 in addition to furnishing the lands and damages (including mitigation lands) necessary to support their share of the project cost.

Conditions as of Sep. 30. Construction was initiated in FY 99 with the award of three contracts in Sep. 1999. Two contracts are for the levee upstream of Camp C and the other is for replacement of the existing drainage structure. All three contracts were completed in FY 01. Also, the final contract to enlarge the levee from Camp C to the main gate was awarded in Apr. 01. The entire project was completed in FY 03.

Salinity Control Structures

MISSISSIPPI DELTA REGION, LA

CAERNARVON FRESHWATER DIVERSION STRUCTURE, BRAITHWATE, LA

Location. The Caernarvon structure is constructed in the Mississippi River Levee on the left descending bank at mile 81 AHP, just below the St. Bernard-Plaquemines Parish line.

Existing Project. The Caernarvon Freshwater Diversion Feature of the Miss. Delta Region Project is capable of diverting up to 8,000 cfs of River water into the Breton Sound Estuary for fish and wildlife habitat enhancement. River stages and the fresh water needs of the estuary, determined by monitoring data, establish the actual quantities to be diverted.

Local Cooperation. The Local Cooperation Agreement with the State of Louisiana was signed in June 1987. Cost sharing for initial construction and ongoing operations and maintenance is 75% Federal and 25% non-Federal. The project is operated and maintained by Plaquemines Parish, under the direction of the LA Department of Natural Resources.

Condition as of Sep. 30. Construction began in 1988 and was completed in 1991, at a Federal cost of $19,700,000 and a non-Federal cost of $6,500,000. Diversions have been ongoing, as needed, since August 1991. The goal of fish and wildlife habitat improvement has been met or exceeded, most notably in the areas of

seed oyster availability on the public oyster grounds, a large variety and volume of recreational fishing and duck hunting.

DAVIS POND FRESHWATER DIVERSION STRUCTURE, LA

Location. The Davis Pond structure is constructed in the Mississippi River Levee on the right descending bank at mile 118 AHP, in St. Charles Parish, two miles Luling, LA.

Existing Project. The Davis Pond Freshwater Diversion Feature of the Miss. Delta Region Project will be capable of diverting up to 10,650 cfs of River water into the Barataria Bay Estuary for fish and wildlife habitat enhancement. Fresh water needs of the estuary, determined by monitoring data, will establish the actual quantities diverted.

Local Cooperation. The Project Cooperation Agreement was signed in April 1993 with the State of Louisiana. Cost sharing for initial construction and ongoing operations and maintenance is 75% Federal and 25% non-Federal. The project will be operated and maintained by St. Charles Parish, under the direction of the LA Department of Natural Resources.

Condition as of Sep. 30. Construction began in 1996 and was substantially completed in 2002, at an estimated Federal Cost of $89,700,000 and a non-Federal cost of $29,900,000 for the Construction Phase of this Feature. Diversions have been ongoing, as needed, since August 2002. Due to the short period of time since diversions began, it is not possible to evaluate the goal of fish and wildlife habitat improvement quantitatively at this time. Final second lift levee construction and ongoing monitoring under the Construction Phase of this feature will continue into 2006.

MISSISSIPPI - LOUISIANA ESTUARINE AREAS, LA/MS

BONNET CARRE' FRESHWATER DIVERSION STRUCTURE, LA

Location. The Bonnet Carre' structure will be constructed in the upstream end of the Bonnet Carre Spillway structure, on the left descending bank of the Mississippi River at Mile 129 AHP, in St. Charles Parish, LA.

Existing Project. The Bonnet Carre Project will be capable of diverting up to 30,000 cfs of River water into the Lake Pontchartrain, Lake Borgne/Biloxi Marsh Estuarine Area for fish and wildlife habitat enhancement. Fresh water needs of the estuary, determined by monitoring data, will establish actual diversion quantities.

Condition as of Sep. 30. Before construction can proceed, a Project Cooperation Agreement must be signed with the States of Louisiana and Mississippi. Louisiana has withdrawn their support of the project until agreement between Louisiana and Mississippi can be reached on how the project will be operated. Federal cost of the Project is estimated to be $87,200,000. The construction, operation and maintenance of the Project will be shared as follows: Federal, 75 percent; La, 20 percent; MS, 5 percent.

Vicksburg District

LOWER ARKANSAS BASIN, AR

Condition as of Sep. 30. Arkansas River levees. A total of 56.2 miles of the 61.5 miles of north bank levees and all of the 85.4 miles of south bank levees have been completed to approved grade and section. These levees above mile 36.1 are protected by bank-protection works constructed as a feature of project for Arkansas River and tributaries, AR and OK. For present status of this work, see report of Little Rock District. Below mile 36.1, needed bank protection is constructed with project maintenance funds. Little Bayou Meto gates and lifting mechanism were replaced during FY 88. Big Bayou Meto Gate operating mechanisms replaced FY 94, 95, 96.

LOWER RED RIVER SOUTH BANK RED RIVER LEVEES, LA

Operations and results during fiscal year. New work by hired labor consisted of engineering studies. A Project Management Plan to address replacement of the drainage structure and pumping plant was approved in Aug 94. A major maintenance report was prepared and approved Sep. 95 recommending replacement of the drainage structure. Design of the replacement structure is complete. Construction is underway and scheduled for completion in March 2003.

Maintenance by hired labor consisted of water control management and economic studies.

Condition as of Sep. 30. Construction was initiated in FY 92 and is complete. All of the 59.2 miles of levees authorized are completed to approved grade and section.

TENSAS BASIN, AR AND LA

(a) **Boeuf and Tensas Rivers, and Bayou Macon, AR and LA.**

Operations and results during fiscal year. Planning and design on project features are complete. The Lake Chicot Pumping Plant and related features are complete and in operation. No further work on the Tensas River Project (Separable Element) will be initiated due to lack of commitment from a local sponsor to cost share remaining E&D and construction. This project has been placed in the "inactive" category.

Condition as of Sep. 30. Channel improvement has been accomplished on 741.7 miles of project streams, providing major drainage outlets for the tributary areas. Additionally, 61.0 miles of the Tensas River has been cleared and snagged. The GDM for the Tensas River Project, above mile 61, including Mill Bayou-Bayou Vidal is complete. However, no further work will be initiated due to lack of a local sponsor.

(b) **Red River backwater area.**

Operations and results during fiscal year. Planning and design continued on project features. All channel work required to get flows to the Tensas Cocodrie Pumping Plant and gravity structure is complete. The gravity structure and the pumping plant are complete and are being operated and maintained by contract. One mitigation item, the construction of two water control weirs, was completed in May 1988. Contracts for three additional mitigation features are complete. Construction of the Durham Prong mitigation feature is complete. Tensas-Cocodrie, Item 4-A, levee enlargement, 6.3 miles in length, was completed in September 1988, and Item 4-B, 2.4 miles of levee enlargement, was completed in October 1990. A contract for Item 2 was awarded in January 1991 and is physically complete. These contracts will complete the levee enlargement for all of the levee system, except 0.8 miles.

Work on the Below Red River Phase II GDM has been reclassified as inactive. Construction of the Sicily Island Area Levee project is complete.

Condition as of Sep. 30. Levees in Tensas- Cocodrie area are complete except for levee raising of 0.8 miles. The work comprised 93.1 miles of new levee, excluding 2.1 miles of high ground where no levees are required, and 86.9 miles of gravel road on levees. Construction of 63.4 miles of levee, Larto Lake to Jonesville levee system, has been completed. A levee grade reevaluation study for all levee systems in the Red River Backwater area was completed in Mar. 1985. The Sicily Island area project consists of 56 miles of new levee, 2 pumping plants, 11 miles of channel work, and structural mitigation features. Levee items 1C and 1D and Billy and Falcon Bayou were completed in FY 02 to complete the last items of construction.

YAZOO BASIN, MS

Operations and results during fiscal year.

(a) **Big Sunflower River, etc.** The Project is authorized by the Flood Control Acts of 1944, 1946, 1950, 1962, and 1965. Construction of channel improvements on Steele Bayou are underway. Construction on Steele Bayou Channel in the Swan Lake Area is being done in phases. Phase V was awarded in July 01. Main Canal and Black Bayou are complete.

Mitigation for Upper Steele Projects

Mitigation for the unavoidable environmental losses is now underway. Approximately 3,652 acres of cleared lands have been obtained in the Yazoo Basin to mitigate the environmental losses resulting from construction of the Upper Steele Bayou Projects. Mosf of this land has been reforested and will be managed for wetlands, and terrestrial resources. A total of 5,250 acres of mitigation will be acquired from willing sellers for this project.

(b) **Flood Control Reservoirs**

(1) **Arkabutla Lake.** (See Table 41-C.) The dam and appurtenant structures were maintained and operated. Clearing of tributary streams in the lake area was continued. Maximum pool elevation in the lake was 241.7 feet NGVD on Dec. 24, 2001, and storage in flood control pool was 648,200 acre-feet. Peak 24-hour inflow was 66,200 cubic feet per second on Oct. 11, 2002. On Sep. 30, 2002, the pool elevation was 228.5 feet NGVD, and storage in the flood control pool was 262,400 acre-feet.

(2) **Enid Lake.** (See Table 41-C.) The dam and appurtenant structures were maintained and operated. Rehabilitation of boat channels and snagging and clearing of tributary streams in the lake area continued. Maximum pool elevation in the lake was 268.0 feet NGVD on May 11, 2002, when storage in the flood control pool was 660,800 acre-feet. Peak 24-hour inflow was 34,200 cubic feet per second on Nov. 30, 2001. On Sep. 30, 2002, pool elevation was 252.5 feet NGVD and storage in the flood control pool was 312,400 acre-feet. 4,500 ac. ft. of storage in conser-

vation pool was reallocated to municipal and industrial water supply in June 1998.

(3) **Grenada Lake.** (See Table 41-C.) Construction of remaining public-use facilities has been deferred pending development of cost-sharing agreements with local interests for construction and non-Federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreational Act of 1965 (Public Law 89-72), as amended. Maximum pool elevation in the lake was 224.6 feet NGVD on May 12, 2002, when storage in the flood control pool was 965,800 acre-feet. Peak 24-hour inflow was 65,100 cubic feet per second on Jan. 25, 2002. On Sep. 30, 2002, the pool elevation was 213.9 feet NGVD and storage in the flood control pool was 510,800 acre-feet.

(4) **Sardis Lake** (See Table 41-C.) The dam and appurtenant structures were maintained and operated. Clearing of tributary streams in the lake area continued. Maximum pool elevation in the lake was 280.5 feet NGVD on May 14, 2002, when storage in the flood control pool was 1,516,100 acre-feet. Peak 24-hour inflow was 62,700 cubic feet per second on Dec. 1, 2001. On Sep. 30, 2002, the pool elevation was 263.1 feet NGVD and storage in the flood control pool was 717,900 acre-feet. A construction contract was awarded for the seismic remediation of Sardis Dam utilizing driven pre-stressed concrete piling as a result of an extensive study and evaluation of the expected performance of the dam during a major earthquake in the New Madrid earthquake zone of the central United States.

(c) **Greenwood, Yazoo City and Belzoni protection works.** Contract forces continued operation and maintenance of levees, drainage facilities, and pumping plant.

(d) **Main stem.** Contract forces continued operation and maintenance of channels, levees, and drainage facilities.

(e) **Reformulation Study.** The uncompleted portions of the Yazoo Basin construction program are being reformulated. This reformulation study includes investigations of the engineering, economic, and environmental aspects of the basin and is being accomplished in 4 phases. These studies will evaluate reasonable arrays of alternatives to the project features that remained after construction of items that were budgeted and scheduled for award in FY 90. The Upper Steele Bayou and Upper Yazoo Project reports were approved on May 25, 1993 and Jun. 21, 1994, respectively. Concerning the final 2 phases, the Yazoo Backwater Reformulation Study began in FY 93 and the Tributaries Reformulation study began in FY 95. The Backwater Study includes nonstructural, structural, and combination plans. Nonstructural features include conservation and water management easements and reforesting of cleared agricultural lands. Structural features include an array of various capacity pumping stations and a levee alternative. A draft report was released for public review in Sep 2000 with a final report scheduled in FY 03. The Yazoo Tributaries Reformulation Study is evaluating flood control requirements on nine project features. Study efforts were suspended in 2000 until construction advances in the Upper Yazoo projects.

(f) **Demonstration Erosion Control.** The Demonstration Erosion Control Project (DEC), a joint project with the USDA NRCS was initiated by FY 85 appropriations as a continuation on streambank erosion control efforts. The purpose of the project is to demonstrate the applicability of a systems approach to the design of erosion, sedimentation, and flood control works by applying this approach to 16 demonstration watersheds in the Yazoo Basin hill area. During FY 02, work continued in the DEC toward development of the systems plans and implementation of a monitoring program. Cumulative through FY 02, the District has completed the construction of 195 low drop grade control structures, 189 miles of bank stabilization, 16 miles of channel improvement, 25 box culverts, 5 high drop grade control structures, 1,246 riser pipe grade control structures, 7 floodwater retarding structures, and 9 miles of levees.

(h) **Tributaries.** Construction:

Levees. Levee work associated with Pelucia Creek is complete.

(i) **Upper Yazoo Projects.** The first 12 items of channel improvement, approximately 87 miles, and nine drainage structures have been completed. This work extends from Yazoo City, Mississippi, Greenwood, Mississippi.

The Fort Pemberton Flood Control Structure was completed on Apr. 29, 1991.

Roebuck Lake and Fort Loring water control structures and Tchula Lake weirs were completed in FY 95.

Item 3A-2 levee was completed in FY 94. Channel Item 3A-1 was completed in FY 96. Item 3A-2 channel work was completed in FY 97. This item contains the first thin layer disposal site. Channel Item 3B-1 was completed in FY 99. Channel Item 3B-2 was completed

in FY 00. Channel Item 4A was completed in FY 01. Channel Item 4B was awarded in FY 01 and is scheduled for completion in FY 03.

Design efforts for Channel Item 6 are underway. Item 6A is scheduled for award in Jul. 04 and Item 6B for Sep. 04.

The Alligator-Catfish water control structure was completed in FY 98. This structure has been renamed the J. Tol Thomas Water Control Structure.

Mitigation for Upper Yazoo Projects. Mitigation for the environmental impacts is now underway. Approximately 8,815 acres of cleared, frequently flooded agricultural lands have been obtained in the Yazoo Basin area of Mississippi to mitigate the environmental losses resulting from construction of the Upper Yazoo Projects, Big Sand Creek, Pelucia Creek, and Ascalmore-Tippo Bayou construction projects. Most of this land has been reforested and will be managed for terrestrial aquatic, wetlands, and water fowl. A total of 17,000 acres of mitigation will be acquired from willing sellers for this projects.

(j) **Yazoo Basin backwater.** The Yazoo area backwater levees are complete, including the backwater levee from the Mississippi River levee to the west levee of the lower Auxiliary Channel, the Little Sunflower River drainage structure, and the connecting channel from the Steele Bayou drainage structure to the Big Sunflower River.

The Satartia area backwater levee is complete. Rocky Bayou area levee Items lA and 1B have been completed. Completed backwater levees will require raising to provide the degree of protection intended based on the project design flow line developed for the Mississippi River following the 1973 flood.

Four Greentree Reservoirs and pumping stations have been constructed to mitigate for the waterfowl impacts of the project.

Mitigation of the terrestrial impacts is now underway. Approximately 8,800 acres of cleared, frequently flooded, agricultural lands have been obtained in the Yazoo Backwater area of Mississippi to mitigate the terrestrial losses resulting from construction and operation of the Yazoo Area and Satartia Area levees projects. This land has been reforested and will be managed for terrestrial wildlife. An additional 3,617 acres of mitigation is being considered as part of the Yazoo Backwater Reformulation Project.

Condition as of Sep. 30. The first feature of Yazoo Basin project was started in 1936, and the total project is about 65 percent complete.

Memphis District

CACHE BASIN, AR

Location. The project is a flood control project located in the Cache River and Bayou DeView Basins in northeastern Arkansas.

Existing Project. The authorized plan of improvement consists of improving the channels of the Cache River and Bayou DeView to provide adequate drainage outlets and reduce the frequency, depth and duration of flooding. The work consists of clearing, cleanout, enlargement, and realignment on approximately 154 miles of the Cache River and 77 miles of Bayou DeView and the acquisition of up to 70,000 acres of land for fish and wildlife management, recreation and environmental purposes. The project has a benefit cost ration of 4.2 to 1.0.

Operations and results during fiscal year. No contracts were awarded or completed during the fiscal year.

Condition as of Sep. 30. Project was initiated during 1972 and is 4 percent complete. Construction of the authorized project was stopped in 1978 due to environmental opposition. Reevaluation studies of the authorized plan were initiated in June 1987 to provide a more environmentally balanced plan. The reevaluation effort was terminated on Dec. 15, 1994, due to a lack of local sponsorship. The Memphis District has initiated action to turn the acquired mitigation lands (7,959 acres) over to the U.S. Department of Interior.

CONSTRUCTION GENERAL

FRANCIS BLAND FLOODWAY DITCH (EIGHT MILE CREEK), ARKANSAS

Location. The project is located in the City of Paragould, AR.

Existing Project. The existing project consist of 12.5 miles of channel improvements. Eight miles of channel enlargement will occur in the rural downstream area of Paragould. Three and a half miles of enlargement will occur in the City of Paragould along with one mile of channel riprap/stabilization. The project will provide 100 year flood protection within the City of Paragould.

Local Cooperation. A project Cooperation Agreement (PCA) was assigned in June 1996.

Conditions as of Sep. 30. The contract work on the rural eight miles of channel has been completed. Construction on the first phase of the urban section of channel enlargement bagan in August 2002 with completion scheduled for April 2003. Construction of the second and final phase of urban channel enlargement is scheduled to start in Spring 2004.

HELENA AND VICINITY, AR

Location. The project is located in the City of Helena, AR.

Existing Project. The existing project consists of 1.41 miles of earthen and concrete channel enlargement within the city limits of Helena, AR. The concrete channel will be constructed primarily under streets while the earthen channel is in an undeveloped section of the city.

Local Cooperation. The Project Cooperation Agreement (PCA) was signed in August 1997.

Conditions as of Sep. 30. Construction on the concrete channel is progressing with completion scheduled for June 2003.

HORN LAKE CREEK AND TRIBUTARIES INCLUDING COW PEN CREEK, TENNESSEE AND MISSISSIPPI

Location. Horn Lake Creek is located in northwest Desoto County, MS and southwest Shelby County, TN.

Existing project. The project was approved for construction on Nov. 17, 1986, under authority of Title IV, Section 401 of the 1986 Water Resources Development Act. The project consists of 3.5 miles of drift removal and 2.75 miles of channel clearing on Horn Lake Creek; 2.1 miles of channel clearing on Rocky Creek and 0.62 miles of channel clearing and 1.85 miles of channel enlargement on Cow Pen Creek. The project will provide 1.1-year flood frequency protection on Horn Lake and Rocky Creeks and 25-year flood frequency protection on Cow Pen Creek. The construction is complete.

Local Cooperation. A Local Cooperation Agreement was executed with the Horn Lake Creek Watershed Drainage District on Feb. 26, 1992.

Condition as of Sep. 30. The final contract for work on Cow Pen Creek was awarded in Sep. 1997 and was completed in Sep. 1998. Floodplain mapping revisions are scheduled for completion in Feb. 2003.

HORN LAKE CREEK AND TRIBUTARIES, TENNESSEE AND MISSISSIPPI

Location. Horn Lake Creek is located in northwest Desoto County, MS, and southwest Shelby County, TN.

Existing project. A limited reevaluation report of the project for flood control, Horn Lake Creek and Tributaries, Tennessee and Mississippi, authorized by Section 401(a) of the Water Resources Development Act of 1986, to determine the feasibility of modifying the project to provide urban flood protection along Horn Lake Creek.

Local Cooperation. A Design Agreement for a reevaluation study was executed with the Horn Lake Creek Drainage District on Oct. 5, 2001.

Condition as of Sep. 30. Reevaluation studies were initiated in Oct. 2001 and scheduled for completion in Dec. 2004.

LOWER WHITE RIVER

Operations and results during fiscal year.

(a) **Augusta to Clarendon Levee.** There were no contracts awarded or completed during the fiscal year.

(b) **Clarendon Levee.** There were no contracts awarded or completed during the fiscal year.

(c) **White River Backwater Levee-Hudson's Landing to MRL.** There were no contracts awarded or completed during the fiscal year.

(d) **White River Navigation.** Annual dredging and snagging contract awarded on Jun. 20, 2002.

Condition as of Sep. 30.

(a) **Augusta to Clarendon Levee.** Project was initiated during 1946 and is 39 percent complete. There were no contracts awarded or completed this fiscal year.

(b) **Clarendon Levee.** There were no contracts awarded this year.

(c) **White River Backwater Levee.** There were no contracts awarded this year.

(d) **White River Navigation.** Dredging contract completed Nov. 2002.

NONCONNAH CREEK, MS AND TN

Location. The project is located in southern Shelby County and provides flood protection for approximately half of the city of Memphis, TN.

Existing Project. The project is made up of five separable elements, flood control, environmental preservation, recreation and conditionally authorized extensions to the flood control and recreation elements. The flood control element is under construction and consists of 18.2 miles of channel enlargement, grade stabilization, and vegetative cleanout. The environmental element consists of a 33-acre nature area. The recreation element consists of 8.8 miles of biking/ hiking trails. WRDA 2000 conditionally authorized extending the flood control element upstream about five miles and the recreational element from 8.8 to 27 miles, if the Secretary finds the work justified.

Local Cooperation. The project sponsor is the City of Memphis, TN, and the Project Cooperation Agreement (PCA) was signed on 23 July 1990. The PCA covers only the flood control features of the project.

Operations and results during fiscal year. No contracts awarded during this fiscal year.

Condition as of Sep. 30. Project construction was initiated during 1990 and is 60 percent complete. Item 1, channel completed on Jan. 8, 2001. The next item of construction, Item 1, Phase 2, is scheduled for award in Jul. 2003.

MISSISSIPPI RIVER LEVEES

Operations and results during fiscal year. Minor maintenance on levees is performed by the local interests and major maintenance is performed as required for slide repairs, road rehabilitation, and other similar work by the U.S. Army Corps of Engineers.

Mississippi River Levees Construction. Caruthersville, MO, relief wells, awarded Sep. 21, 2001, is 39 percent complete. Hillhouse, MS, relief wells, awarded Aug. 17, 2001, is 88 percent complete. Blue Lake. AR, relief wells, awarded Aug. 21, 2001, is 93 percent complete. Harmon Sewer, MO, culvert replacement, Aug 9, 2001 is 56 percent complete.

Mississippi River Levees Maintenance. Initiated and completed Hired Labor Slide Repairs at the Birds Point New Madrid Setback and Frontline Levee, MO and at Jointer, AR. Continued contracts for Culvert Replacement, Hwy 21, TN; and Culvert Replacement, New Madrid, Sta 0/22 MO. Completed contracts for Culvert Replacement, Kilgore, Cairo, IL; Culvert Replacement, Helena, AR, and a Slope Restoration, West Memphis, AR. Awarded new contracts for Culvert Replacement, New Madrid, Sta. 1/43, MO, and Slope Stabilization, LM9, Below New Madrid, MO.

Channel Improvement. Stone Dike Construction at Lookout Point, TN-AR Dike Construction, awarded Jul. 2001, completed February 2002. Cat Island, AR dike Construction awarded Aug. 2001, completed March 2002. Big Island, AR Bendway Weir Construction awarded Jul. 2001, completed Feb. 2002. Armstrong, TN Dike Construction awarded Jul. 2002, completed Sep. 2002. Peters, AR Dike Construction awarded Jul. 2002, 60 percent complete. Kate Aubrey, AR and Keyes Point, TN awarded Jul. 2002, 70 percent complete.

REELFOOT LAKE - LAKE NO. 9, TN AND KY

Operations and results during fiscal year. No contracts awarded or completed during this fiscal year.

Condition as of Sep. 30. Project was initiated during 1974 and is 95 percent complete.

ST. FRANCIS BASIN, AR AND MO

Operations and results during fiscal year.

Maintenance

Completed contracts for Huxtable Roof Repair, AR; Channel Cleanout, Lower Buffalo, AR; Channel Clearing, Ditch 66, MO; Channel Cleanout, Below Hwy 90, AR. Completed Delivery Order or Hired Labor work for Scour Repair, Mingo Bridges, MO; Scour Repair, Fisk, MO; Culvert Replacement, Elk Chute East Levee, MO; Culvert Replacement, 4 Culverts Elk Chute South Levee, MO; Scour Repair, Advance, MO; Scour Repair, St. Francis Town, AR; and Levee Slide Repairs, Elk Chute, MO and Mile 121, Below Huxtable, AR. Initiated contracts and Delivery Orders for Channel Cleanout, Ditch 81, MO; Channel Cleanout, Ditch 251 Unimproved, MO; Channel Cleanout, Ditch 251 Lower, MO; Channel Cleanout, Ditch 1 Lower, MO; Scour Repair, Block Hole, MO; Channel Cleanout, Ditches 10 & 12, AR; Channel Cleanout, Ditch 7, AR; Slope Restoration, Above Tulot, AR; Channel Cleanout, Belle Fountain West & State Line Outlet, AR & MO; and Scour Repair, Bridges 1, 2, & 3, Mad-Mar, AR.

Construction

Main and ditch 2, Item 2, Channel Enlargement, awarded May 30, 2000 is complete. Highway 90, channel restoration, awarded Sep. 12, 2000, 95 percent complete. Ditch 1 & 6, Channel Enlargement, MO., awarded Sept. 20, 2001, 15 percent complete. Honey Cypress, AR Channel Enlargement awarded 9 Aug 02 is 40% complete.

Condition as of Sep. 30. Project initiated 1937. Project is 90 percent complete.

ST. JOHNS BAYOU AND NEW MADRID FLOODWAY

Location. This flood control project is located in the bootheel of MO. It covers two drainage basins adjacent to the Mississippi River: the St. Johns Bayou Basin (450 sq mi) and the New Madrid Floodway (180 sq mi).

Existing Project. The First Phase of the authorized project includes 27.6 miles of channel improvements, pumping stations, all seasonal ponding easements, and appropriate mitigation features. The First Phase project has a benefit-cost ratio of 1.3 to one, with average annual benefits of $5,016,000. St. John Levee and Drainage District is the cost-sharing sponsor.

Condition as of Sep. 30. Construction on remaining items can not be initiated until NEPA processing is completed. Remaining construction work on the First Phase include approximately 23.3 miles of channel improvements and two pumping stations. Construction work scheduled in FY 02 was not initiated because of delays in compliance with NEPA.

WEST KENTUCKY TRIBUTARIES, KY

Location. The project is a flood control project located on the Obion Creek in Southwest Kentucky.

Existing Project. The drainage basin is 324 square miles of rural area. The approved plan of improvement consists of 42 miles of channel enlargement, the placement of excavated material embankment along 8.2 miles of the north bank below the valley mouth, and acquisition of 6,000 acres of mitigation land. The project has a benefit cost ratio of 1.4 to 1 with average annual benefits totaling $1,576,000. Project is currently inactive due to lack of local support; however, in the spring of 1996, locals have formally requested assistance in developing an environmentally sensitive plan of improvement. A preliminary time and cost estimate for a general reevaluation have been prepared.

Operations and results during fiscal year. No contract awarded or completed during fiscal year.

Condition as of Sep. 30. Project was initiated during 1978 and is 4 percent complete.

WEST TENNESSEE TRIBUTARIES, TN

Location. The project is a flood control project located along the Obion and Forked Deer Rivers and tributaries in west Tennessee, in Weakley, Madison, Gibson, Obion, Dyer, Crockett, Lauderdale and Haywood Counties.

Existing Project. The project consists of 225 miles of channel improvements on the Obion and Forked Deer Rivers and construction of 7.6 miles of levees to provide adequate drainage outlets and reduce flooding; 174 water control structures, 216 erosion control structures, 37 miles of water management connector channels to restore bottomland hardwoods and fisheries; and the acquisition of 32,000 acres of mitigation lands. Only 93 miles of the authorized channel improvements have been completed and 13,527 acres of the mitigation lands purchased.

Local Cooperation. The project sponsor is the state of Tennessee acting through the West Tennessee River Basin Authority (WTRBA).

Operations and results during fiscal year.

(a) **Forked Deer River and principal tributaries, TN.** Forked Deer River channel improvement is 14 percent complete.

(b) **Obion River and principal tributaries, TN.** Obion Rivers channel improvement is 68 percent complete.

(c) **Riprap Protection at four sites Dyer, Crockett, Haywood, and Lauderdale** awarded Aug. 29, 1996, is complete.

Riprap protection at 3 sites Dyer, Crockett, and Lauderdale counties awarded on Aug. 10, 1998, and was completed Aug. 18, 1999. Shutdown plan control structures at 3 sites, Dyer and Lauderdale counties awarded on Aug. 3, 1998, was completed Sep. 1999.

Condition as of Sep. 30. West Tennessee Tributaries Project is 60 percent complete.

TABLE 41-A MISSISSIPPI RIVER IMPROVEMENTS

Mileage Above Head of Passes	Locality	Improvement	Remarks
0-957[1]	Head of Passes, LA-Cairo, IL	Dredging, revetment, and contract work	--
10-81	The Jump-New Orleans, LA	Main line levee, right bank	--
11-25	Baptiste Collette-Bayou Ostrica, LA	Local levees, left bank	--
118	Davis Pond, LA (formerly Myrtle Grove, LA)	Salinity control structure, right bank	Authorized by Public Law 89-298 (HD 308/74/1). Included in MS Delta Region, LA feature. Postauthorization change report, approved June 1987.
81	Caernarvon, LA	Salinity control structure, left bank	Authorized by Public Law 89-298 (HD 308/74/1). Included in MS Delta Region, LA feature.
44-91	Bohemia, LA-New Orleans, LA	Main line levee and floodwall, left bank	--
81-96	New Orleans, LA	Main line levee, right bank	Authorized by Public Law 81-516.
91-104	New Orleans, LA	Main line levee and floodwall, left bank	Authorized by Public Law 81-516.
96-279	New Orleans-Morganza, LA	Main line levee, right bank	--
104-234	New Orleans-Baton Rouge, LA	Main line levee, left bank	--
127-129	Bonnet Carre' Floodway, LA	Regulating spillway, left bank	--
129	Mississippi-Louisiana Estuarine Areas, LA/MS (Bonnet Carre')	Salinity control structure, left bank	Authorized by Public Public Law 100-676
129-234	Bonnet Carre'-Baton Rouge, LA	Main line levee, left bank	--
235	Baton Rouge Harbor	Devils Swamp barge channel	Modified by Public Law 87-874.
279-287	Morganza Floodway, LA	Regulating spillway, right bank	--
287-303	Morganza-Old River, LA	Main line levee, right bank	Extends up south bank of Old River to Barbre Landing.
303-314	Old River, LA control	Levee closure and enlargement, low and high water spillway structures, navigation lock, and approach channels, right bank	Authorized by Public Law 83-780.
314-572	Old River-Cypress Creek, AR	Main line levee, right bank	Joins Arkansas River, south bank levee.
437	Vicksburg Harbor, MS	Harbor extension and industrial fill	Authorized by Public Law 70-391. Modified by Public Laws 79-526 and 83-780.
437-721	Vicksburg-Lake View, MS	Main line levee, left bank	--

TABLE 41-A (Continued) MISSISSIPPI RIVER IMPROVEMENTS

Mileage Above Head of Passes	Locality	Improvement	Remarks
490	Wilson Point, LA	Pumping Plant and drainage structure, right bank	Unpublished Vicksburg District's MRC report approved Apr. 14, 1966.[2]
537	Greenville Harbor, MS	Harbor improvements and port area	Authorized by Public Law 85-500.
646	Long Lake, Helena, AR	Culvert and floodgate, right bank	Authorized by Public Law 79-526.[2]
605-666	Henrico-Helena, AR	Main line levee and floodwall, right bank	--
672-993	St. Francis River-Commerce, MO[3]	Main line levee, right bank	--
722-725	Industrial levee (Ensley Bottoms)	Levee and pumping station	--
721-734	Memphis Harbor, TN	Closure of Tennessee Chute, industrial fill, levee, harbor channels, etc.	Authorized by Public Law 79-526.
803-873	Tiptonville-Obion River	Main line levee, left bank, levee extension, and diversion Obion River	Modified by Acts of Jul. 24, 1946 and Dec. 23, 1971.
857	Near Mud Lake, TN	Pumping station and adjacent channel improvements	Authorized Dec. 15 and 17, 1970 under Sec. 201 of Oct. 27, 1965 FC Act.
890	St. Johns Bayou, MO	Drainage floodgate and levee closure	Modified by Jul. 24, 1946 Act.
890	New Madrid Floodway, MO	Drainage floodgate and levee closure	Modified by Sep. 3, 1954 Act.
890-954	New Madrid-Birds Point, MO	Floodway, right bank	--
902-922	Slough Bend, Hickman, KY	Main line levee, left bank	--
922	Hickman, KY	Floodwall, left bank	--
946	Peafield, MO	Drainage floodgate	Authorized by Sep. 3, 1954 Act.
957[1]	Cairo, Cairo drainage	Floodwalls and levees district	--
957[1]	Cairo, Cairo drainage district, Mounds, Mound City, and vicinity	Floodwalls, levees, and pumping plant	--
	Thebes-Rock Island, IL	Levees, both banks	Intermittent (Sec. 6).
	Cape Girardeau, MO, to Rock Island, IL	Levees	Intermittent (Sec. 6).

1. Cairo, IL, is on Ohio River about 3 miles above its mouth (Mississippi River mile 954 AHP).
2. Also see Table 41-D, "Authorizing Legislation."
3. Commerce, MO, is on Upper Mississippi River, 39 miles above mouth of Ohio River.

TABLE 41-B MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Below Head of Atchafalaya River	Locality	Improvement	Remarks
	ATCHAFALAYA BASIN, LA[1]		
	Atchafalaya Basin, Morganza and West Atchafalaya Floodways		
0-54	West Atchafalaya Floodway between Red River and Alabama Bayou	Floodway	--
27-54	Morganza Floodway between Mississippi River and Alabama Bayou	Floodway	--
54-117	Atchafalaya Basin Floodway between Alabama Bayou and Morgan City	Floodway	--
	East protection levee (Morganza and Atchafalaya Floodways)		
20-27	Lacour-Red Cross	Levee, upper Morganza guide	--
25-117	Morganza-Morgan City	Levee and Morgan City floodwall	Including lower Morganza Floodway guide levee.
27	Bayou Latenache	Drainage structure, Pointe Coupee, and channel enlargement	Through upper Morganza guide levee and enlargement of outlet channel.
0-27	Upper Pointe Coupee Loop area	Additional drainage facilities	Enlargement of Bayou Latenache. Approved Jun. 4, 1970. See Table 41-D.
31-57	Bayou Fordoche-Ramah	Drainage channel	Levee landside borrow pit.
80	Bayou Sorrel[1]	Lock	Alternate route, Gulf Intracoastal Waterway, Port Allen to Morgan City.
53-117	Bayou Sorrel Lock-Morgan City	Alternate navigation channel. Gulf Intracoastal Waterway	Gulf Intracoastal Waterway utilizes levee west side borrow pit channel.
117	Morgan City	Lock in Bayou Boeuf[1]	Gulf Intracoastal Waterway.
117-129	Below Morgan City	Channel relocation	Bypass route for Gulf Intracoastal Waterway.
117-129	Below Morgan City	Levee, floodwall	East of lower river.
	Atchafalaya Basin Floodway lower protection levee		
105	Calumet	Floodgate, east	Bayou Teche-Wax Lake Outlet.
105-120	Below Morgan City	Levees, floodwall, drainage structures, and pumping plants	Enclosed area between Wax Lake Lake Outlet and Berwick.
115	Berwick[1]	Lock	Lower Atchafalaya River.
116	Patterson	Water system	Adjustment to provide fresh water.
	West protection levee (Atchafalaya Basin and West Atchafalaya Floodways)		
5	Simmesport-Hamburg	Levee fuse plug	West Atchafalaya Floodway.

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Below Head of Atchafalaya River	Locality	Improvement	Remarks
5-105	Mansura to Wax Lake Outlet	Protection levee	--
	Coulee des Grues	Levee enlargement and floodgate extension	--
29	West Atchafalaya Floodway	Railway	--
29	Morganza Floodway	Railway	--
40	Bayou Darbonne	Gated drainage structures	Through West Atchafalaya protection levee.
40	West Atchafalaya Floodway	Highway	--
40	Morganza Floodway	Highway	--
41	Bayou Courtableau	Gated drainage control structures and channels	--
41	West Atchafalaya Floodway	Railway	--
41	Morganza Floodway	Railway	--
94	Charenton	Floodgate and approach channels	Borrow pit channel to Grand Lake through West Atchafalaya protection levee.
94	Jaws-Lake Fausse Pointe	Outlet, Charenton drainage canal and protection levee	Restoration of drainage west of West Atchafalaya Basin protection levee.
105	Calumet	Floodgate, west	Bayou Teche and Wax Lake Outlet.
105	Wax Lake Outlet	Drainage canal-railway and highway bridges	To lower flood heights.
	Atchafalaya River		
0-54	Barbre Landing-Alabama Bayou	East bank, levee	--
5-6	Simmesport	Levee, ring, and drainage structure	--
5-66	Simmesport-Bayou Garofier	West bank, levee	--
28-30	Melville	Levee, ring	--
40-41	Krotz Springs	Levee, ring	--
54-117	Below Alabama Bayou	Channel enlargement	Increase channel capacities to decrease flood heights.
94-106	Mississippi River-Morgan City	12- by 125-foot navigation channel	Through Grand and Six Mile Lakes.
	TECHE-VERMILION BASINS, LA		
	Atchafalaya River to Teche-Vermilion Basins	Pumping station above Krotz Springs, conveyance channels, and appurtenant works	Freshwater distribution from Atchafalaya River to Teche-Vermilion Basins.

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
	Courtableau Basin, LA, and outlets		
0-8	Charenton Canal	Drainage channel	Outlet to gulf
50-133	West Atchafalaya protection levee borrow pit channel	Drainage channel	Intercepting drainage channel.
96	Bayou Courtableau spillway	Drainage control structure	--
133	Bayou des Glaises	Diversion channel	--
	BAYOU COCODRIE AND TRIBUTARIES		
	Bayou Courtableau	Enlargement and additional culverts	Washington to west protection levee.
0-17	Bayou Cocodrie	Enlargement and realignment	--
17-40	Bayous Cocodrie-Boeuf diversion	New channel	--
40-51	Bayou Boeuf	New channel	--
51-60	Bayous Boeuf-Rapides diversion	New channel	--
17-42	Upper Cocodrie	Enlargement, clearing, and snagging	--
	Bayou Boeuf		
87-107	Bayou Lamourie to Kincaid	Enlargement, realignment, clearing, and snagging	--
	Structures		
40	Lecompte Control Structure	Fixed elevation weir	--
60	Bayou Rapides Control Structure	Gated drainage structure	--
87	Bayou Lamourie Control Structure	Gated drainage structure	--
	Various	Railway, highway, and local road bridges, and pipeline crossing	--
	LAKE PONTCHARTRAIN, LA		
	Lake Pontchartrain, Jefferson Parish, LA	Flood protection	([2,3])
	AMITE RIVER, LA		
	Amite River, LA	Bank protection	Authorized by Public Law 81-516. Eliminated by Public Law 89-298.
	LOWER RED RIVER, SOUTH BANK, RED RIVER LEVEES, LA		
82-145	Moncla-Hotwells	Levee, south bank	--
	Bayou Rapides Pumping plant and gravity structure	Levee, south bank	Senate Doc. (Public Law 84-99) Added to project by Public Law 101-514.
	Red River-Moncla to Lake Long	Levees	Intermittent (Sec. 6).

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
	EASTERN RAPIDES AND SOUTH-CENTRAL AVOYELLES PARISHES, LA		
	Eastern Rapides and south-central Avoyelles Parishes, LA	Flood protection and drainage improvement	Authorized by Public Law 91-611.
	TENSAS BASIN, AR AND LA		
	Red River backwater area		
	Tensas-Cocodrie area	Levees, drainage channels, structures, and pumping plant	([4])
3-56	Larto Lake-Jonesville	Levees, drainage channels, and structures	([4])
	Sicily Island area	Levees, drainage channels, structures, and pumping plants	([4])
3-56	Below Red River area	Levees, drainage channels, structures, and pumping plants	([4])
	Black River, LA		
5	Six Mile Bayou area	Drainage structure and appurtenant channel works	Unpublished VXD-MRC Letter Report dated May 31, 1977, MR&T authority.[2]
56	Jonesville, LA	Levees, floodwall, pumping plant, and interior drainage	Portion of levee built under Sec. 6. Incorporated in MR&T by Public Law 81-516.[2]
	Ouachita River	Levees, drainage channels, and structures	Monroe to Sandy Bayou and Bawcomville (Sec. 6).
	Boeuf and Tensas Rivers and Bayou Macon, AR and LA		
	Boeuf River, AR and LA		
0-32	Below Bayou La Fourche	Clearing	([5])
0-56	Bayou La Fourche	Channel improvement and realignment	([5])
151-235	Boeuf River, AR and LA above Bayou La Fourche	Channel improvement	Authorized by Public Laws 78-534 and 79-526.[2,3]
210-286	Canal 19	Channel improvement	([5])
286-296	Canal 19 extension	Channel improvement	([6])
0-75	Big and Colewa Creeks	Channel improvement	Authorized by Public Law 78-534.[3]
	Tributaries of Boeuf River--Canal 19		
0-8	Fleschmans Bayou	Channel improvement	([6])
0-7	Caney Bayou	Channel improvement	([6])
0-33	Big Bayou	Channel improvement	([5])
0-10	Canal 18	Channel improvement	([6])
0-9	Kirsch Lake Canal	Channel improvement	([6])
0-14	Black Pond Slough	Channel improvement	([6])
	Bayou Macon, AR and LA		
0-170	Bayou Macon	Channel improvement	See Table 41-E
0-34	Canal 43	Channel improvement	([5])
0-35	Canal 81	Channel improvement	([5])

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
Lake Chicot	Pumping plant and drainage structure	To divert flows from Lake Chicot	Authorized by Public Law 90-483.
	Tributary of Bayou Macon		
0-6	Rush Bayou	Clearing	([6])
	Tensas River, AR and LA		
0-165	Tensas River	Channel improvement	Authorized by Public Law 78-534.[3]
	Tributary of Tensas River		
0-22	Mill and Vidal Bayous	Channel improvement	Authorized by Public Law 89-298.
	Grant's Canal, LA		
0-0.2	Grant's Canal at Lake Providence	Filling canal	Authorized by Public Law 81-516.
	LOWER ARKANSAS RIVER, AR		
23-98	Yancopin-Pine Bluff	Levee, south bank	--
35-98	Fletcher Bend, AR, to Pine Bluff	Revetment	--
48-102	North Little Rock to Gillett (below Plum Bayou)	Levee, north bank	([5])
	GRAND PRAIRIE-BAYOU METO, AR		
	Grand Prairie Region and Bayou Meto Basin, AR	Aquifer protection. water supply and environmental improvements	Authorized by Public Law 81-516.
	YAZOO BASIN, MS		
0-75	Yazoo Backwater area	Levees and pumping plants	--
0-381	Yazoo River System below Arkabutla Lake	Channel improvement	Including Tallahatchie and Coldwater Rivers.
75-366	Yazoo River between Yazoo City and Prichard	Levees, right bank	Intermittent.
75-345	Yazoo River between Yazoo City and Askew	Levees, left bank	Intermittent.
45-109	Will M. Whittington Auxiliary Channel	Floodway channel	--
75	Yazoo City protection	Levee, drainage structure, and pumping plant	--
	Rocky Bayou area	Channel clearing and enlargement	Improvement of 7.8 miles was approved Apr. 29, 1970.
127	Belzoni protection	Levee and floodwall	--
185	Greenwood protection	Levees, channel improvement, drainage structures, and pumping plants	--
381	Arkabutla Lake	Flood detention and conservation	See Table 41-C.
0-64	Yalobusha River below Grenada Lake	Channel improvement	--
64	Grenada Lake	Flood detention and conservation	See Table 41-C.
0-24	Tallahatchie River-Little Tallahatchie River	Levees, Panola-Quitman Floodway	--
0-26	Little Tallahatchie River below Sardis Lake	Channel improvement	--

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
26	Sardis Lake	Flood detention and conservation	See Table 41-C.
0-13	Yocono River below Enid Lake	Channel improvement	--
13	Enid Lake	Flood detention and conservation	See Table 41-C.
0-88	Cassidy Bayou below Old Coldwater River	Channel improvement	Including Moore's Bayou, Cutoff Bayou, Whiting Lake and outlet.
137-260	Upper Yazoo Projects	Floodway channel	--
75-381	Area between main stem and hills including Bobo Bayou	Levees and channel improvement	Authorized by Public Law 79-526.
	McKinney Bayou	Channel improvement and enlargement of pumping plant.	Authorized by Public Law 79-526.
0-8.3	Alligator-Catfish Bayous	Channel improvement	Authorized by Public Law 89-298. As modified in GDM in 1967.
0-23	Bear Creek	Channel improvement	Authorized by Public Law 89-298.
0-42	Whiteoak Bayou	Channel improvement	Authorized by Public Law 89-298.
275-290	Tallahatchie River, MS	Two road crossings of Panola-Quitman Floodway, MS, and for protection of Sheley Bridge	Authorized by Public Law 90-147.
	Big Sunflower River, etc.		
0-204	Big Sunflower River	Channel improvement	Authorized by Public Law 78-534.[3]
0-8	Hull Brake-Mill Creek Canal	Channel improvement	--
0-28	Hushpuckena River	Channel improvement	--
0-81	Quiver River	Channel improvement	--
	Gin and Muddy Bayous, MS	Channel improvement	Authorized by Public Law 87-874.
0-43	Bogue Phalia	Channel improvement	Authorized by Public Law 78-534.[3]
0-4	Ditchlow Bayou	Channel improvement	Authorized by Public Law 78-534.[3]
0-27	Little Sunflower River	Channel improvement	Authorized by Public Law 78-534.[3]
153-160	Deer Creek	Channel improvement	Authorized by Public Law 78-534.[3]
0-68	Steele Bayou	Channel improvement	Authorized by Public Law 78-534.[3] Modified in December 1970. See Table 41-D.
	Muddy Bayou	Water-control structure	Approved Mar. 3, 1970. See Table 41-D.
	LOWER WHITE RIVER AND BASIN, AR		
13-55	Laconia Circle-Old Town Lake	Levee, backwater including outlet	Mile 605-645 Mississippi River.
		Pumping plant	([6])
0-68	Big Creek and tributaries structures	Channel improvement and	Authorized by Public Law 89-298.

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
99	Clarendon levee	Levee and outlet structures	Authorized by Public Law 89-298.
108-192	Augusta to Clarendon	Levees, outlet structures	([5])
122	De Valls Bluff	Levee, outlet structure, and pumping station	([5])
143	Des Arc, AR	Levee, outlet structure, and pumping station	Authorized by Public Law 81-516.
	CACHE BASIN, AR		
0-196	Cache River, AR	Channel improvement and structures	Authorized by Public Law 81-516.
0-90	Bayou DeView, AR	Channel improvement and structures	Authorized by Public Law 81-516.
	ST. FRANCIS RIVER AND BASIN, AR AND MO		
260	Inter-River Drainage District in Missouri	Channel improvement and two outlet structures	Authorized Dec. 16, 1975. See Table 41-D.
0-225	Mouth of St. Francis River-Wappapello Dam	Floodway, levees, drainage channels, and structures	--
225	Wappapello Lake	Flood detention and conservation	See Table 41-C.
0-105	Little River Basin	Floodway, levees, drainage channels, and structures	--
86	Marked Tree, AR	Marked Tree Siphon	--
0-36	Tyronza River	Channel improvement	--
0-29	Big Slough Ditch	Channel improvement	--
0-17	Mayo Ditch	Channel improvement	--
0-12	Cross County Ditch	Channel improvement	--
	Belle Fountain Ditch	Channel improvement	Authorized by Public Law 90-483.
	Drainage District No. 17	Channel improvement and pumping station	Authorized by Public Law 90-483.
	L'ANGUILLE RIVER, AR		
0-108	L'Anguille River and tributaries, Brushy and First Creeks	Channel improvement	Authorized by Public Law 80-858.
	WEST TENNESSEE TRIBUTARIES		
0-25	Wolf River and tributaries, TN	Channel improvement	([6])
	Obion River and tributaries, North, South, Middle, and Rutherford Forks	Channel improvement	Authorized by 1948 Flood Control Act.
	Forked Deer River and tributaries, North, Middle, and South Forks	Channel improvement	Authorized by 1948 Flood Control Act.
	Mud Lake Pumping Station, TN	Pumping plant	Authorized by Resolutions Dec. 15 and 17, 1970.[2]

TABLE 41-B (Continued) MISSISSIPPI RIVER TRIBUTARY AND OUTLET IMPROVEMENTS

Mileage Above Mouth	Locality	Improvement	Remarks
	Harris Fork Creek, TN and KY	Flood control improvements	Authorized by Water Resources Act of Oct. 22, 1976.[2] Section 102, 1976.[2]
	Porter Gap, TN	Construction to main-stem standards, levee and appurtenant structures for flood control	Section 183, 1976.[2]
	REELFOOT LAKE-LAKE NO. 9, TN AND KY		
0-20	Running Reelfoot Bayou, TN	Channel improvement	Authorized by Public Law 83-780.
0-15	Bayou du Chien and Lake No. 9, KY and TN	Channel improvements and pumping station	Authorized in December 1970. See Table 41-D.
	WEST KENTUCKY TRIBUTARIES, KY		
0-47	Obion Creek, KY	Channel improvement	Authorized by Public Law 89-298.
	LITTLE RIVER DIVERSION CHANNEL, MO		
	Delta to Ancell, MO	Levees	Mile 49 above Cairo.
	MISSOURI RIVER, MO		
0-28	Mouth to St. Charles, MO	Levees	Intermittent (Sec. 6).
	ILLINOIS RIVER, IL		
0-120	Mouth to Havana, IL	Levees	Intermittent (Sec. 6).
	OHIO RIVER, IL AND KY		
	Cairo to Mound City and Mounds, IL	Floodwall, levee, revetment, and pumping plant	

1. General data concerning Bayou Boeuf, Bayou Sorrel, and Berwick locks where Atchafalaya Basin protection levees cross Gulf Intracoastal Waterway, alternate route to Plaquemine, LA, and lower Atchafalaya River (extension of Bayou Tech Waterway), respectively, are in report of New Orleans District.
2. Also see Table 41-D, "Authorizing Legislation."
3. Public Law 81-516 modified requirements of local cooperation.
4. Authorized by Public Law 77-228. Modified by Public Law 89-298.
5. Authorized or incorporated in MR&T by Public Law 79-526.[3] See Table 41-D.
6. Authorized by Public Law 85-500.

TABLE 41-C MISSISSIPPI RIVER TRIBUTARY DAMS AND LAKES

Name[1]	Grenada Lake	Enid Lake	Sardis Lake	Arkabutla Lake	Wappapello Lake
River	Yalobusha	Yocona	Little Tallahatchie	Coldwater	St. Francis
Nearest town to damsite	Grenada	Enid	Sardis	Arkabutla	Wappapello
Drainage area, square miles	1,320	560	1,545	1,000	1,310
Conservation pool:					
Area, thousand acres	10	6	11	5	4
Volume, thousand acre-feet	86	58	108	31	31
Elevation, feet, NGVD	193.0	230.0	236.0	209.3	354.7
Flood control pool:					
Area, thousand acres	65	28	58.5	33	23
Volume, thousand acre-feet	1.252	602	1,462	494	582
Runoff, inches	17.8	20.2	17.7	9.3	8.4
Outlet gates:					
Number	3	2	4	3	3
Size, feet	7.5 by 14	8 by 16	6 by 12	8.5 by 19	10 by 20
Capacity, thousand cubic feet per second	10.7	9.4	10.0	10.0	18.0
Spillway:					
Type, uncontrolled	Chute	Chute	Chute	Chute	Gravity
Length, feet	200	200	400	300	740
Elevation, crest, feet, NGVD	231.0	268.0	281.4	238.3	394.7
Discharge capacity, thousand cubic feet per second	52	50	132	89	229
Surcharge pool:					
Area, thousand acres	106	41	90	63	32
Volume, thousand acre-feet	1,385	554	1,447	858	521
Runoff, inches	19.7	18.5	17.6	16.1	7.5
Elevation, feet, NGVD	247.5	284.0	301.0	256.3	413.7
Dam:					
Type, earthfill	Rolled	Rolled	Hydraulic	Rolled	Rolled
Length, thousand feet	13.9	8.4	15.3	11.5	2.7
Elevation, crest, feet, NGVD	256.0	293.0	311.4	264.3	419.7

1. Grenada, Enid, Sardis, and Arkabutla Lakes are in Yazoo River Basin, MS; Wappapello Lake is in St. Francis River Basin, MO.

TABLE 41-D AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
May 15, 1928	Flood protection in alluvial valley of Mississippi River, revetment and contraction works and dredging to provide least channel depth of 9 feet and width of 300 feet below Cairo.	H. Doc. 90, 70th Cong., 1st sess.
Jun. 19, 1930	Provided for allotment of the balance of emergency rescue funds to reimburse levee districts and others for expenditures in flood-control works during the 1927 and subsequent floods.	Public Law 395, 71st Cong., 2d sess.
Feb. 15, 1933	Provided for ownership of lands in Bonnet Carre Spillway and Floodway with proviso for granting rights-of-way, easements, and permits, in said lands.	Public Law 351, 72d Cong.
Apr. 23, 1934	Authorized payment for purchase of, or to reimburse states and local levee districts for the cost of, levee rights-of-way for flood-control work in the Mississippi Valley, and for other purposes.	Public Law 171, 73d Cong.
Aug. 30, 1935	Improvement of Wolf and Nonconnah Rivers, TN (Nonconnah Creek is correct title). Improvement of Wolf River (Memphis Harbor), TN.	R&H Comm. Doc. 26, 72d Cong., 1st sess. R&H Comm. Doc. 45, 74th Cong., 1st sess.
Jun. 15, 1936	Modification of the 1928 Act to provide for: Construction of a backwater levee at mouth of White River, AR. Construction of Eudora floodway in lieu of Boeuf floodway; flood control, Yazoo River: construction of Morganza floodway; and an outlet to the Gulf of Mexico west of Berwick, LA, including a 6-year program for the improvement and regularization of the Mississippi River between Arkansas and Red Rivers, and Atchafalaya River; and construction of roads on levees and drainage adjustments incident to floodway levees.	 Unpublished report dated Apr. 2, 1925. H. Comm. on Flood Control, Doc. 1, 74th Cong., 1st sess.
Aug. 28, 1937	Provided for construction of floodwalls, levees, and revetments along Wolf River and Nonconnah Creek for protection of Memphis, TN. Modify the Yazoo River project to substitute a combined reservoir floodway and levee plan.	Unpublished report on record in OCE.
Jun. 28, 1938	Construction of Mounds to Mound City levee and control works along Cache River, IL. Modification of previous act pertaining to floodways and outlets and lands therein; including program for the improvement and regularization of the Mississippi River, between Cairo and Arkansas River, extension of levee road system; strengthening of levees.	H. Comm. on Flood Control, Doc. 1, 75th Cong., 1st sess. H. Comm. on Flood Control, Doc. 1, 75th Cong., 1st sess.
Aug. 18, 1941	Enlarge main line levees to offset abandonment of floodways between Arkansas and Red Rivers, flood-control works in backwater areas of Yazoo and Red Rivers, and in Bayous Rapides, Beouf, and Cocodrie, LA.	H. Doc. 359, 77th Cong., 1st sess.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Dec. 22, 1944	Navigation channel 12 feet deep and 300 feet wide between Baton Rouge and Cairo; flood protection of Yazoo River Backwater Area in vicinity of Satartia, MS.	H. Doc. 509, 78th Cong., 2d sess.
	Continue prosecution of channel improvement and stabilization program, $200 million.	Public Law 534, 78th Cong., 2d sess.
Jul. 24, 1946	Flood control on the Big Sunflower, Little Sunflower, Hushpuckena, and Quiver Rivers and their tributaries, and on Hull Brake-Mill Creek Canal, Bogue Phalia, Ditchlow Bayou, Deer Creek, and Steele Bayou, MS.[1]	H. Doc. 516, 78th Cong., 2d sess.
	Improve Boeuf and Tensas Rivers and Bayou Macon, AR.[1]	S. Doc. 151, 78th Cong., 2d sess.
	Improve Bayou Lafourche, LA.	S. Doc. 191, 79th Cong., 2d sess.
	Improve Yazoo River tributaries.	H. Doc. 516, 78th Cong., 2d sess.
	North bank, Arkansas River levees(below Plum Bayou).[1]	H. Doc. 308, 74th Cong., 1st sess.
	Levees on White River (Augusta to Clarendon).[1]	H. Doc. 98, 76th Cong., 1st sess.
	Bayou des Glaises diversion channel, LA.[1]	H. Doc. 602, 79th Cong., 2d sess.
	Modify local cooperation requirements in St. Francis and Yazoo Basins.	Public Law 526, 79th Cong., 2d sess.
	Tiptonville-Obion levee and drainage improvements.[1]	H. Doc. 757, 79th Cong., 2d sess.
	Improvement of St. Johns Bayou, MO.	H. Doc. 138, 80th Cong., 1st sess.
	Big Sunflower River, etc.[1]	H. Doc. 516,78th Cong., 2d sess.
	Tennessee Chute (Memphis Harbor), TN.	S. Doc. 51, 80th Cong., 1st sess.
	Continue prosecution of project for flood control and channel improvement, $100 million.	Public Law 526, 79th Cong., 2d sess.
Jun. 30, 1948	Improve Mississippi River below Cape Girardeau, MO, with respect to West Tennessee tributaries.	H. Doc. 627, 80th Cong., 2d sess.
	Improve L'Anguille River, AR.	H. Doc. 651, 80th Cong., 2d sess.
	Baton Rouge Harbor (Devils Swamp), LA.[1]	H. Doc. 321, 80th Cong., 1st sess.
May 17, 1950	Flood protection at Des Arc, AR.	H. Doc. 485, 81st Cong., 2d sess.
	Improve St. Francis River and Basin, AR and MO.	H. Doc., 132, 81st Cong., 1st sess.
	Improve Cache River and Bayou DeView, AR and MO.	S. Doc. 88, 81st Cong., 1st sess.
	Improve Grand Prairie Region and Bayou Meto Basin, AR.	H. Doc. 255, 81st Cong., 1st sess.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
	Flood protection, Lake Pontchartrain, Jefferson Parish, LA.[1]	S. Doc. 139, 81st Cong., 2d sess.
	Filling Grant's Canal, Lake Providence, LA.	Public Law 516, 81st Cong., 2d sess.
	Additional protection to Red River Backwater Area.	Public Law 516, 81st Cong., 2d sess.
	Extend Federal jurisdiction to cover levees in Orleans Parish, LA.	Public Law 516, 81st Cong., 2d sess.
	Bank protection, Amite River, LA.	Public Law 516, 81st Cong., 2d sess.
	Continue prosecution of project for flood control and channel improvement, $200 million.	Public Law 516, 81st Cong., 2d sess.
	Jonesville, LA, levee, retaining wall, and drainage structure.[1]	S. Doc. 117, 81st Cong., 1st sess.
Oct. 30, 1951	Modify requirements for local cooperation in White River Backwater Area, AR.	Public Law 237, 82d Cong., 1st sess.
Sep. 3, 1954	Navigation improvement of Atchafalaya from Mississippi River to Morgan City, LA.	S. Doc. 53, 82d Cong., 1st sess.
	Modify project for Vicksburg-Yazoo Area (Harbor), MS.	H. Doc. 85, 83d Cong., 1st sess.
	Improve New Madrid Floodway, MO, including Peafield drainage floodgate.	H. Doc. 183, 83d Cong., 1st sess.
	Control of Old and Atchafalaya Rivers and a lock for navigation.	H. Doc. 478, 83d Cong., 2d sess.
	Improve Reelfoot Lake area, KY and TN.	S. Doc. 160, 83d Cong., 2d sess.
Jul. 3, 1958	Improve Greenville Harbor, MS.	S. Doc. 15, 86th Cong., 1st sess.
	Extensions to project for Boeuf and Tensas Rivers and Bayou Macon in Arkansas.	H. Doc. 108, 85th Cong., 1st sess.
	White River backwater area pumping plant.	S. Doc. 26, 85th Cong., 1st sess.
	Wolf River and tributaries for flood protection in Tennessee.	H. Doc. 76, 85th Cong., 1st sess.
Jul. 14, 1960	Continue prosecution of project for channel improvement--$50 million.	Public Law 86-645.
Oct. 23, 1962	Modification--Baton Rouge Harbor (Devils Swamp), LA.	Public Law 87-874.
	Construct improvements in Gin and Muddy Bayous, Yazoo River Basin, MS.	Public Law 87-874
	Replace 2 bridges with adequate floodway over Boeuf River and Big Bayou in Boeuf Basin, AR.	Public Law 87-874.
Jun. 18, 1965	Continue prosecution of project for flood control and channel improvement, $53 million.	Public Law 89-42.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Oct. 27, 1965	Modify and expand levees and channel improvement features of main stem project.	H. Doc. 308, 88th Cong., 2d sess.
	Modify flood control improvements in following tributary areas and basins: Cairo-Mounds-Mounds City, St. Francis, Lower White, Boeuf-Tensas-Macon, Red River backwater, Yazoo headwater, Grand Prairie, and Bayou Meto.	H. Doc. 308, 88th Cong., 2d sess.
	Acquire any modified easements required in New Madrid Floodway as provided by Sec. 4 of May 15, 1928 act.	H. Doc. 308, 88th Cong., 2d sess.
	Operate and maintain pumping plant in Red River backwater area (Tensas-Cocodrie Pumping Plant).	H. Doc. 308, 88th Cong., 2d sess.
	Provide improvements in West Kentucky tributaries.	H. Doc., 308, 88th Cong., 2d sess.
	Provide fish and wildlife facilities in St. Francis and Big Sunflower Basins; Yazoo Headwater and Backwater Areas; and Mississippi Delta region.	H. Doc. 308, 88th Cong., 2d sess.
	Deauthorize Amite River, LA, project.	H. Doc. 308, 88th Cong., 2d sess.
	Modify St. Francis River, MO and AR, project within District No. 7, Poinsett County, AR.	S. Doc. 57, 89th Cong., 1st sess.
Apr. 14, 1966[2]	Provide pumping plant and drainage structure at Wilson Point, LA.	Unpublished Vicksburg District's MRC report. Approved Apr. 14, 1966.
Nov. 7, 1966	Construction of improvements to supplement freshwater supply in Teche-Vermilion Basins in Louisiana.	H. Doc. 524, 89th Cong., 2d sess.
	Bank revetment for protection of existing industrial facilities along Mississippi River below Baton Rouge, LA.	Public Law 89-789.
	Modification of West Tennessee tributaries feature to provide relocation of gas transmission lines at Federal expense.	Public Law 89-789.
Nov. 20, 1967	Continue emergency work, $87,135,000, which includes $100,000 for road crossing of Panola-Quitman Floodway, MS, and $80,000 for protection of Sheley Bridge, Tallahatchie River, MS.	Public Law 90-147.
Aug. 13, 1968	Improvements in Boeuf and Tensas Rivers and Bayou Macon Basin to divert flows that would otherwise enter Lake Chicot, AR.	H. Doc. 168, 90th Cong., 1st sess.
	Improvements in the Belle Fountain ditch and tributaries, MO, and Drainage District No. 17, AR.	H. Doc. 339, 90th Cong., 2d sess.
	Provide pumping plants and other drainage facilities in Cairo, IL, and vicinity.	Public Law 90-483.
Sep. 10, 1968[3]	Modification of Yazoo Headwater Project to include cleanout along David Bayou, MS.	Unpublished MRC report dated May 8, 1968.
Mar. 3, 1970[3]	Modify Yazoo Backwater feature to include a control structure in Muddy Bayou, MS.	Unpublished MRC report dated Feb. 2, 1970.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Apr. 29, 1970[3]	Modification of Yazoo Headwater Project to include drainage structure and channel improvement on Rocky Bayou, MS.	Unpublished MRC report dated Mar. 6, 1970.
Jun. 4, 1970[3]	Provide for enlargement of Bayou Latenache from Pointe Coupee drainage structure to Alabama Bayou, LA.	Unpublished MRC report dated Sep. 22, 1969.
Dec. 31, 1970	Modify and expand project to include flood protection within the area of eastern Rapides and south-central Avoyelles Parishes, LA, that are drained by Bayou des Glaises diversion channel and Lake Long, and their tributaries.	S. Doc. 91-113, 2d sess.
	Modify the project for West Kentucky tributaries (Obion Creek), KY, to provide for all relocations, at Federal expense, of all transmission lines required by the project.	Public Law 91-611.
Senate and House Public Works Resolutions adopted Dec. 17 and 15, 1970, respectively.[4]	Report on Western Tennessee Tributaries, TN and KY, authorized: a. Modification of Reelfoot Lake feature to provide channel improvements on Bayou du Chien and Lake No. 9 in KY and TN. b. Modification of Mississippi levee feature to include a pumping station near Mud Lake floodgate and adjacent channel improvements.	H. Doc. 91-414, 2d sess.
	Modification of Big Sunflower Basin feature to provide additional improvements in Steele Bayou Basin, MS.	S. Doc. 91-74, 2d sess.
River Basin Monetary Act of Dec. 23, 1971	Continue prosecution of project for the comprehensive development of the basin, $97 million.	Sec. 1, Public Law 92-222.
	Modification of Tiptonville-Obion River levee feature to relieve local interests of all responsibility except that of providing maintenance.	Sec. 7, Public Law 92-222.
Jan. 19, 19732	Modification of the Mississippi levee feature to provide additional drainage facilities in Long Lake area, vicinity of Helena, AR.	Unpublished Memphis District's MRC report dated Oct. 4, 1972.
TITLE I Water Resources Development Act of 1974.	Projects recommended by four completed reports were authorized for accomplishment of Phase I design memorandum of advance engineering and design on:	Sec. 1, Public Law 93-251, Mar. 7, 1974.
	a. Greenville Harbor, Greenville, MS.	S. Doc. 93-38, 1st sess.
	b. East bank of Mississippi River, Warren to Wilkinson Counties, MS (Natchez area).	H. Doc. 93-148, 1st sess.
	c. East bank of Mississippi River, Warren to Wilkinson Counties, MS (Vicksburg-Yazoo area).	H. Doc. 93-148, 1st sess.
	d. Bushley Bayou Area of Red River Backwater Area, LA.	H. Doc. 93-157, 1st sess.
	Modification of West Tennessee tributaries feature (Obion and Forked Deer Rivers), TN, to acquire lands for fish and wildlife, recreation, and environmental purposes.	Sec. 3, Public Law 93-251.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
	Modification of the Yazoo Basin, MS, feature to provide for a streambank erosion control demonstration project for the delta and hill areas of basin.	Sec. 32, Public Law 93-251.
	Modification of project to provide that the Secretary of the Army, acting through the Chief of Engineers, can substitute authorized mitigation lands, not yet acquired and no longer suitable, for like acreage in the same or adjacent subbasins of the project area. This section provides the authority to substitute authorized mitigation lands in: a. Tensas Basin, LA and AR, feature (Red River backwater). b. St. Francis Basin, AR and MO, feature.	Sec. 42, Public Law 93-251.
	Modification of Bayou Cocodrie and tributaries, LA, feature, to provide for: enlargement of Bayou Courtableau from Washington to west protection levee; right-of-way and spoil disposal areas at Federal expense; and necessary additional culverts through west protection levee.	Sec. 87, Public Law 93-251.
	Modification of Cache River Basin, AR, feature to provide for: acquisition by fee easements of lands for fish and wildlife management, recreation, and environmental purposes.	Sec. 99, Public Law 93-251.
TITLE II River Basin Monetary Authorization Act of 1974	Continue prosecution of project for the comprehensive development of the basin, $211 million.	Sec. 201, Public Law 93-251. Mar. 7, 1974.
River Basin Monetary Act of Oct. 2, 1975	Continue prosecution of project for the comprehensive development of the basin, $158,000,000.	Sec. 1, Public Law 94-101.
Dec. 16, 1975[2]	Modification of St. Francis Basin, AR and MO, feature to provide relief from ponding of interior runoff in the Inter-River Drainage District of Missouri.	Unpublished Memphis District's MRC report dated Nov. 11, 1975.
TITLE II Public Works for Water and Power Development and Energy Research Appropriation Act, 1976.	Continue prosecution of project for comprehensive development during period Jul. 1-Sep. 30, 1976, $60,300,000.	Public Law 94-180, Dec. 26, 1975.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
TITLE II Public Works for Water and Power Development and Energy Research Appropriation Act, 1977.	Continue prosecution of project for flood control, rescue work, repair, restoration, and control of bank erosion, $231,497,000.	Public Law 94-355, Jul. 12, 1976.
Water Resources Development Act of 1976.	Sec. 101(a) authorized accomplishment of Phase I - Advanced Engineering and Design Memoranda-On: a. St. Johns Bayou and New Madrid Floodway, MO, project: Report of OCE - Sep. 26,1975. b. Nonconnah Creek, TN and MS, project: Report of OCE - Jun. 23, 1976, and as an independent part of the project: Improvements for flood control and allied purposes on Horn Lake Creek and tributaries, including Cowpen Creek, TN and MS. Modification of West Tennessee Tributaries feature (Obion and Forked Deer Rivers), TN, to: a. (Sec. 102) - Provide project for flood control for Harris Fork Creek, TN and KY: (H.D. 94-221) except that highway bridge relocations and alterations shall be at Federal expense. b. (Sec. 183) - Provide for construction of a levee and appurtenant works from mouth of Obion diversion channel to vicinity Highway 88 and thence to vicinity of Porter Gap, TN.	Public Law 94-587, Oct. 22, 1976.
TITLE II Public Works for Water and Power Development and Energy Research Appropriation Act, 1978.	Continue prosecution of project for flood control, rescue work, repair, restoration, and control of bank erosion, $253,081,000.	Public Law 95-96 Aug. 7, 1977.
Dec. 9, 1977, 5th Ind. on VXD May 31, 1977, Letter Report.[2]	Modification of the Tensas Basin Project, Red River Backwater Area, to include a drainage structure and appurtenant channel works in the Six Mile Bayou area of Concordia Parish, LA.	Unpublished Vicksburg District report dated May 31, 1977, on Cynthia and Six Mile Bayous, LA.
Jun. 28, 1980	The establishment of the Tensas River National Wildlife Refuge for the preservation and development of environmental resources and in lieu of mitigation acquisitions which otherwise would be required for certain water resources projects, within designated limits, in the basins of the Tensas, Boeuf, and Red Rivers in the State of Louisiana.	Public Law 96-285, Jun. 28, 1980.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Energy and Water Development Appropriation Act. 1981	For expenses necessary for prosecuting work of flood control projects, rescue work, repair, restoration or maintenance of flood control projects threatened or destroyed by flood, $232,519,000: Provided, That not less than $250,000 be available for control of bank erosion of streams in the Yazoo Basin, including the foothill area. Provided further, That funds for the Tensas Basin Red River Backwater Area, be used for flood control, etc., for Sicily Island and Below Red River including pumping stations.	Public Law 96-367, Oct. 1, 1980.
Supplemental Appropriations Bill for FY Ending Sep. 30, 1985 (PL 99-88), and the Water Resources Development Act of 1986 (PL 99-662)	Authorizes and directs the Secretary of the Army acting through the Chief of Engineers to proceed with planning, design, engineering, and construction of 41 water resources projects, including Atchafalaya Basin Floodway System. For the Atchafalaya Basin Floodway Systems project, cost-sharing is only required for the recreation feature of the project. The flood control and environmental features are Federal costs.	FY 1985 Supplemental Appropriations Bill (PL 99-88), and Water Resources Development Act of 1986 (PL 99-662).
Water Resources Development Act, 1986	Sec. 104(a), Authorization of Projects - Authorization of Construction: Incorporation of the project for flood control, Louisiana State Penitentiary levee, Mississippi River, LA: Report of the Chief of Engineers, dated Dec. 10, 1982, at a total cost of $23,400,000, with an estimated first Federal cost of $17,600,000 and an estimated first non-Federal cost of $5,800,000. No acquisition of land for or actual construction of the project may commence until appropriate non-Federal interests shall agree to undertake measures to minimize the loss of fish and wildlife habitat lands in the project area. The work is unscheduled. a. Bushley Bayou, LA. Water Resources Development Act of 1986 authorized the project for flood control, Bushley Bayou, LA. b. Eight Mile Creek, Paragould, AR. Project entails channel improvement along the creek with miniparks and hiking/ biking trails. c. Helena and Vicinity, AR. The Helena Basin is an urban basin containing approximately 3,500 acres which frequently and severely floods the city of Helena. A pumping station and sump with channel enlargement and a gated culvert was recommended. d. West Memphis and Vicinity, AR. Channel improvements along Ten Mile Bayou and Fifteen Mile Bayou for a total of 23.86 miles, with limited revegetation of right-of-way to maintain environmental stability. e. St. Johns Bayou and New Madrid Floodway, MO. Flood control for urban and rural land.	Public Law 99-662, Nov. 17, 1986.

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
	f. Nonconnah Creek and Johns Creek, TN and MS. Channel enlargement, recreation features with channel construction and environmental enhancement.	
	g. Horn Lake Creek and Tributaries, TN and MS. This is an urban flood control project located in extreme northwest Mississippi and southwest Tennessee. The plan of improvement consists of 3.5 miles of selective drift removal on lower Horn Lake Creek and 2.6 miles of vegetative clearing on Horn Lake Creek, 2.1 miles on Rocky Creek and 0.6 miles of vegetative clearing and 1.8 miles of channel enlargement on Cow Pen Creek. Hike/bike trails are included along Rocky Creek and Cow Pen Creek.	
	h. Atchafalaya Basin Floodway System, La. Not mentioned, but this Act authorized basic cost sharing principles for the project. In particular establishes that the fish and wildlife enhancement feature of the project is of national significance, and therefore, a 100 percent Federal cost.	
Energy and water Development Appropriation Act, 1994	i. Lower Atchafalaya Basin Reevaluation Study. Authority to, within available funds, investigate conditions at Wax Lake Outlet, Bayou Black, and other features, and recommend any modification desirable for flood protection navigation, and environmental program.	
	Sec. 601(a) Authorization of Projects. Authorization of Construction:	
	a. Yazoo Backwater Area, MS. Authorized the project for mitigation of fish and wildlife losses at the Yazoo Backwater Project, MS. The project shall include acquisition of 40,000 acres for mitigation of project-induced fish and wildlife losses.	
	b. Greenville Harbor, MS. Authorized the project for navigation, Greenville Harbor, MS, as contained in the reports of Chief of Engineers, Nov. 15, 1977 and Feb. 2, 1982, at a total cost of $43,700,000 with an estimated first Federal cost of $28,000,000 and an estimated non-Federal first cost of $15,700,000.	
	c. Vicksburg Harbor, MS. Authorized the project for navigation, Vicksburg Harbor, as contained in the report of the Chief of Engineers, Aug. 13, 1979, at a total estimated first Federal cost of $55,900,000 and an estimated non-Federal first cost of $23,300,000.	
	d. Helena Harbor, Phillips County, AR. The recommended plan consists of dredging a navigation channel to provide access to 685 acres of landfill; construction of an overlook park; implementing landscaping and erosion control measures; and mitigation fish and wildlife losses. The project is scheduled to be constructed in two phases.	

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
	e. White River Navigation to Batesville, AR. The plan of improvement recommended in the Feasibility Report provides for construction and maintenance to provide a 200-foot wide, 9-foot deep channel available 95 percent of the time from mile 10 (Arkansas Post Canal) to mile 254, two scenic overlooks, a primitive camping area, and acquisition of about 1,865 acres of woodlands for mitigation. However, section 52 of the Water Resources Development Act of 1988 deauthorized this project. f. Obion Creek, KY. To prevent headwater flooding along tributary streams and backwater flooding of alluvial lands. g. Memphis Harbor, Memphis, TN. This is a navigation project in the vicinity of Memphis, TN, which would consist of dredging and maintaining a 4.9 mile long, 500-foot minimum width, 9-foot deep general navigation channel with additional dredging as required and strategic placement of dredged material to create and provide navigation access to 1,000 acres to be developed as a waterfront industrial complex. Sec. 806. Reelfoot Lake, KY. This project is modified to provide that the Federal share of the cost of operating the pumping plant feature of such project shall be 50 percent. Sec. 836. Mud Lake, Western Tennessee Tributaries. This project is modified to provide that the requirements of local cooperation shall be (1) 50 percent of the value of the lands, easements, and rights-of-way, (2) to hold and save the United States free from damages due to the construction works, and (3) to maintain and operate all the works after completion.	
Jun. 4, 1987	Modification of Mississippi Delta Region project to construct salinity control structure at Davis Pond (mile 118) rather than at Myrtle Grove (mile 59).	Unpublished New Orleans District report, Nov. 1, 1984.
Water Resources Development Act, 1988	Sec. 3(a), Project Authorizations - Authorization of Construction: a. Mississippi-Louisiana Estuarine Area, MS and LA. Authorized the project for environmental enhancement, as contained in the report of Chief of Engineers, dated May 19, 1986, at a total cost of $59,300,000.	Public Law 100-676 Nov. 17, 1988
Water Resources Development Act, 1988	Section 4(b) West Memphis and Vicinity, AR. Modified the project by allowing that non-Federal cooperation may be provided by levee districts, drainage districts, or any unit of a state, county, or local government.	Public Law 100-676, Nov. 17, 1988

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Energy and Water Development Appropriation Bill, 1990	West Memphis and Vicinity, AR. Directed the Corps to develop the most cost-effective flood control plan for the City of West Memphis without regard to frequency of flooding, drainage area, and the amount of runoff.	Public Law 101-83, Jul. 25, 1989
Energy and Water Development Appropriation Bill, 1990	Bayou Rapides Drainage Structure and Pumping Plant Directed the Secretary of the Army to incorporate existing flood control features for the Bayou Rapides Drainage Structure and Pumping Plant into the Lower Red River, South Bank Levees portion of the MR&T Project.	Public Law 101-514, Nov. 5, 1990
Supplemental Appropriations Bill for FY Ending Sep. 30, 1985 (PL 99-83), and the Water Resources Development Act of 1986 (PL 99-662)	Atchafalaya Basin Floodway System, LA. Authorizes and directs the Secretary of the Army acting through the Chief of Engineers to proceed with planning, design, engineering, and construction of 41 water resources projects, including Atchafalaya Basin Floodway System. For the Atchafalaya Basin Floodway Systems project, cost-sharing is only required for the recreation feature of the project. The flood control and environmental features are Federal costs. This act authorized basic cost sharing principles for the project. In particular, establishes that the fish and wildlife enhancement feature of this project is of national significance and therefore a 100% federal cost.	FY 1985 Supplemental Appropriations Bill (PL 99-88), and Water Resources Development Act of 1986 (PL 99-662).
Water Resources Development Act, 1992	Whiteman's Creek, Arkansas. Directed the Secretary of the Army to implement flood control improvement, which essentially consist of 6.1 miles of channel enlargement along streams within the city limits of Jonesboro, Arkansas.	Public Law 102-580 Oct. 31, 1992
Water Resources Development Act, 1992	New Madrid Harbor, Missouri Directed the Secretary of the Army to assume responsibility for maintenance of the New Madrid County Harbor constructed by non-Federal interests before that date of the enactment of this Act in lieu of maintaining the existing Federal channel.	Public Law 102-580 Oct. 31. 1992
Water Resources Development Act, 1996	Grand Prairie and Bayou Basin, Arkansas The project for flood control, Grand Prairie Region and Bayou Meto Basin, Arkansas, authorized by section 204 of the Flood Control Act of 1950 (64 Stat. 174) and deauthorized pursuant to section 1001(b) of the Water Resources Development Act of 1986 (33 U.S.C. 579a(b)), is authorized to be carried out ground water protection and conservation, agricultural water supply, and waterfowl management if the Secretary determines that the change in the scope of the project is technically sound, environmentally acceptable, and economic, as applicable.	Public Law 104-303 Oct. 12, 1996

TABLE 41-D (Continued) AUTHORIZING LEGISLATION

Act or Authorization	Work Authorized	Document
Water Resources Development Act, 1996	White River, Arkansas The project for navigation, White river Navigation to Batesville, Arkansas, authorized by section 601(a) of the Water Resources Development Act of 1986 (100 Stat 4139) and deauthorized by section 52(b) of the Water Resources Development Act of 1988 (102 Stat. 4044), is authorized to be carried out by the Secretary.	Public Law 104-303 Oct 12, 1996
Water Resources Development Act, 1999	Memphis Harbor, Memphis, Tennessee Authorized to be carried out by the Secretary, if the Secretary determines that the project is technically sound, environmentally acceptable, and economically justified, as appropriate.	Public Law 106-53 Aug. 17, 1999
Water Resources Development	Tunica Lake Weir, Mississippi The Secretary shall conduct a study to determine the feasibility of constructing an outlet weir at Tunica Lake, Tunica county, Mississippi, and Lee County, Arkansas, for the purpose of stabilizing water levels in the lake. In carrying out the study, the Secretary shall include as part of the economic analysis the benefits derived from recreation uses at Tunica Lake and economic benefits associated with restoration of fish and wildlife habitat.	Public Law 106-53
Water Resources Development Acts, 1986, 1990 and 1999	Louisiana State Penitentiary Levee, Mississippi River, Louisiana Authorizes and directs the Secretary of the Army, acting through the Chief of Engineers to proceed with planning, design, engineering, and construction of improvements of 12 miles of existing levee along the Mississippi River which provides flood protection to the Louisiana State Penitentiary at Angola, LA. This act authorizes basic cost sharing principles, and establishes that the cost sharing will be shared on a 75%/25% basis with the state of Louisiana for this project.	Public Law 99-662 Nov. 17, 1986 Public Law 101-646 Nov. 28, 1990
	Authorizes the Secretary of the Army to consider credit for work performed by an non-Federal sponsor since project authorization.	Public Law 106-53 Aug. 17, 1999
Omnibus Consolidated and Emergency Appropriations For Fiscal Year 2001	Ten and Fifteen Mile Bayous, St. Francis River Basin, Arkansas Modified Section 204 of the Flood Control Act of 1950 to expand the boundaries of the project to include Ten- and Fifteen-Mile Bayous near West Memphis, Arkansas. Notwithstanding section 103(f) of the Water Resources Development Act of 1986, the flood control work at Ten- and Fifteen-Mile Bayous shall not be considered separable elements of the project.	House Report 4577 Dec 15, 2000

1. Incorporated into Mississippi River and tributaries project as shown in Table 41-E.
2. Date minor modification for blocked drainage was approved under delegated authority of the President, Mississippi River Commission, and in accordance with Sec. 10(p) of the 1946 Flood Control Act (Public Law 79-526).
3. Date minor modification was approved under discretionary authority of Chief of Engineers contained in May 15, 1928, Flood Control Act, as amended.
4. Projects approved under the provisions of Sec. 201 of Flood Control Act of Oct. 27, 1965.

TABLE 41-E INCORPORATING AND AUTHORIZING LEGISLATION

Act of Incorporation	Public Law No.	Authorizing Act	Description	For Last Full Report See Annual Report for
Jul. 24, 1946	79-526	Jun. 22, 1936	Tiptonville-Obion levee and drainage improvements, TN	1941, p. 943
Jul. 24, 1946	79-526	Jun. 22, 1936	Bayou des Glaises diversion ditch, LA	1946, p. 1029
Jul. 24, 1946	79-526	Jun. 22, 1936	From North Little Rock, AR, to Gillett, AR, on north bank of Arkansas River (portion below Plum Bayou)	1946, p. 1053
Jul. 24, 1946	79-526	Aug. 18, 1941	White River levees, Augusta to Clarendon and De Valls Bluff, AR	1946, p. 1083
Jul. 24, 1946	79-526	Dec. 22, 1944	Boeuf and Tensas Rivers and Bayou Macon, LA	1945, p. 982
Jul. 24, 1946	79-526	Dec. 22, 1944	Big Sunflower River, etc.	1946, p. 1061
Jun. 30, 1948	80-858	Jul. 24, 1946	Devils Swamp barge channel at Baton Rouge, LA (Baton Rouge Harbor)	1948, p. 1059
May 17, 1950	81-516	Jun. 22, 1936	Jonesville, LA	1953, p. 773
May 17, 1950	81-516	Jul. 24, 1946	Lake Pontchartrain-Jefferson Parish, LA	1953, p. 737

TABLE 41-F SUMMARY OF PRESENTLY ESTIMATED FEDERAL FIRST COST OF AUTHORIZED IMPROVEMENTS

Project Title	Estimated Cost[1] Fiscal Year 2002
Completed features[2]	$ 339,236,000
Mississippi River levees	2,121,000,000
Mud Lake Pumping Station, TN	5,460,000[3]
Sec. 6 levees, 1928 Flood Control Act	4,000,000[3]
Channel improvement	3,964,000,000
Atchafalaya Basin, LA	1,790,000,000
Atchafalaya Basin Floodway System, LA	202,000,000
Bayou Cocodrie and Tributaries, LA	20,400,000[3]
Old River, LA	292,273,000
Lower Red River--South Bank Red River levees, LA	23,500,000[3]
Eastern Rapides and South-Central Avoyelles Parishes, LA	50,000,000[3]
Mississippi Delta Region, LA	107,600,000
Tensas Basin, AR and LA	477,631,000
Lower Arkansas River, AR	29,676,000[3]
Grand Prairie Region, AR	208,000,000
Yazoo Basin, MS	1,876,632,000
Lower White River, AR (All except Big Creek & Tribs.)	16,802,000[3]
Lower White River, AR (Big Creek & Tribs.)	55,900,000[3]
Cache River Basin, AR	155,000,000
St. Francis Basin, AR and MO	409,600,000
Francis Bland Floodway Ditch (Eight Mile Creek), AR	10,800,000[3]
L'Anguille River, AR	15,100,000[3]
West Tennessee Tributaries, TN	156,700,000
Harris Fork Creek, TN and KY	14,300,000[3]
Reelfoot Lake-Lake No. 9, TN and KY	(11,000,000)[3]
Reelfoot Lake, TN and KY (Completed)	440,000
Reelfoot Lake-Lake No. 9, TN and KY	10,560,000[3]
West Kentucky Tributaries, KY	26,100,000[3]
Sardis Dam (Dam Safety Assurance), MS	29,200,000
St. Johns Bayou and New Madrid Floodway, MO	64,600,000[4]
Nonconnah Creek, TN and MS	18,975,000[4]
Horn Lake Creek and Tributaries, TN and MS	3,870,000[4]
Wappapello Lake, MO (RAMP)	585,000
Greenville Harbor, MS	32,400,000[3,4]
Memphis Harbor (Ensley Berm), TN	23,100,000[4]
Helena Harbor, Phillips County, AR	32,156,000[4]
Helena, AR, and Vicinity	9,400,000[3,4]
West Memphis, AR, and Vicinity	11,600,000[4,6]
Louisiana State Penitentiary Levee, LA	18,800,000[4,7]
Hickman Bluff, KY	17,510,000[3]
Whiteman's Creek, AR	3,300,000
Reelfoot Lake, TN and KY (Ecosystem Restoration)	20,800,000[3,8]

TABLE 41-F (Continued) SUMMARY OF PRESENTLY ESTIMATED FEDERAL FIRST COST OF AUTHORIZED IMPROVEMENTS

Project Title	Estimated Cost[1] Fiscal Year 2002
Mississippi — Louisiana Estuarine Areas, MS and LA	80,200,000[5]
Bayou Meto, AR	125,000,000
Lower White River:	(14,401,000)
Clarendon Levee, AR	1,800,000
Augusta to Clarendon, AR	12,601,000
Wolf River, TN	6,110,000
Morganza, LA, to Gulf of Mexico	442,000,000
Memphis Harbor, Memphis, TN	38,400,000
TOTAL	$13,375,117,000

1. Inflation projected through the construction period. Harbors; Lake Pontchartrain; Wolf River; completed roads.
2. Includes Bonnet Carre□, Morganza, and New Madrid Floodways; Memphis, Greenville, and Vicksburg on main stem levees; channel construction works; Atchafalaya River and Basin; Wax Lake Outlet; Charenton Canal; Bayou des Glaises diversion channel, Boeuf Basin levees; Grant's Canal; De Valls Bluff, Jonesville, and Des Arc protection works; Baton Rouge Harbor; and miscellaneous features; Teche-Vermilion Basins, LA; Tensas National Wildlife Refuge, LA.
3. Incremental (not projected through the construction period).
4. Authorized by Water Resources Development Act of 1986, Public Law 99-662, Nov. 17, 1986.
5. Authorized by Water Resources Development Act of 1988, Public Law 100-676, Nov. 18, 1988.
6. Locals built their own project.
7. Authorized by Water Resources Development Act of 1999, Public Law 106-53, Aug. 17, 1999.
8. Authorized by Water Resource Development Act of 1999, Public Law 106-53, Aug. 17, 1999 and Report of the Chief of Engineers, Dec. 23, 1999.
9. Reauthorized by Water Resources Development Act of 1999, Public Law 106-53, Aug. 17, 1999.
10. Authorized by Water Resources Development Act of 2000, Public Law 106-541, Dec. 11. 2000.

TABLE 41-G MISSISSIPPI RIVER MAIN STEM CHANNEL IMPROVEMENTS

Location		Operations in 1,000 Cubic Yards Fiscal Year 2003		
District	Mileage Above Head of Passes	Channel Construction	Maintenance	Total
New Orleans				
Baton Rouge Harbor (Devils Swamp)	235	--	96.1	96.1
Main stem channel (Smithland and Wilkinson Pt Crossings)	234-320	--	304.7	304.7
Atchafalaya Basin			1,564.4	1,564.4
Berwick Bay Harbor			0	0
Three Rivers				
Old River Lock Forebay and Tailbay	304		0	0
Vicksburg				
Main stem channel	322-600	--	1,725.3	1,725.3
Vicksburg Harbor	437	--	85.0	85.0
Greenville Harbor	537	--	488.9	488.9
Memphis				
Main stem channel	600-954	--	21,650,467	21,650,467
Helena Harbor, Phillips County	653	--	230,577	230,577
Memphis Harbor, McKellar Lake	725	--	1,268.226	1,268.226
TOTAL		--	23,153.5	23,153.5

TABLE 41-H BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
MISSISSIPPI RIVER										
Standard Revetment:										
Venice, LA	12	R	--	--	--	--	--	--	--	49,552
Olga, LA	19	L	--	--	--	--	--	7,756	--	19,053
Lower Childress-Fort Jackson, LA.	22	R	--	--	--	--	--	--	--	15,430
Neptune, LA	23	L	--	--	--	--	--	--	--	14,399
Buras, LA	25	R	--	--	--	--	--	--	--	17,283
Tropical Bend, LA	30	R	--	--	--	--	--	--	--	25,012
Bayou Lamoque, LA	33	L	--	--	--	--	--	--	--	21,505
Port Sulphur, LA	39	R	--	--	--	--	--	--	--	36,995
Nestor, LA	41	L	--	--	--	--	--	--	--	14,192
Point Michel, LA	44	R	--	--	--	--	--	--	--	22,932
Bohemia, LA	46	L	--	--	--	--	--	--	--	16,455
Diamond, LA	49	R	--	--	--	--	--	--	--	11,600
Gravolet, LA	51	L	--	--	--	--	--	--	--	23,874
Junior, LA	54	R	--	--	--	--	--	--	--	23,599
Harlem, LA	56	L	--	--	--	--	--	--	--	15,148
Myrtle Grove, LA	59	R	--	--	--	--	--	8,918	--	17,435
Monsecour, LA	61	L	--	--	--	--	--	--	--	13,340
Alliance, LA	62	R	--	--	--	--	--	--	--	17,265
Belair, LA	65	L	--	--	--	--	--	--	--	26,111
Jesuit Bend, LA	68	R	--	--	--	--	--	--	--	24,978
Linwood, LA	71	L	--	--	--	--	--	--	--	14,643
Oak Point, LA	72	R	--	--	--	--	--	--	--	16,426
Scarsdale, LA	75	L	--	--	--	--	--	--	--	17,825
English Turn, LA	78	R	--	--	--	1,493	7,433	--	--	21,845
Poydras, LA	82	L	--	--	--	--	--	--	--	45,864
Twelve Mile Point, LA	84	R	--	--	--	--	--	--	--	9,979
Cutoff, LA	88	R	--	--	--	--	--	--	--	23,234

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Third district reach, LA	93	L	--	--	--	--	--	--	--	28,372
Algiers Point, LA	95	R	--	--	--	--	--	--	--	12,238
Gouldsboro, LA	96	R	--	--	--	--	--	--	--	4,960
Gretna Bend, LA	97	R	--	--	--	--	--	--	--	10,340
Greenville Bend, LA	100	R	--	--	--	--	--	--	--	22,045
Carrollton Bend, LA	104	L	--	--	--	--	--	--	--	16,262
Avondale Bend, LA	109	R	--	--	--	--	--	--	--	28,409
Kenner, LA	114	L	--	--	--	--	--	6,457	--	45,492
Luling, LA	119	R	--	--	--	--	--	3,335	--	44,893
Destrehan, LA	102	L	--	--	--	--	--	--	--	5,409
Good Hope, LA	126	L	--	--	--	--	--	--	--	24,531
Waterford, LA	128	R	--	--	--	--	--	--	--	23,106
Montz, LA	132	L	--	--	--	--	--	--	--	17,502
Lucy, LA	136	R	--	--	--	--	--	--	--	19,450
Reserve, LA	138	L	--	--	--	--	--	--	--	23,234
Willow Bend, LA	141	R	--	--	--	--	--	--	--	13,227
Angelina, LA	145	L	--	--	--	--	--	--	--	32,762
Vacherie, LA	148	R	--	--	--	--	--	--	--	26,025
Belmont, LA	152	L	--	--	--	--	--	--	--	25,575
Rich Bend, LA	157	R	--	--	--	--	--	--	--	38,498
Romeville, LA	161	L	--	--	--	1,460	9,913	--	--	33,986
St. Alice, LA	165	R	--	--	--	--	--	--	--	31,130
Burnside, LA	170	L	--	--	--	--	--	--	--	29,304
Aben, LA	172	R	--	--	--	--	--	8,152	--	11,700
St. Elmo, LA	174	L	--	--	--	--	--	--	--	12,014
Smoke Bend, LA	177	R	--	--	--	--	--	--	--	18,792
Marchand, LA	180	L	--	--	--	--	--	--	--	19,603
Philadelphia Point, LA	183	R	--	--	--	--	--	--	--	5,379
New River Bend, LA	185	L	--	--	--	--	--	--	--	45,672

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
White Castle, LA	193	R	--	--	--	--	--	9,802	--	45,968
St. Gabriel, LA	201	L	--	--	--	--	--	--	--	33,292
Plaquemine Bend, LA	209	R	--	--	--	--	--	--	--	45,012
Manchac, LA	215	L	--	--	--	--	--	--	--	38,976
Missouri Bend, LA	222	R	--	--	--	--	--	2,957	--	30,437
Arlington, LA	227	L	--	--	--	--	--	--	--	18,050
Port Allen, LA	231	R	--	--	--	--	--	--	--	17,627
Scotlandville, LA	234	L	--	--	--	--	--	--	--	1,623
Allendale, LA	238	R	--	--	--	--	--	--	--	29,520
Springfield Bend, LA	244	L	--	--	--	--	--	--	--	25,690
Arboth, LA	250	R	--	--	--	--	--	--	--	23,526
Faulkner Lake, LA	253	L	--	--	--	--	--	--	--	18,807
Grand Bay, LA	258	R	--	--	--	--	--	--	--	24,909
Bayou Sara, LA	265	L	--	--	--	--	--	--	--	29,722
Red Store, LA	269	R	--	--	--	--	--	--	--	18,464
Arrow Bend, LA	272	L	--	--	--	--	--	--	--	13,600
Boies Point, LA	275	R	--	--	--	--	--	--	--	16,094
Morganza, LA	279	R	--	--	--	--	--	--	--	20,513
Iowa Point, LA	282	L	--	--	--	--	--	--	--	15,477
Brunette Point, LA	285	R	--	--	--	--	--	--	--	14,335
Greenwood Bend, LA	289	L	--	--	--	--	--	--	--	26,032
Hog Point, LA	296	R	--	--	--	--	--	--	--	37,516
Carr Point, LA	304	R	--	--	--	--	--	--	--	20,725
Above Old River, LA	305	R	--	--	--	--	--	--	--	9,958
Fort Adams, MS	308	L	--	--	--	--	--	--	--	24,206
Point Breeze, LA	313	R	--	--	--	--	--	--	--	13,565
Coochie, LA	317	R	--	--	--	--	--	--	--	17,150

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	New Work: Lap (Linear Feet)	New Work: (Squares)[1]	Reinforcement: (Linear Feet)	Reinforcement: (Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Palmetto, MS	322	L	--	--	--	--	--	--	--	34,650
Total Revetment New Orleans District, Mississippi River			-- (0.0 Miles)	--	--	2,953	17,346	47,377	--	1,911,328 (361.99 Miles)
Dikes:										
Profit Island Chute Closure, LA	252	L	--	--	--	--	--	--	--	4,315
Hog Point, LA	299	L	--	--	--	--	--	--	--	6,850
Hog Point Chute Closure	300	R	--	--	--	--	--	--	--	900
Total Dikes New Orleans District, Mississippi River			--							12,065 (2.29 Miles)
OLD RIVER CONTROL										
Standard Revetment:										
Inflow channel	315	L	--	--	--	--	--	--	--	2,415
Inflow channel	315	R	--	--	--	--	--	--	--	4,365
Outflow channel	315	L&R	--	--	--	--	--	--	--	19,891
Auxiliary inflow channel	312	L&R	--	--	--	--	--	--	--	17,200
Auxiliary outflow channel	312	L&R	--	--	--	--	--	--	--	5,790
Total Standard Revetment, Old River			--	--	--	--	--	--	--	49,661 (9.41 Miles)

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Below Confluence of Red and Atchafalaya Rivers (Miles)	Bank R or L	Operations This FY Construction: New Work: Extension (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement: (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
ATCHAFALAYA RIVER										
Standard Revetment:										
Mile One, LA	1	L	--	--	--	--	--	--	--	4,150
Coville Bayou, LA	3	R	--	--	--	--	--	--	--	6,550
Legonier, LA	4	L	--	--	--	--	--	--	--	8,940
Simmesport, LA	6	R	--	--	--	--	--	3,607	--	12,491
Kuhlman Bayou, LA	7	L	--	--	--	--	--	--	--	5,565
Odenburg, LA	9	R	--	--	--	--	--	--	--	5,375
Jacoby, LA	10	L	2,879	422	9,509	--	--	--	--	10,269
Cason, LA	12	R	--	--	--	--	--	--	--	10,798
McCrea, LA	13	L	--	--	--	--	--	--	--	6,572
Woodside, LA	14	R	--	--	--	--	--	--	--	13,002
Provosty, LA	17	L	--	--	--	--	--	--	--	9,111
Crooked Bayou, LA	18	R	--	--	--	--	--	--	--	17,254
Mercier, LA	22	L	2,522	539	11,374	--	--	--	--	13,000
Barberton, LA	23	R	--	--	--	--	--	--	--	3,592
Evans Point, LA	24	L	--	--	--	--	--	--	--	6,668
Goudeau, LA	26	R	--	--	--	--	--	--	--	3,938
Morris Bayou, LA	27	L	--	--	--	--	--	--	--	5,440
Goodwood, LA	28	R	--	--	--	--	--	--	--	8,505
Red Cross, LA	29	L	--	--	--	--	--	--	--	9,608
Melville LA	30	R	--	--	--	--	--	--	--	5,660
Cross Bayou, LA	31	L	--	--	--	--	--	--	--	6,065
Melville South, LA	33	R	--	--	--	--	--	--	--	13,340
Toles, LA	35	L	--	--	--	--	--	--	--	7,302
Petite Prairie, LA	36	R	--	--	--	--	--	--	--	8,381
Three Mile Bayou, LA	37	R	--	--	--	--	--	--	--	6,330

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Below Confluence of Red and Atchafalaya Rivers (Miles)	Bank R or L	Operations This FY Construction: New Work: Extension (Linear Feet)	New Work: Lap (Linear Feet)	New Work: (Squares)[1]	Reinforcement (Linear Feet)	Reinforcement (Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Holloway Lake, LA	37	L	--	--	--	--	--	--	--	7,085
Bayou Sherman, LA	38	L	--	--	--	--	--	--	--	5,200
Krotz Springs, LA	40	R	--	--	--	--	--	--	--	7,925
Sherburne, LA	43	R	--	--	--	--	--	--	--	10,960
Bayou Big Graw, LA	45	R	--	--	--	--	--	--	--	14,164
Coswell Bayou, LA	48	L	--	--	--	--	--	--	--	6,490
Courtableau, LA	49	R	--	--	--	--	--	--	--	5,374
Alabama Bayou, LA	50	L	--	--	--	--	--	--	--	9,410
Indian Bauyou	52	R	--	--	--	--	--	--	--	7,098
Happy Town, LA	53	L	--	--	--	--	--	--	--	7,285
Otis Landing, LA	54	R	--	--	--	--	--	--	--	5,251
Morgan City, LA	115	L	--	--	--	--	--	--	--	3,410
Berwich South	12	R	1,428	--	5,426	--	--	245	--	1,428
Total Standard Revetment			6,829 (1.29 Miles)	961	26,282	--	--	--	3,852	298,986 (56.63 Miles)
Atchafalaya River										
Dikes:										
Ten Mile Dikes	10	R	--	--	--	--	--	--	--	2,500 (.47 Miles)
LOWER RED RIVER	**Below Confluence of Old River Outflow Channel and Red River (Miles)**									
Standard Revetment:										
Long Lake, LA	10	R	--	--	--	--	--	--	--	6,652
Naples, LA	7	R	--	--	--	--	--	--	--	6,190
Turnbull Island, LA	9	L	--	--	--	--	--	--	--	11,038
Total Standard Revetment			--	--	--	--	--	--	--	23,880 (4.52 Miles)

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Tons of Stone)	Reinforcement (Linear Feet)	(Tons of Stone)	Maintenance (Tons of Stone)	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:										
None										
MISSISSIPPI RIVER										
Foreshore Protection:										
Port Allen	228.3	R	--	--	--	--	--	--	--	7,500
Cottage Plantation	222.6	L	--	--	--	--	--	--	--	2,000
Upper Plaquemine Point	210.5	L	--	--	--	--	--	--	--	4,350
Lower Plaquemine Point	207.0	L	--	--	--	--	--	--	--	2,935
Point Pleasant	201.7	R	--	--	--	--	--	--	--	5,221
Upper Point Clair	196.0	L	--	--	--	--	--	--	--	0
Point Clair	191.0	L	--	--	--	--	--	--	--	10,251
Belle Grove	189.9	R	--	--	--	--	--	--	--	0
Eighty-One Mile Point	176.0	L	2,890	--	23,387	--	--	--	--	2,890
Donaldsonville	174.2	R	--	--	--	--	--	--	--	0
Point Houmas	168.9	R	--	--	--	--	--	--	--	5,400
Sunshine	167.4	L	--	--	--	--	--	--	--	900
Union	166.3	L	--	--	--	--	--	--	--	6,500
Convent	158.3	L	--	--	--	--	--	--	--	11,900
Oak Alley	153.4	R	--	--	--	--	--	--	--	7,800
Lutcher	148.6	L	--	--	--	--	--	--	--	8,910
Wallace	145.5	R	--	--	--	--	--	--	--	10,390
Garyville	140.4	L	--	--	--	--	--	--	--	0
Edgard	138.2	R	--	--	--	--	--	--	--	12,410
Reserve	136.0	L	--	--	--	--	--	--	--	2,200
Waterford	129.0	R	--	--	--	--	--	--	--	500
26 Mile Point	122.8	L	--	--	--	--	--	--	--	1,320
Destrehan	121.0	L	--	--	--	--	--	--	--	0
St. Rose	120.8	L	--	--	--	--	--	--	--	9,830
Lower St. Rose	116.6	L	--	--	--	--	--	--	--	7,050
Ama	115.0	R	--	--	--	--	--	--	--	0

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Tons of Stone)	Reinforcement (Linear Feet)	(Tons of Stone)	Maintenance (Tons of Stone)	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Foreshore Protection:										
American Cyanamid	114.8	R	--	--	--	--	--	--	--	4,788
Willswood	113.2	R	1,550	--	11,600	--	--	--	--	3,980
Avondale	109.4	R	--	--	--	--	--	--	--	6,500
Twelve Mile Point	108.9	L	--	--	--	--	--	--	--	4,580
Avondale	105.5	R	--	--	--	--	--	--	--	2,070
Nine Mile Point	105.0	R	--	--	--	--	--	--	--	1,760
Greenville	100.0	R	--	--	--	--	--	--	--	6,900
Snowdrift	97.6	R	--	--	--	--	--	--	--	8,450
Gretna-Gouldsboro	96.7	R	--	--	--	--	--	--	--	1,683
Algiers	95.4	R	--	--	--	--	--	--	--	1,548
Holy Cross	92.2	L	--	--	--	--	--	--	--	1,915
Arabi	91.9	L	--	--	--	--	--	--	--	6,130
Quarantine	91.5	R	--	--	--	--	--	--	--	3,805
Huntlee	90.4	R	--	--	--	--	--	--	--	3,139
Chalmette	90.2	L	--	--	--	--	--	--	--	1,260
Norman	90.0	R	--	--	--	--	--	--	--	2,968
Brou	89.5	L	--	--	--	--	--	--	--	3,030
Auora	89.3	R	--	--	--	--	--	--	--	3,700
Blythe Blvd	88.6	R	--	--	--	--	--	--	--	4,345
Upper Stanton	86.5	R	--	--	--	--	--	--	--	12,890
Saxonholm-Docville	86.0	L	--	--	--	--	--	--	--	1,060
Pecan Grove-Story	85.8	L	--	--	--	--	--	--	--	1,910
Story-Allo	84.5	L	--	--	--	--	--	--	--	5,400
Delacroix	84.2	R	--	--	--	--	--	--	--	8,220
Twelve Mile Point	83.5	R	--	--	--	--	--	--	--	1,300
Merrit	83.0	L	--	--	--	--	--	--	--	7,800
Saxonholm-Docville	82.5	L	--	--	--	--	--	--	--	7,700
Naval Depot	82.5	R	--	--	--	--	--	--	--	3,096
Caernarvon	81.2	L	--	--	--	--	--	--	--	13,200

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Tons of Stone)	Reinforcement (Linear Feet)	(Tons of Stone)	Maintenance (Tons of Stone)	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Foreshore Protection:										
English Turn	79.3	L	--	--	--	--	--	--	--	7,500
Little Rock	78.8	R	--	--	--	--	--	--	--	9,268
St. Claire	78.8	L	--	--	--	--	--	--	--	1,025
Fort St. Leon	78.2	R	--	--	--	--	--	--	--	10,700
Scarsdale	75.5	L	--	--	--	--	--	--	--	16,611
Belle Chase	75.5	R	--	--	--	--	--	--	--	11,500
Stella-Delcour	73.6	L	--	--	--	--	--	--	--	6,405
Oak Point	73.3	R	--	--	--	--	--	--	--	13,766
Promised Land-Woodlawn	70.5	L	--	--	--	--	--	--	--	15,495
Augusta-Live Oak	70.5	R	--	--	--	--	--	--	--	13,135
Jesuit Bend	69.2	R	--	--	--	--	--	--	--	16,454
Fanny-Belair	66.8	L	--	--	--	--	--	--	--	12,400
Sara-Star	66.3	R	--	--	--	--	--	--	--	2,100
Star	65.8	R	--	--	--	--	--	--	--	5,470
Bayhi	64.0	R	--	--	--	--	--	--	--	11,190
Burbridge	63.2	L	--	--	--	--	--	--	--	12,335
Beau-Carlisle	62.3	L	--	--	--	--	--	--	--	6,258
Alliance	62.0	R	--	--	--	--	--	--	--	4,300
St. Rosalie	61.4	R	--	--	--	--	--	--	--	6,976
Monsecour-Poverty Point	60.3	L	--	--	--	--	--	--	--	7,380
Irontown	60.0	R	--	--	--	--	--	--	--	2,298
Myrtle Grove-Woodpark	58.8	R	--	--	--	--	--	--	--	8,450
Harlem	57.0	L	--	--	--	--	--	--	--	15,550
Wood Park-Deer Range	56.0	R	--	--	--	--	--	--	--	17,650
Nero	54.7	L	--	--	--	--	--	--	--	4,450
Deer Range	54.1	R	--	--	--	--	--	--	--	4,220
Upper Point-A-La-Hache	53.5	L	--	--	--	--	--	--	--	9,101
Junior	53.5	R	--	--	--	--	--	--	--	7,811
Point Celeste	52.2	R	--	--	--	--	--	--	--	3,300

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Tons of Stone)	Reinforcement (Linear Feet)	(Tons of Stone)	Maintenance (Tons of Stone)	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Foreshore Protection:										
Davant	51.5	L	--	--	--	--	--	--	--	10,795
St. Thomas	50.0	L	--	--	--	--	--	--	--	6,430
Woodland	50.0	R	--	--	--	--	--	--	--	14,800
Point-A-La-Hache	48.1	L	--	--	--	--	--	--	--	23,030
Nolan	47.2	R	--	--	--	--	--	--	--	13,400
Socola	46.5	R	--	--	--	--	--	--	--	8,255
Point Michel	44.2	R	--	--	--	--	--	--	--	7,350
Happy Jack	43.0	R	--	--	--	--	--	--	--	18,785
Port Sulphur	39.7	R	--	--	--	--	--	--	--	6,430
Little Texas	39.0	R	--	--	--	--	--	--	--	300
Home Place	37.6	R	--	--	--	--	--	--	--	13,250
Nairn	34.5	R	--	--	--	--	--	--	--	5,915
Sixty Mile Point	32.1	R	--	--	--	--	--	--	--	0
Tropical Bend	31.2	R	--	--	--	--	--	--	--	5,775
Bowers	30.8	R	--	--	--	--	--	--	--	3,836
Empire	29.7	R	--	--	--	--	--	--	--	2,865
Anderson	29.2	R	--	--	--	--	--	--	--	6,100
Fredrick	27.5	R	--	--	--	--	--	--	--	3,820
Buras	26.0	R	--	--	--	--	--	--	--	13,495
Lower Buras	24.0	R	--	--	--	--	--	--	--	8,900
Triumph	22.5	R	--	--	--	--	--	--	--	5,220
Fort Jackson	21.9	R	--	--	--	--	--	--	--	16,690
Grand Prairie	19.2	L	--	--	--	--	--	--	--	1,350
Upper Commander	18.2	R	--	--	--	--	--	--	--	3,180
Commander	18.0	R	--	--	--	--	--	--	--	22,232

TABLE 41-H (Continued)

BANK REVETMENTS, DIKES, AND FORESHORE PROTECTION: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Tons of Stone)	Reinforcement (Linear Feet)	(Tons of Stone)	Maintenance (Tons of Stone)	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Foreshore Protection:										
Boothville-Commander	16.0	R	--	--	--	--	--	--	--	1,824
Upper Venice	12.0	R	--	--	--	--	--	--	--	14,800
Total Foreshore Protection New Orleans District, Mississippi River			4,440 (0.84 Miles)	--	34,987	--	--	--	--	757,309 (143.43 Miles)

1. Gross squares articulated concrete mattress (100 square feet).

TABLE 41-I BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
MISSISSIPPI RIVER										
Standard Revetment:										
Bougere Bend, LA	329	R	--	--	--	--	--	--	--	26,055
Dead Mans Bend, MS	335	L	--	--	--	--	--	--	--	33,220
Glasscock Cutoff, MS-LA	342	R	--	--	--	--	--	--	--	26,083
Railroad Landing, MS	346	L	--	--	--	--	--	--	--	16,291
St. Catherine Bend, LA	350	R	--	--	--	--	--	--	--	29,108
Morville, LA	356	R	--	--	--	--	--	--	--	16,917
Natchez Island, MS	357	R	--	--	--	--	--	--	--	2,180
Carthage, MS	361	L	--	--	--	--	--	--	--	20,350
Vidalia Casting Field	363	L	--	--	--	--	--	--	--	2,670
Natchez Front, MS	364	L	--	--	--	--	--	--	--	6,510
Giles Cutoff, LA-MS	366	R	--	--	--	--	--	--	--	12,020
Gibson, LA	371	R	--	--	--	--	--	--	--	--
Ashland, LA-MS	374	L	--	--	--	--	--	--	--	33,427
Kempe Bend, LA	383	R	--	--	--	--	--	--	--	30,087
Browns Field, LA	389	R	--	--	--	--	--	--	--	9,280
Goldbottom, MS	392	L	--	--	--	--	--	--	--	30,250
Hardscrabble, LA	398	R	--	--	--	--	--	--	--	22,530
Grand Gulf, MS	403	L	--	--	--	--	--	--	--	57,318
Point Pleasant, MS-LA	413	R	--	--	--	--	--	--	--	32,345
Togo Island, LA	415	R	--	--	--	--	--	--	--	7,080
Lake Karnac, LA-MS	419	L	--	--	--	--	--	--	--	19,260
Diamond Point, LA-MS	423	R	--	--	--	--	--	--	--	19,310
Oakbend, MS	425	L	--	--	--	--	--	--	--	5,342
Reid-Bedford, LA	429	R	--	--	--	--	--	--	--	18,392
Racetrack, MS	433	L	1,582	--	6,949	--	--	2,391	--	15,517
Barge Line Terminal, MS	437	L	--	--	--	--	--	--	--	3,040
Vicksburg Harbor, MS	437	L	--	--	--	--	--	--	--	7,350
Delta Point, LA	437	R	--	--	--	--	--	--	--	7,650

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
King's Point—Opposite Delta Point, LA-MS	439	L	--	--	--	--	--	--	--	19,330
False Point, LA	443	R	--	--	--	--	--	--	--	16,360
Marshall-Brown's Point, LA-MS	446	L	--	--	--	--	--	--	--	19,580
Milliken Bend, LA	453	R	--	--	--	--	--	--	--	46,140
Belle Island, LA-MS	460	L	--	--	--	--	--	--	--	24,160
Goodrich, LA	467	R	--	--	--	--	--	--	--	40,765
Cottonwood Bar, MS	470	R	--	--	--	--	--	--	--	18,580
Filter-Cottonwood, MS	474	L	2,108	--	6,885	--	--	8,648	--	44,220
Hagaman, LA	481	R	--	--	--	--	--	--	--	37,756
Ben Lomond, MS	486	L	--	--	--	--	--	--	--	10,235
Baleshed Towhead-Stack Island, LA-MS	488	R	--	--	--	--	--	--	--	53,214
Lake Providence, LA	489	R	--	--	--	--	--	--	--	11,600
Mayersville, MS	497	L	--	--	--	--	--	8,423	--	34,992
Sarah Island-Opossum Point, LA-MS	501	R	--	--	--	--	--	--	--	26,815
Carolina, MS	507	L	--	--	--	--	--	--	--	11,080
Cracraft, AR	511	R	--	--	--	--	--	--	--	22,210
Worthington, MS-AR	514	R	--	--	--	--	--	--	--	8,350
Walnut Point Kentucky Bend, MS	519	L	--	--	--	--	--	--	--	45,653
American Cutoff, MS-AR	526	L	--	--	--	--	--	--	--	2,980
Sunnyside-Lakeport, AR	530	R	--	--	--	--	--	--	--	33,685
Vancluse, AR	534	R	--	--	--	--	--	--	--	13,016
Island 84, AR-MS	535	L	--	--	--	--	--	--	--	13,475
Warfield Point, MS	537	L	--	--	--	--	--	--	--	4,320
Leland-LaGrange, AR-MS	538	L	--	--	--	--	--	--	--	14,150

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Spanish Moss, AR	539	R	--	--	--	--	--	--	--	4,580
Tarpley Island, MS	542	R	--	--	--	--	--	--	--	2,000
Miller Bend, MS	544	L	--	--	--	--	--	--	--	29,360
Island 82, AR	546	R	--	--	--	--	--	--	--	3,080
Ashbrook Island, MS	549	R	--	--	--	--	--	--	--	3,455
Arkansas City-Yellow Bend, AR	553	R	--	--	--	--	--	--	--	48,386
Huntington Point, MS	556	L	--	--	--	--	--	--	--	21,205
Pair O'Dice, AR	561	R	--	--	--	--	--	--	--	9,095
Eutaw-Mounds, MS	563	L	--	--	--	--	--	--	--	40,188
Cypress Bend, AR	568	R	--	--	--	--	--	--	--	34,405
Catfish Point, MS	573	L	--	--	--	--	--	--	--	20,075
Ozark, AR-MS	578	R	--	--	--	--	--	--	--	22,015
Prentiss, AR-MS	582	L	--	--	--	--	--	--	--	20,315
Rosedale Bend, AR	585	L	3,202	--	8,411	--	--	--	--	8,022
Riverton, MS	586	L	--	--	--	--	--	--	--	12,500
Klondike, AR	588	R	--	--	--	--	--	--	--	25,295
Victoria Bend-Terrene, MS	593	L	--	--	--	--	--	--	--	29,245
Lake Concordia, MS	596	L	2,267	--	8,087	--	--	--	--	11,583
Big Island, AR	598	R	--	--	--	--	--	--	--	16,515
Smith Point, MS	601	L	--	--	--	--	--	--	--	18,185
Dennis, MS	611	L	--	--	--	--	--	--	--	25,195
Cessions, MS	615	L	--	--	--	--	--	--	--	10,910
Total Revetment, Vicksburg District, Mississippi River			9,159 (1.73 Miles)	--	30,332	--	--	31,892	--	1,523,857 (288.60 Miles)

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					(2)			(3)		
Jackson Point, MS	330	L	--	--	--	--	--	--	--	4,306
Buck Island, MS	339	L	--	--	--	--	--	--	--	6,334
Opposite Warnicott Ldg., MS	352	L	--	--	--	--	--	--	--	10,791
Natchez Island, LA-MS	358	R	--	--	--	--	--	--	--	14,608
Opposite Rifle Point, MS	369	L	--	--	--	--	--	--	--	3,214
Rifle Point, LA	369	R	--	--	--	--	--	--	--	4,197
Waterproof Bar, LA	379	R	--	--	--	--	--	--	--	14,580
Spithead Towhead, MS	386	L	--	--	--	--	--	--	--	9,681
Browns Field, LA	388	R	--	--	--	--	--	--	--	11,557
Cottage Bend, LA-MS	389	L	--	--	--	--	--	--	--	14,049
Bondurant Towhead, LA	394	R	--	--	--	--	--	--	--	6,029
Coffee Point, LA	405	R	--	--	--	--	--	--	--	11,925
Yucatan, MS	410	R	--	--	--	--	--	--	--	13,932
Togo Island, LA	416	L	--	--	--	--	--	--	--	8,256
Newtown Bend, LA	420	R	--	--	--	--	--	--	--	6,739
Diamond Cutoff, MS	423	L	--	--	--	--	--	--	--	6,711
Below Racetrack, MS	430	L	--	--	--	--	--	--	--	19,378
Racetrack Towhead, MS	431	R	--	--	--	--	--	--	--	15,270
Delta Point, LA	439	R	--	--	--	--	--	--	--	2,326
False Point, LA	441	R	--	--	--	--	--	--	--	5,675
Marshall Cutoff, LA	448	R	--	--	--	--	--	--	--	5,166
Below Grand Gulf, MS	399	L	--	--	--	--	--	--	--	4,783
Fritz Island, LA	338	R	--	--	--	--	--	--	--	4,160
Forest Home Towhead, LA	449	L	--	--	--	--	--	--	--	15,873
Willow Cutoff, LA	462	R	--	--	--	--	--	--	--	5,197
Tennessee Bar, MS	465	L	--	--	--	--	--	--	--	8,166
Arcadia Point, MS	470	L	--	--	--	--	--	--	--	9,463
Cottonwood Bar, MS	471	R	--	--	--	--	--	--	--	2,406
Point Lookout, LA	478	R	--	--	--	--	--	--	--	2,751

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					(2)		(3)			
Ajax Bar, MS	482	L	--	--	--	--	--	--	--	28,152
Ben Lomond, MS	488	L	--	--	--	--	--	--	--	24,667
Baleshed Ldg., MS	493	L	--	--	--	--	--	--	--	15,721
Wilson Point, LA	500	R	--	--	--	--	--	--	--	8,423
Corregidor, MS	505	L	--	--	--	--	--	--	--	6,730
Carolina, AR	509	L	--	--	--	--	--	--	--	2,897
Cracraft Lower, AR	510	R	--	--	--	--	--	--	--	10,329
Cracraft, AR	513	R	--	--	--	--	--	--	--	3,809
Leota, MS	514	L	--	--	--	--	--	--	--	7,571
Island 86, AR	520	R	--	--	--	--	--	--	--	18,477
Seven Oaks, AR	523	R	--	--	--	--	--	--	--	5,829
Walnut Point, MS	525	L	2,280	--	--	--	--	--	--	7,005
Anconia Chute, AR	527	R	--	--	--	--	--	--	--	7,159
Refuge, MS	528	L	--	--	--	--	--	--	--	19,695
Island 84, AR	532	L	--	--	--	--	--	--	--	12,475
Vaucluse, AR	533	R	--	--	--	--	--	--	--	7,114
Warfield Point, AR	535	L	--	--	--	--	--	--	--	2,020
Leland Bar, AR-MS	538	R	--	--	--	--	--	--	--	15,086
Leland Neck, AR-MS	540	L	--	--	--	--	--	--	--	4,315
Tarpley Cutoff, MS-AR	540	R	--	--	--	--	--	--	--	10,478
Island 82-Miller Bend, AR-MS	544	R&L	--	--	--	--	--	--	--	13,646
Ashbrook-Miller Bend, AR-MS	547	L&R	--	--	--	--	--	--	--	13,015
Ashbrook Cutoff, MS	549	L	--	--	--	--	--	--	--	8,728
Chicot Ldg., AR	564	R	--	--	--	--	--	--	--	22,381
Catfish Point, MS	571	L	--	--	--	--	--	--	--	5,290
Below Prentiss, MS	580	L	--	--	--	--	--	--	--	12,413
Above Ozark, AR-MS	580	R	--	--	--	--	--	--	--	5,545
Malone Field, AR	585	R	--	--	--	--	--	--	--	7,549

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Extension (Linear Feet)	New Work: Lap (Linear Feet)	New Work: (Squares)[1]	Reinforcement: (Linear Feet)	Reinforcement: (Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					(2)	(3)				
Terrene, MS	590	L	3,104	--	--	--	--	--	--	11,025
White River Landing, AR	591	R	--	--	--	--	--	--	--	2,201
Montgomery Towhead, AR	592	R	--	--	--	--	--	--	--	8,647
Victoria Bend, AR	596	R	--	--	--	--	--	--	--	6,736
Smith Point, MS	600	L	--	--	--	--	--	--	--	7,617
Island 70, MS	608	L	--	--	--	--	--	--	--	26,355
Total Dikes, Vicksburg District, Mississippi River			5,384 (1.02 Miles)	--	--	--	--	--	--	628,735 (119.08 Miles)
	Miles Above Mouth									
ARKANSAS RIVER[4]										
Standard Revetment:										
Menard Bend, AR	31	L	--	--	--	--	--	--	--	11,770
Como, AR	34	R	--	--	--	--	--	--	--	11,720
Morgan Bend, AR	36	L	--	--	--	--	--	--	--	5,250
Yancopin, AR	24	R	--	--	--	--	--	--	--	2,800
Total Standard Revetment, Arkansas River			--	--	--	--	--	--	--	31,540 (5.97 Miles)
Dikes:					(2)	(3)				
Hopedale Cutoff, AR	30	R	--	--	--	--	--	--	--	1,848
Morgan Bend, AR	36	L	--	--	--	--	--	--	--	3,658

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Confluence with Miss. River (Miles)	Bank R or L	Operations This FY Construction: New Work: Extension (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement: (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					(2)	(3)				
Fletcher Bend, AR	39	R	--	--	--	--	--	--	--	2,187
Total Dikes, Arkansas River			--	--	--	--	--	--	--	7,693 (1.46 Miles)
RED RIVER[4]										
Standard Revetment:										
Dupre, LA	69	R	--	--	--	--	--	--	--	2,690
Bringol, LA	73	R	--	--	--	--	--	--	--	4,000
Egg Bend, LA	75	R	--	--	--	--	--	--	--	2,400
Colonel Bend, LA	77	R	--	--	--	--	--	--	--	650
Roxana, LA	83	R	--	--	--	--	--	--	--	3,325
Ryland, LA	88	R	--	--	--	--	--	--	--	3,925
Whittington, LA	89	R	--	--	--	--	--	--	--	2,900
Smith, LA	91	R	--	--	--	--	--	--	--	2,700
Latanier, LA	93	R	--	--	--	--	--	--	--	2,460
Hudson, LA	99	R	--	--	--	--	--	--	--	1,458
Robert, LA	102	R	--	--	--	--	--	--	--	5,500
Alexandria Front, LA	105	R	--	--	--	--	--	--	--	5,280
Callahan, LA	110	R	--	--	--	--	--	--	--	4,000
Cotton, LA	116	R	--	--	--	--	--	--	--	14,700
Rapides, LA	119	R	--	--	--	--	--	--	--	1,030
Boyce, LA	125	R	--	--	--	--	--	--	--	4,548
Total Standard Revetment, Red River			--	--	--	--	--	--	--	61,566 (11.66 Miles)

TABLE 41-I (Continued)

BANK REVETMENTS AND DIKES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Above Confluence with Miss. River (Miles)	Bank R or L	Operations This FY Construction: New Work: Extension (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:[6]					(2)			(3)		
Choctaw Bayou Bend, LA	71	R	--	--	--	--	--	--	--	2,000
Bringol (Egg Bend), LA	73	R	--	--	--	--	--	--	--	2,477
Egg Bend, LA	75	R	--	--	--	--	--	--	--	900
Cologne Bend, LA	77	R	--	--	--	--	--	--	--	1,850
Echo, LA	78	R	--	--	--	--	--	--	--	1,900
Richardson, LA	79	R	--	--	--	--	--	--	--	2,700
Alexandria, LA	105	R	--	--	--	--	--	--	--	--
Bertrand, LA	122	R	--	--	--	--	--	--	--	7,630
Dismal Swamp, LA	24	L	--	--	--	--	--	--	--	1,411
Total Dikes, Red River			--	--	--	--	--	--	--	20,868 (3.95 Miles)

1. Gross squares articulated concrete mattress (100 square feet).
2. Linear feet of dike which were raised.
3. Linear feet of dike on which repairs were made.
4. See report on Arkansas River and tributaries, AR and OK, under Little Rock District.
5. Mileages based on 1967 hydrographic survey.
6. Includes all types of dikes and retards.
7. Stone paving only.

TABLE 41-J BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
MISSISSIPPI RIVER										
Standard Revetment:										
Big Island, AR	598	R	--	--	--	--	--	--	--	5,938
Scrubgrass Bend, AR	600	R	--	--	--	--	--	--	--	7,315
Henrico, AR	606	R	--	--	--	--	--	--	--	33,310
Cessions Towhead, AR	615	L	--	--	--	--	--	--	--	11,465
Island 67, MS	621	L	--	--	--	--	--	--	--	9,630
Island 68 Bar— Knowlton, AR	622	R	--	--	--	--	--	--	--	26,710
Ludlow, AR	626	R	--	--	--	--	--	--	--	10,390
Chute of island 64, AR-MS	628	R	--	--	--	--	--	--	--	4,180[7,9]
Rescue Land, AR-MS	629	L	--	--	--	--	--	--	--	27,020
Fair Landing, AR	632	R	--	--	--	--	--	--	--	27,515
Burke Landing, MS	637	L	--	--	--	--	--	--	--	19,070
Island 62, AR	638	R	--	--	--	--	--	--	--	9,030
Island 63, MS	639	L	--	--	--	--	--	--	--	11,514
Island 63 Bar, MS	639	L	--	--	--	--	--	--	--	3,795
Oldtown Bend, AR	644	R	--	--	--	--	--	--	--	26,860
Horseshoe, MS	647	L	--	--	--	--	--	--	--	16,385
Westover, AR	650	R	--	--	--	--	--	--	--	15,640
Delta-Friars Point, MS	665	L	--	--	--	--	--	--	--	30,090
Helena, AR	660	R	--	--	--	--	--	4,725	--	36,460
Helena Towhead, AR	664	R	--	--	--	--	--	--	--	3,690
Trotters Landing, MS	665	L	--	--	--	--	--	--	--	38,685
Flower Lake, MS	667	L	--	--	--	--	--	--	--	16,385
St. Francis, AR	672	R	--	--	--	--	--	--	--	24,663
Harbert Point, MS	675	L	--	--	--	--	--	4,208	--	9,065
Walnut Bend, AR	680	R	--	--	--	--	--	--	--	31,070
Mhoon Bend, MS	685	L	2,030	--	6,421	--	--	6,726	--	46,390
Peters, AR	692	R	--	--	--	--	--	--	--	33,760
Commerce, MS	695	L	--	--	--	--	--	--	--	29,085

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Porter Lake, AR	700	R	--	--	--	--	--	--	--	34,155
Pickett, MS-AR	703	R	--	--	--	--	--	--	--	12,575
Seyppel, AR	709	R	--	--	--	--	--	--	--	4,830
Norfolk-Star, MS	711	L	--	--	--	--	--	4,019	--	39,505
Cow Island Bend, AR	714	R	--	--	--	--	--	--	--	22,274
Cow Island Bend (Upper), TN	716	R	--	--	--	--	--	--	--	8,623
Coahoma, TN	717	L	--	--	--	--	--	--	--	9,270
Ensley, TN	723	L	--	--	8,717[9]	--	--	8,984	--	46,256
Dismal Point, AR	724	R	--	--	--	--	--	--	--	7,200
Bauxippi-Wyanoke, AR	730	R	--	--	--	--	--	--	--	24,530
Presidents Island, TN	733	L	--	--	--	--	--	--	--	12,755
Hopefield Point, AR-TN	736	R	--	--	--	--	--	--	--	10,360
Loosahatchie-Memphis, TN	737	L	--	--	--	--	--	--	--	31,293
Loosahatchie Bar, TN	740	R	--	--	--	--	--	--	--	2,070
St. Clair, AR	742	R	--	--	--	--	--	--	--	2,930
Island 40, TN-AR	744	R	--	--	--	--	--	--	--	30,750
Brandywine, AR-TN	750	R	--	--	--	--	--	--	--	18,010
Shelby Forest, TN	753	L	--	--	--	--	--	--	--	9,545
Dean Island, AR	756	R	--	--	--	--	--	--	--	7,555
Cedar Point-Densford, TN	759	L	--	--	--	--	--	--	--	20,190
Chute of Island 35, TN	764	R	--	--	--	--	--	--	--	30,930
Richardson Ldg, TN	769	L	--	--	--	--	--	--	--	1,415
Lookout Bar, TN	772	R	--	--	--	--	--	--	--	2,990
Lookout, TN	774	R	--	--	--	--	--	--	--	5,005
Sunrise Towhead, TN	776	R	--	--	--	--	--	--	--	18,440
Driver Bar, TN	780	L	--	--	--	--	--	--	--	4,850

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Lower Bullerton, AR	782	R	--	--	--	--	--	--	--	28,350
Kate Aubrey Towhead-Island 30, TN	786	R	--	--	--	--	--	--	--	30,808
Osceola, AR	786	R	--	--	--	--	--	--	--	1,350[3]
Osceola, AR	786	R	--	--	--	--	--	--	--	5,823
Ashport-Keyes Point, TN	791	L	--	--	--	--	--	--	--	44,232
Kate Aubrey, TN	793	R	--	--	--	--	--	--	--	2,500
Island 26, TN	798	R	--	--	--	--	--	--	--	15,690
Bend of Island 25, TN	803	L	--	--	--	1,814	6,175	17,288	--	32,385
Barfield, AR	808	R	--	--	--	--	--	--	--	52,335
Obion-Tamm, TN	819	L	--	--	--	--	--	--	--	53,831
Huffman-Hickman, AR-TN	826	R	--	--	--	--	--	--	--	29,764
Heloise, TN	831	L	--	--	--	--	--	--	--	15,770
Island 18, MO	836	R	--	--	--	--	--	--	--	30,490
Linwood Bend, TN	841	L	--	--	--	--	--	--	--	14,850
Blaker Towhead, TN	845	L	--	--	--	--	--	--	--	18,562
Bells Point, MO	845	R	--	--	--	--	--	--	--	5,420
Gayoso-Caruthersville, MO	848	R	--	--	--	--	--	--	--	25,600
Island 15, TN	851	L	--	--	--	--	--	--	--	3,630
Hathaway Landing, TN	852	L	--	--	--	--	--	--	--	1,000
Robinson Bayou, MO	852	R	--	--	--	--	--	4,348	--	22,630
Fritz Landing, TN	857	L	--	--	--	--	--	--	--	15,670
Lee Towhead, MO	859	L	--	--	--	--	--	--	--	9,640
Bend of Island 14, TN	859	L	--	--	--	--	--	--	--	15,830
Above Lee Towhead, TN	861	L	--	--	--	--	--	--	--	4,943
Little Cypress, MO	864	R	--	--	--	--	--	5,822	--	40,140

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Merriwether-Cherokee, TN	869	L	--	--	--	1,100	3,451	6,936	--	41,058
Linda, MO	876	R	--	--	--	--	--	8,494	--	20,000
Below Toney's Towhead, TN	879	L	--	--	--	--	--	--	--	20,895
Toney's Towhead, KY-TN	882	L	--	--	--	--	--	9,336	--	13,640
Kentucky Point, KY	887	L	--	--	--	--	--	--	--	7,960
New Madrid Bar, KY	888	R	--	--	--	--	--	13,098	--	16,825
New Madrid Bend, MO	889	R	--	--	--	--	--	--	--	43,262
La Forge, MO	892	R	--	--	--	--	--	--	--	24,930
Slough Landing Neck, TN-KY	899	L	--	--	--	--	--	--	--	37,520
Winchester Towhead, MO	900	R	--	--	--	--	--	--	--	5,540
Island 9, KY-TN	905	L	--	--	--	--	--	--	--	33,585
Milton Bell, MO	908	R	--	--	--	--	--	--	--	16,600
Chute of Island 8, KY	913	L	--	--	--	--	--	--	--	12,620
Bend of Island 8, MO	914	R	--	--	--	--	--	--	--	39,945
Island 8, KY	914	R	--	--	--	--	--	--	--	18,515
Hickman-Reelfoot, KY	919	L	--	--	--	--	--	--	--	46,399
Hickman Bar, KY	921	L	1,940	--	5,141	--	--	--	--	1,940
Beckwith Bend, MO	924	R	--	--	--	--	--	--	--	18,203
Williams, KY	927	L	--	--	--	--	--	--	--	10,015
Wolf Island, KY	934	R	--	--	--	--	--	--	--	22,495
Columbus, KY	937	L	--	--	--	--	--	--	--	7,395
Belmont, MO	938	R	--	--	--	--	--	--	--	5,785
Island 3 and 4, KY	940	R	--	--	--	--	--	--	--	19,970
Campbell, KY	943	L	--	--	--	--	--	--	--	6,865
Pritchard, MO	948	R	--	--	--	--	--	--	--	15,045

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement: (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Standard Revetment:										
Mayfield Creek, KY	949	L	--	--	--	--	--	--	--	8,935
Wickliffe, KY	953	L	--	--	--	--	--	--	--	16,150
Cache-Cairo, IL (Ohio River)	958	R	--	--	--	--	--	--	--	29,927
Total Revetment, Memphis District, Mississippi River			2,030 (0.38 Miles)	--	15,138	1,814	6,175	45,950	--	2,066,625 (391.44 Miles)
Dikes:					([8])			([6])		
Big Island, AR	600	R	--	--	--	--	--	--	--	4,105
Henrico, AR	603	R	--	--	--	--	--	--	--	9,080
Below Knowlton, AR	616	R	--	--	--	--	--	150	--	21,810
Island 67, MS	621	L	--	--	--	--	--	--	--	4,320
Below Ludlow, AR	624	R	--	--	--	--	--	--	--	5,040
Sunflower, AR	627	L	--	--	--	--	--	--	--	5,520
Island 64, AR	630	R	--	--	--	--	--	--	--	7,330
Rescue Landing, MS	631	L	--	--	--	--	--	--	--	2,530
Island 62, AR	638	R	--	--	--	--	--	--	--	23,180
Island 63 Bar, MS	639	L	--	--	--	--	--	--	--	2,600
Island 63, MS	640	L	--	--	--	--	--	--	--	5,640
Kangaroo Point, AR	649	R	--	--	--	--	--	--	--	6,580
Friars Point, MS	652	L	--	--	--	--	--	--	--	6,870
Montezuma Bar, MS	657	L	--	--	--	--	--	600	--	17,970
Montezuma Towhead, AR	656	R	--	--	--	--	--	--	--	6,700
Prairie Point, AR	668	R	--	--	--	--	--	--	--	10,391
Flower Lake, MS	668	L	--	--	--	--	--	700	--	11,060
Walnut Bend, AR	681	R	--	--	--	--	--	--	--	6,390
St. Francis Towhead, MS	671	L	--	--	--	--	--	--	--	3,380

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement: (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					([8])			([6])		
Below Walnut Bend, AR	676	R	--	--	--	--	--	--	--	8,340[2]
Bordeaux Point, MS	681	L	--	--	--	--	--	100	--	10,730
Peters, AR	693	R	--	--	1,235	--	--	--	--	7,830
Commerce, MS	694	L	--	--	--	--	--	--	--	10,745
Basket Bar, AR	696	R	--	--	--	--	--	--	--	5,810
Buck Island, MS	700	L	--	--	--	--	--	500	--	4,705
Porter Lake, AR	701	R	--	--	--	--	--	2,375	--	23,115
Pickett, MS	704	L	--	--	--	--	--	415	--	10,080
Seyppel, AR	706	R	--	--	--	--	--	--	--	16,230
Cat Island, AR	710	R	--	--	--	--	--	300	--	16,355
Coahoma, TN	718	L	--	--	--	--	--	--	--	4,640
Armstrong, AR-TN	720	R	--	--	--	--	--	--	--	21,240
Below Ensley, TN	721	L	--	--	--	--	--	--	--	915
Dismal Point, AR	724	R	--	--	--	--	--	--	--	30,950
Engineers Bar, AR	734	R	--	--	--	--	--	--	--	4,155
Hopefield Point, AR	736	R	--	--	--	--	--	--	--	5,350
Memphis Front, TN	736	L	--	--	--	--	--	--	--	6,300
Robinson Crusoe, TN	738	R	--	--	--	--	--	--	--	21,939
Loosahatchie Bar, TN	739	R	--	--	--	--	--	--	--	3,950
Sycamore Chute, AR-TN	741	R	--	--	--	--	--	--	--	6,725
Above Loosahatchie, TN	742	L	--	--	--	--	--	--	--	12,295
Redman Point, AR	743	R	--	--	--	--	--	--	--	7,750
Randolph Point, TN	747	L	--	--	--	--	--	--	--	16,940
Poker Point, AR	748	R	--	--	--	--	--	--	--	8,060
Shelby Forest, TN	751	L	--	--	--	--	--	--	--	5,540
Corona Bar, TN-AR	755	R	--	--	--	--	--	--	--	9,400
Densford, TN	757	L	--	--	--	--	--	--	--	7,780
Cedar Point, TN	759	L	--	--	--	--	--	--	--	2,890
Below Richardson Landing, TN	767	L	--	--	--	--	--	--	--	5,950

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	Lap (Linear Feet)	(Squares)[1]	Reinforcement (Linear Feet)	(Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					([8])			([6])		
Lookout, TN-AR	771	R	--	--	--	--	--	--	--	16,665
Hatchie Towhead, TN	773	L	3,300	--	--	--	--	--	--	3,300
Plum Point, TN	784	L	--	--	--	--	--	300	--	10,195
Lake Neark, AR	786	R	--	--	--	--	--	--	--	2,545
Island 30	787	R	--	--	--	--	--	--	--	5,485
Kate Aubrey, TN	791	R	990	--	--	--	--	--	--	12,260
Keyes Point, TN	791	L	1,380	--	--	--	--	--	--	31,210
Ashport-Goldust, TN-AR	795	R	--	--	--	--	--	--	--	17,330
Forked Deer, TN	798	L	--	--	--	--	--	--	--	8,550
Island 25, AR	804	R	--	--	--	--	--	--	--	5,450
Nebraska Point, TN	808	L	--	--	--	--	--	--	--	12,149
Below Tamm Bend, TN	813	L	--	--	--	--	--	--	--	8,300
Wrights Point, AR	820	R	--	--	--	--	--	400	--	34,775
Island 21, Chute, TN	824	L	--	--	--	--	--	--	--	3,170
Head of Island 21, TN	828	L	--	--	--	--	--	300	--	15,540
Island 20, MO-TN	831	R	--	--	--	--	--	50	--	21,969
Island 18, TN	837	L	--	--	--	--	--	--	--	8,670
Tennemo, TN	842	L	--	--	--	--	--	50	--	8,240
Blaker Towhead, TN	843	L	--	--	--	--	--	--	--	4,080
Caruthersville-Linwood Bend, MO	844	R	--	--	--	--	--	--	--	30,590
Opposite Carthersville, TN	846	L	--	--	--	--	--	--	--	3,300
Sandy Hook, TN	850	R	--	--	--	--	--	--	--	2,350
Island 15, TN	851	L	--	--	--	--	--	--	--	8,830
Robinson Bayou, MO	853	R	--	--	--	--	--	--	--	10,768
Hathaway, TN	854	L	--	--	--	--	--	300	--	27,355
Island 15 Neck, TN	854	L	--	--	--	--	--	--	--	21,100
Above Lee Towhead, TN	859	L	--	--	--	--	--	--	--	1,300
Below Cherokee, TN	866	L	--	--	--	--	--	--	--	6,230
Stewart Towhead, MO	871	R	--	--	--	--	--	--	--	19,440

TABLE 41-J (Continued)

BANK REVETMENTS AND DIKES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Above Head of Passes (Miles)	Bank R or L	Operations This FY Construction: New Work: Exten-sion (Linear Feet)	New Work: Lap (Linear Feet)	New Work: (Squares)[1]	Reinforcement: (Linear Feet)	Reinforcement: (Squares)[1]	Maintenance (Squares)[1]	Non-Operative Since Prior FY (Linear Feet)	Operative Thru This FY (Linear Feet)
Dikes:					([8])			([6])		
Ruddles Point, MO	874	R	--	--	--	--	--	600	--	8,130
Island 11, MO	882	R	--	--	--	--	--	--	--	14,330
New Madrid Bend, MO	887	R	--	--	--	--	--	--	--	1,715
Kentucky Point, KY	887	L	--	--	--	--	--	--	--	15,610
Morrison Towhead, MO	890	R	--	--	--	--	--	--	--	1,070
Hotchkiss Bend, MO	895	R	--	--	--	--	--	--	--	14,208
Slough Landing, KY	896	L	--	--	--	--	--	1,050	--	5,065
Below Island 9, TN	901	L	--	--	--	--	--	300	--	21,989
Donaldson Point, MO	905	R	--	--	--	--	--	500	--	22,975
Island 9, KY	906	L	--	--	--	--	--	--	--	7,010[5]
Island 7 - Island 8, MO-KY	917	R	550	--	2,700	--	--	100	--	15,345
Below Williams, KY	925	L	--	--	--	--	--	--	--	3,640
Moore Island, KY-MO	929	R	--	--	--	--	--	720	--	7,925
Above Williams, KY	930	L	--	--	--	--	--	--	--	1,150
Wolf Island Bar, KY	933	L	--	--	--	--	--	--	--	12,260
Campbell, KY	942	L	--	--	--	--	--	--	--	2,610
Pritchard, MO	944	R	--	--	--	--	--	--	--	9,390
Island 1, KY	948	L	480	--	--	--	--	--	--	17,825
Total Dikes Memphis District, Mississippi River			6,700 (1.27 Miles)	--	3,935	--	--	9,810	--	1,000,598 (189.51 Miles)

1. Gross squares articulated concrete mattress (100 square feet).
2. Changed to correct previous errors.
3. Lumber mattress revetment.
4. Rock Groins.
5. Linear feet of triangular frame retards and pile dikes.
6. Linear feet of dike on which repairs were made.
7. Stone paving only.
8. Linear feet of dike which were raised.
9. ACM placed at location previously reported as stone paving only. No new length.

TABLE 41-K PROJECT LEVEES: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[1] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
MAIN STEM LEVEES													
Mississippi River Levees													
Fifth Louisiana Levee District	(16.8)	(16.8)	(--)	(13.3)	(--)	(--)	(--)	(--)	(--)	(15.5)	(--)	(15.5)	(--)
Levees	15.5	15.5	--	12.0	--	--	--	--	--	15.5	--	15.5	--
Old River structures and levees	1.3	1.3	--	1.3	--	--	--	--	--	--	--	--	--
Atchafalaya Basin Levee District	(126.3)	(126.3)	--	(126.3)	(--)	(1.0)	(--)	(1.0)	(--)	(118.7)	(--)	(118.7)	(--)
Levees	118.7	118.7	--	118.7	--	1.0	--	1.0	--	118.7	--	118.7	--
Morganza structure and levee	0.8	0.8	--	0.8	--	--	--	--	--	--	--	--	--
Morganza forebay levee	6.7	6.7	--	6.7	--	--	--	--	--	--	--	--	--
Port Allen lock	0.1	0.1	--	0.1	--	--	--	--	--	--	--	--	--
Lafourche Basin Levee District Levees	61.7	61.7	--	61.7	--	0.1	--	0.1	--	61.7	--	61.7	--
Plaquemines West Levee District Levees	37.9	37.9	--	37.9[2]	--	--	--	--	--	37.9	--	37.9	--
Buras Levee District	(34.1)	(34.1)	--	(27.8)	(--)	(--)	(--)	(--)	(--)	(34.0)	(--)	(34.0)	(--)
Levees	34.0	34.0	--	27.7[2]	--	--	--	--	--	34.0	--	34.0	--
Empire lock	0.1	0.1	--	0.1	--	--	--	--	--	--	--	--	--
Baton Rouge front levees	2.1	2.1	--	1.9	--	--	--	--	--	2.1	--	2.1	--
Ponchartrain Levee District	(124.9)	(124.9)	(--)	(121.3)	(--)	(0.1)	(--)	(--)	(--)	(110.8)	(--)	(110.8)	(--)
Levees	110.8	110.8	--	107.2	--	0.1	--	--	--	110.8	--	110.8	--
Bonnet Carre′ guide levees	11.3	11.3	--	11.3	--	--	--	--	--	--	--	--	--
Bonnet Carre′ forebay levee	1.3	1.3	--	1.3	--	--	--	--	--	--	--	--	--
Bonnet Carre′ structure	1.5	1.5	--	1.5	--	--	--	--	--	--	--	--	--
East Jefferson Levee District Levees	11.6	11.6	--	10.8	--	--	--	--	--	11.6	--	11.6	--
West Jefferson Levee District	(20.0)	(20.0)	--	(20.0)	(--)	(--)	(--)	(--)	(--)	(19.9)	(--)	(19.9)	(--)
Levees	19.8	19.8	--	19.8	--	--	--	--	--	19.8	--	19.8	--
Floodwalls	0.1	0.1	--	0.1	--	--	--	--	--	0.1	--	0.1	--
Harvey Canal Lock	0.1	0.1	--	0.1	--	--	--	--	--	--	--	--	--

TABLE 41-K (Continued)

PROJECT LEVEES: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[1] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
Orleans Levee District	(27.2)	(27.2)	(--)	(24.9)	(--)	(--)	(--)	(--)	(--)	(18.4)	(--)	(18.4)	(--)
Left descending, east bank	(13.3)	(13.3)	(--)	(11.0)	(--)	(--)	(--)	(--)	(--)	(4.6)	(--)	(4.6)	(--)
Levees	4.6	4.6	--	2.3	--	--	--	--	--	4.6	--	4.6	--
Floodwalls	8.6	8.6	--	8.6	--	--	--	--	--	--	--	--	--
IHNC lock	0.1	0.1	--	0.1	--	--	--	--	--	--	--	--	--
Right descending, west bank	(13.9)	(13.9)	(--)	(13.9)	(--)	(--)	(--)	(--)	(--)	(13.8)	(--)	(13.8)	(--)
Levees	13.8	13.8	--	13.8	--	--	--	--	--	13.8	--	13.8	--
Algiers Canal lock	0.1	0.1	--	0.1	--	--	--	--	--	--	--	--	--
Lake Borgne Basin Levee District Levees	11.6	11.6	--	11.6	--	--	--	--	--	11.6	--	11.6	--
Grand Prairie Levee District Levees	37.4	37.4	--	37.4	--	--	--	--	--	37.4	--	37.4	--
Total Mississippi River	511.6	511.6	--	494.9	--	1.2	--	1.1	--	479.6	--	479.6	--
Other Levees Included in Main Stem													
Louisiana State Pen Levee	12.1	12.1	4.8	12.1	--	--	--	--	--	--	--	--	--
Atchafalaya Basin													
Atchafalaya River and Bayou des Glaises	(148.4)	(148.4)	(--)	(143.9)	(--)	(--)	(--)	(--)	(--)	(148.4)	(--)	(148.4)	(--)
East Bank Atchafalaya River	52.5	52.5	--	52.5	--	--	--	--	--	52.5	--	52.5	--
Bayou des Glaises	7.9	7.9	--	7.9	--	--	--	--	--	7.9	--	7.9	--
West bank Atchafalaya River	60.1	60.1	--	55.6	--	--	--	--	--	60.1	--	60.1	--
Simmesport Ring	1.6	1.6	--	1.6	--	--	--	--	--	1.6	--	1.6	--
Melville Ring	4.1	4.1	--	4.1	--	--	--	--	--	4.1	--	4.1	--
Krotz Springs Ring	1.7	1.7	--	1.7	--	--	--	--	--	1.7	--	1.7	--
Mansura Hills to Hamburg	20.5	20.5	--	20.5	--	--	--	--	--	20.5	--	20.5	--
West protection levee, Hamburg to Berwick drainage canal via Calumet	128.7	128.7	--	110.9	--	--	--	--	--	128.7	--	128.4	--
Levees west of Berwick, Berwick drainage canal to Charenton drainage canal	56.5	56.5	7.0	36.0	4.0	--	--	--	--	56.5	--	56.5	--
Morganza upper guide levee	8.9	8.9	--	8.9	--	--	--	--	--	8.9	--	8.9	--

TABLE 41-K (Continued)

PROJECT LEVEES: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[1] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
East Protection levee, Morganza to Cutoff Bayou, including 19.5 miles of Morganza lower guide levee	106.7	106.7	--	95.7	2.0	--	--	--	--	105.0	--	86.0	--
Total Atchafalaya Basin	449.2	449.2	7.0	395.4	11.9	--	--	--	--	447.5	--	428.2	--
Total Other Levees Included in Main Stem	461.3	461.3	11.8	407.5	11.9	--	--	--	--	447.5	--	428.2	--
Total-Main Stem Leaves	972.9	972.9	11.8	902.4	11.9	1.2	--	1.1	--	927.1	--	907.8	--
TRIBUTARY LEVEES IN MR&T PROJECT													
Lake Ponchartrain, LA	(17.4)	(17.4)	(--)	(17.4)	(--)	(--)	(--)	(--)	(--)	(17.4)	(--)	(17.4)	(--)
Item A levees	5.0	5.0	--	5.0	--	--	--	--	--	5.0	--	5.0	--
Item B levees	10.1	10.1	--	10.1	--	--	--	--	--	10.1	--	10.1	--
Item C levees	2.3	2.3	--	2.3	--	--	--	--	--	2.3	--	2.3	--
Total Tributary Levees in MR&T Project	17.4	17.4	--	17.4	--	--	--	--	--	17.4	--	17.4	--
GRAND TOTAL	990.3	990.3	11.8	919.8	11.9	1.2	--	1.1	--	944.5	--	925.2	--

1. Landside seepage berms only.
2. Changed to correct previous error.

TABLE 41-L

PROJECT LEVEES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[1] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
MAIN STEM LEVEES													
Mississippi River Levees													
East bank in Mississippi	178.3[4]	178.3	7.6	116.7	24.4	156.9	--	135.0	--	174.2	7.6	174.2	24.4
Greenville Harbor dikes	7.8	7.8	--	7.8	--	--	--	--	--	2.7	--	2.7	--
West bank in Arkansas	75.6	75.6	--	55.0	--	61.3	--	54.3	--	75.4	--	75.4	--
West bank in Louisiana (above Red River)	198.7	198.7	6.0	94.7	11.4	91.0	--	74.9	--	197.8	6.0	197.8	11.4
Total Mississippi River Levees	460.4	460.4	13.6	274.2	35.8	309.2	--	264.2	--	450.1	13.6	450.1	35.8
Other Levees Included in Main Stem													
Lower Red River-South Bank Red River levees	(59.2)	(59.2)	(--)	(59.2)	(--)	(--)	(--)	(--)	(--)	(59.2)	(--)	(59.2)	(--)
Hotwells to Moncla, LA, levees	59.2	59.2	--	59.2	--	--	--	--	--	59.2	--	59.2	--
Arkansas River, South Bank	85.4	85.4	--	85.4	--	24.7	--	24.7	--	84.1	--	81.1	--
Total Other Levees Included in Main Stem	144.6	144.6	--	144.6	--	24.7	--	24.7	--	143.3	--	140.3	--
Total-Main Stem Levees	605.0	605.0	13.6	418.8	35.8	333.9	--	288.9	--	593.4	13.6	590.4	35.8
TRIBUTARY LEVEES IN MR&T PROJECT													
Arkansas River, North Bank	61.5[5]	56.2	--	56.2	--	8.3	--	8.3	--	47.4	--	47.4	--
Red River Backwater Levees	263.6	246.9[7]	--	246.9[7]	--	--	--	--	--	246.9[7]	--	246.9[7]	--

TABLE 41-L (Continued)

PROJECT LEVEES: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[1] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
Yazoo River Basin	624.1)	(427.4)	(--)	(237.6)	(--)	(--)	(--)	(--)	(--)	(624.1)	(--)	(338.9)	--
Headwater	527.5	375.8	--	186.0	--	--	--	--	--	527.5	--	299.9	--
Backwater	96.6	51.6	--	51.6	--	--	--	--	--	96.6	--	39.0	--
Total Tributary Levees in MR&T Project	949.2	730.5	--	540.7	--	8.3	--	8.3	--	918.4	--	633.2	--
GRAND TOTAL	1,554.2	1,335.5	13.6	945.9	35.8	342.2	--	297.2	--	1,511.8	13.6	1,223.6	35.8

1. Landside seepage berms only.
2. Levee that has adequate freeboard based on the refined 1973 MR&T project flood flow line for the Mississippi River. Levees with more than 2 feet of freeboard are considered adequate.
3. Subject to change as planning progresses. Does not include existing berms which need restudy.
4. Includes 1.4 miles of concrete floodwall and 0.3 mile of levee on Vicksburg city front.
5. Includes 5.3 miles for Gillett new levee.
6. Relief wells used in place of berms.
7. Changed to correct previous error.

TABLE 41-M

PROJECT LEVEES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[5] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
MAIN STEM LEVEES													
Mississippi River													
Mounds, IL	3.9	3.9	--	3.9	--	0.5	--	0.5	--	3.6	--	3.6	--
Mound City, IL	2.7	2.7	--	2.7	--	2.5	--	2.5	--	1.1	--	1.1	--
Cairo Drainage District, IL	13.8[2]	13.8	--	7.8	--	1.6	--	--	--	8.5	--	8.5	--
City of Cairo, IL	6.2	6.2	--	2.2[4]	--	4.4	--	2.0	--	4.0	--	3.5	--
Little River Drainage District, MO	19.3	19.3	--	19.3	--	9.7	--	4.9	--	19.3	--	19.3	--
Levee District No. 2, Scott County, MO	13.8	13.8	--	13.8	--	4.8	--	4.8	--	13.8	--	13.8	--
Levee District No. 3, Mississippi County, MO	26.0	26.0	--	26.0	--	12.9	--	4.9	--	26.0	--	26.0	--
St. Johns Levee and Drainage District, MO	59.0[3]	58.7	--	58.2	--	9.2	--	--	--	46.9	--	46.1	--
St. Francis Levee District of MO	55.7	55.7	--	48.7[4]	--	23.0	--	12.0	--	55.1	--	55.1	--
City of Hickman, KY	1.4	1.4	--	1.4	--	--	--	--	--	0.5	--	--	--
Board of Levee Commissioners Fulton, County, KY	16.7	16.7	--	16.7	--	15.1	--	11.4	--	16.3	--	16.3	--
Reelfoot Levee District of Lake and Obion Counties, TN	4.5	4.5	--	4.5	--	0.6	--	0.3	--	4.5	--	4.3	--
Madrid Bend Levee District, Lake Co., TN	5.2	5.2	--	5.2	--	--	--	--	--	5.2	--	5.2	--
Lake County Levee and Drainage District, TN	17.0	17.0	--	17.0	--	9.6	--	9.4	--	17.0	--	17.0	--
Dyer County Levee and Drainage District No. 1, TN	21.3	21.3	--	21.3	--	1.3	--	0.4	--	21.3	--	21.3	--
Tipton-Obion levee extension	6.5	--	--	--	--	--	--	--	--	6.5	--	--	--
St. Francis Levee District of AR	156.7	156.7	--	153.2	--	89.2	--	88.4	--	156.7	--	156.7	--
Helena Improvement District No. 1, AR	5.3	5.3	--	5.3	--	2.4	--	2.4	--	4.7	--	4.2	--
Cotton Belt Levee District No. 1, AR.	23.9	23.9	--	23.9	--	19.4	--	19.4	--	23.9	--	23.9	--

TABLE 41-M (Continued)

PROJECT LEVEES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[5] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
Laconia Drainage and Levee District Phillips County, AR	20.5	20.5	--	20.5	--	11.5	--	11.5	--	20.5	--	20.5	--
Laconia Levee District No. 1 of Deshna County, AR	18.1	18.1	--	18.1	--	12.6	--	9.2	--	16.5	--	16.5	--
Laconia Circle Special Drainage District of Deshna County, AR	6.6	6.6	--	6.6	--	--	--	--	--	--	--	--	--
Yazoo-Mississippi Delta Levee District, MS	93.6	93.6	--	93.6	--	88.6	--	88.6	--	93.6	--	93.6	--
Madrid Bend L.D., Fulton Co., KY	4.8	4.8	--	4.8	--	--	--	--	--	4.8	--	4.8	--
Birds Point-New Madrid setback levee, MO	35.3	35.3	--	35.3	--	23.8	--	--	--	35.3	--	35.3	--
Total Mississippi River	637.8	631.0	--	607.5	--	342.7	--	272.6	--	605.6	--	596.6	--
TOTAL MAIN STEM LEVEES	637.8	631.0	--	607.5	--	342.7	--	272.6	--	605.6	--	596.6	--
TRIBUTARY LEVEES IN MR&T PROJECT													
St. Francis River	(308.2)	(302.9)	--	(302.9)	--	--	--	--	--	(301.0)	--	(133.5)	--
East bank	159.5	156.2	--	156.2	--	--	--	--	--	156.7	--	94.7	--
West bank	148.7	146.7	--	146.7	--	--	--	--	--	144.3	--	38.8	--
Little River	(130.1)	(130.1)	--	(130.1)	--	--	--	--	--	(128.9)	--	(94.5)	--
East bank (left)	40.7	40.7	--	40.7	--	--	--	--	--	40.7	--	40.1	--
West bank	35.1	35.1	--	35.1	--	--	--	--	--	35.1	--	23.7	--
Elk Chute	39.9	39.9	--	39.9	--	--	--	--	--	39.7	--	17.3	--
West Basin and middle valley	14.4	14.4	--	14.4	--	--	--	--	--	13.4	--	13.4	--
Lower White River	(95.6)	(85.9)	--	(84.1)	--	--	--	--	--	(94.0)	(--)	(81.0)	--
White River backwater levee	40.2	40.2	--	40.2	--	--	--	--	--	38.8	--	38.8	--
Augusta to Clarendon	49.2	39.5	--	39.5	--	--	--	--	--	49.2	--	36.2	--
Clarendon levee	6.2	6.2	--	4.4	--	--	--	--	--	6.0	--	6.0	--

TABLE 41-M (Continued)

PROJECT LEVEES: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[5] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
Memphis Harbor	10.5	10.5	--	10.5	--	7.0	--	7.0	--	10.5	--	10.5	--
Total Tributary Levees in MR&T Project	544.4	529.4	--	527.6	--	7.0	--	7.0	--	534.4	--	319.5	--
GRAND TOTAL	1,182.2	1,160.4	--	1,135.0	--	349.7	--	279.6	--	1,140.0	--	916.1	--

1. Subject to change as planning progresses.
2. Includes 5.1 miles of Cache River levee. This levee was enlarged to 1928 grades with Federal funds, but since that time has been classified as a secondary levee.
3. Includes 12.1 miles of Farrenburg levee. This levee was enlarged to 1928 grades with Federal funds, but since that time has been classified as a secondary levee.
4. Deficient in freeboard as a result of 1996 Revised Project Design Flood flowline.
5. Landside seepage berms only.
6. Changed to correct previous error.

TABLE 41-N

RECAPITULATION
PROJECT LEVEE TABLES 42-K, -L, AND -M
(FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[5] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
MAIN STEM LEVEES													
Mississippi River													
New Orleans District, Table 41-K	511.6	511.6	--	494.9	--	1.2	--	1.1	--	479.6	--	479.6	--
Vicksburg District, Table 41-L	460.4	460.4	13.6	274.2	35.8	309.2	--	264.2	--	450.1	13.6	450.1	35.8
Memphis District, Table 41-M	637.8	631.0	--	607.5	--	342.7	--	272.6	--	605.6	--	596.6	--
Total Mississippi River	1,609.8	1,603.0	13.6	1,376.6	35.8	653.1	--	537.9	--	1,535.3	13.6	1,526.3	35.8
Other Levees Included in Main Stem													
Atchafalaya Basin Floodway--NOD	449.2	449.2	7.0	395.4	11.9	--	--	--	--	447.5	--	428.2	--
Louisiana State Pen Levee--NOD	12.1	12.1	4.8	12.1	--	--	--	--	--	--	--	--	--
Lower Red River-South Bank--VXD	59.2	59.2	--	59.2	--	--	--	--	--	59.2	--	59.2	--
Arkansas River-South Bank--VXD	85.4	85.4	--	85.4	--	24.7	--	24.7	--	84.1	--	81.1	--
Total Other Levees Included in Main Stem	605.9	605.9	--	552.1	11.9	24.7	--	24.7	--	590.8	--	568.5	--
Total Main Stem Levees	2,215.7	2,208.9	25.4	1,928.7	47.7	677.8	--	562.6	--	2,126.1	13.6	2,094.8	35.8
TRIBUTARY LEVEES IN MR&T PROJECT													
Lake Pontchartrain, LA,--NOD	17.4	17.4	--	17.4	--	--	--	--	--	17.4	--	17.4	--
Yazoo River Basin—VXD	624.1	427.4	--	237.6	--	--	--	--	--	624.1	--	338.9	--
Arkansas River-North Bank--VXD	61.5	56.2	--	56.2	--	8.3	--	8.3	--	47.4	--	47.4	--
Red River Backwater—VXD	263.6	246.9	--	246.9[4]	--	--	--	--	--	246.9[4]	--	246.9[4]	--
St. Francis River—MD	308.2	302.9	--	302.9	--	--	--	--	--	301.0	--	133.5	--

TABLE 41-N
(Continued)

RECAPITULATION
PROJECT LEVEE TABLES 42-K, -L, AND -M
(FISCAL YEAR 2003)

Location	Levees and Floodwalls (Miles)					Berm[5] (Miles)				Surfaced Roads on Levees (Miles)			
		Built to Approved Grade and Section											
	Authorized for System	Total in Place This FY	This FY	Total Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Complete Thru This FY	Currently Under Construction	In System When Completed	Built This FY	Total Complete Thru This FY	Currently Under Construction
Little River--MD	130.1	130.1	--	130.1	--	--	--	--	--	128.9	--	94.5	--
Lower White River—MD	95.6	85.9	--	84.1	--	--	--	--	--	94.0	--	81.0	--
Memphis Harbor--MD	10.5	10.5	--	10.5	--	7.0	--	7.0	--	10.5	--	10.5	--
Total Tributary Levees in MR&T Project	1,511.0	1,277.3	--	1,085.7	--	15.3	--	15.3	--	1,470.2	--	970.1	--
Grand Total in Project	3,726.7	3,486.2	25.4	3,014.4	47.7	691.2	--	577.9	--	3,596.3	13.6	3,064.9	35.8

1. Landside seepage berms only.
2. Subject to change as planning progresses.
3. 1996 Revised Project Design Flood flowline identified freeboard deficiences.
4. Changed to correct previous error.
5. Relief wells have been used in lieu of seepage berms in some reaches of the Miss. River Levees.

TABLE 41-O CHANNEL IMPROVEMENTS: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Location	Year Initiated	In System When Completed	Built This FY (Miles)	Total Complete Thru This FY	Percent Complete	Currently Under Construction
Bayou des Glaises diversion channel	1938	6.0	--	6.0	100	--
Bayous Rapides, Boeuf, and Cocodrie	1946	92.6	--	63.4	75	--
Charenton drainage and navigation canal	1939	6.3	--	6.3	100	--
Wax Lake Outlet	1938	15.7	--	15.7	100	--
Atchafalaya Basin Floodway	1933	244.2	--	186.4	76	--
Morganza Floodway	1941	3.3	--	3.3	100	--
Old River outflow channel	1956	8.3	--	8.3	100	--
Old River inflow channel	1960	2.3	--	2.3	100	--
Old River lock approach channels	1961	2.2	--	2.2	100	--
Baton Rouge Harbor (Devils Swamp)	1958	2.5	--	2.5	100	--
Teche-Vermilion Water Supply	1977	6.3	--	6.3	100	--
Old River Auxiliary Control Structure inflow channel	1986	1.9	--	1.9	100	--
Old River Auxiliary Control Structure outflow channel	1988	0.9	--	0.9	100	--
Caernarvon Freshwater Diversion channel	1988	1.7	--	1.7	100	--

TABLE 41-P CHANNEL IMPROVEMENTS: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Year Initiated	In System When Completed	Built This FY (Miles)	Total Complete Thru This FY	Percent Complete	Currently Under Construction
BIG SUNFLOWER RIVER, ETC., MS						
Big Sunflower River	1947	199.1	--	199.1	100	--
Quiver River	1947	69.6	--	69.6	100	--
Deer Creek	1947	7.0	--	7.0	100	--
Steele Bayou	1947	54.9	--	54.9	100	--
Steele Bayou[1]	1965	71.2	--	71.2	100	--
Main Canal	1959	21.1	--	21.1	100	--
Main Canal[2]	1993	26.7	--	26.7	100	--
Black Bayou	1992	36.5	--	36.5	100	--
Big Sunflower River tributaries	1957	227.2	--	227.2	100	--
Quiver River tributaries	1960	35.4	--	35.4	100	--
YAZOO BACKWATER						
Yazoo Backwater	1960	39.9	--	39.9	100	--
YAZOO BASIN HEADWATER, MS						
Upper Yazoo Project	1976	179.0	11.0	91.5	51	8.0
Coldwater River	1941	54.6	--	54.6	100	--
Arkabutla Canal	1948	0.4	--	0.4	100	--
Tallahatchie Canal	1940	74.8	--	73.5	98	--
Little Tallahatchie River and Panola-Quitman Floodway	1939	48.0	--	48.0	100	--
Greenwood protection works	1971	2.9	--	2.9	100	--
Yacona River	1952	1.8	--	1.8	100	--
Bobo Bayou	1944	16.1	--	16.1	100	--
Cassidy Bayou	1934	69.0	--	69.0	100	--
Cassidy Bayou[3]	--	26.0	--	--	--	--
Bear Creek Diversion	--	4.8	--	--	--	--
Lake Cormorant	--	20.9	--	--	--	--
Hurricane Bayou	--	2.5	--	--	--	--
Opossum Bayou	--	20.8	--	--	--	--
Abaica Creek	--	7.7	--	--	--	--
Chicopa Creek	--	7.0	--	--	--	--
Bear Creek	--	23.3	--	--	--	--
Rocky Bayou	--	7.8	--	--	--	--
Whiteoak Bayou	--	55.9	--	--	--	--
Miscellaneous ditches	--	12.3	--	--	--	--
Yalobusha River	1939	46.0	--	46.0	100	--
Yazoo River	1940	160.2	--	160.2	100	--
Whittington Auxiliary Channel	1956	30.8	--	30.8	100	--
Tchula Lake	1964	26.4	--	26.4	100	--
David-Burrell Bayou	1957	40.4	--	40.4	100	--
McKinney Bayou	1960	3.5	--	3.5	100	--

TABLE 41-P (Continued)

CHANNEL IMPROVEMENTS: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Location	Year Initiated	In System When Completed	Built This FY (Miles)	Total Complete Thru This FY	Percent Complete	Currently Under Construction
YAZOO BASIN HEADWATER, MS (Continued)						
Hillside Floodway	1964	11.0	--	11.0	100	--
Yazoo City protection works	1953	1.6	--	1.6	100	--
Ascalmore-Tippo Bayous	1975	30.2	--	15.1	50	--
Alligator-Catfish Bayou	1973	8.3	--	8.3	100	--
Pelucia Creek	1975	11.7	--	11.7	100	--
BOEUF & TENSAS RIVERS, ETC., LA AND AR						
Bayou Lafourche	1949	45.3	--	45.3	100	--
Bayou Lafourche[4,7]	1972	43.0	--	4.4	10	--
Big & Colewa Creeks	1947	81.4	--	81.4	100	--
Big & Colewa Creeks[5,7]	1965	86.8	--	51.5	60	--
Tensas River	1947	96.5	--	96.5	100	--
Tensas River[6]	1968	165.0	--	61.0	37	--
Boeuf River, AR and LA	1953	103.9	--	103.9	100	--
Fleschmans Bayou, AR	1963	6.6	--	6.6	100	--
Caney Bayou, AR	1964	7.4	--	7.4	100	--
Canal 18, AR	1963	10.3	--	10.3	100	--
Big Bayou, AR	1952	33.3	--	33.3	100	--
Black Pond Slough, AR	1962	14.3	--	14.3	100	--
Bayou Macon, AR and LA	1959	150.8	--	150.8	100	--
Rush Bayou, AR	1964	6.7	--	6.7	100	--
Canal 19, AR	1957	50.2	--	50.2	100	--
Canal 43, AR	1956	34.5	--	34.5	100	--
Canal 81, AR	1957	32.7	--	32.7	100	--
Mill Bayou-Bayou Vidal-Bayou Vidal Cutoff	--	17.1	--	--	--	--
Kirsch Lake Canal	--	9.3	--	--	--	--
Canal 19 Extension	1964	9.4	--	9.4	100	--
Lake Chicot Pumping Plant	--	2.5	--	2.5	100	--
Mill Bayou	1955	4.8	--	4.8	100	--
RED RIVER BACKWATER, LA						
Tensas-Cocodrie Pumping Plant	1976	6.9	--	6.9	100	--
Six Mile Bayou, LA	--	1.5	--	1.5	100	--

1. Includes further work on 54.9 miles and adds 16.3 miles of channel to the project.
2. Includes further work on 21.1 miles and adds 1.1 miles of channel to the project.
3. Includes further work on 26.0 miles.
4. Includes further work on 38.6 miles and adds 4.4 miles of channel to the project.
5. Includes further work on 75.3 miles and adds 11.5 miles of channel to the project.
6. Includes further work on 96.5 miles and adds 68.5 additional miles of channel to the project.
7. Further work on these items has been deferred due to local oppositions and withdrawal of sponsorship by the levee district.

TABLE 41-Q CHANNEL IMPROVEMENTS: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Location	Year Initiated	In System When Completed	Built This FY (Miles)	Total Complete Thru This FY	Percent Complete	Currently Under Construction
BIRDS POINT-NEW MADRID FLOODWAY						
Birds Point-New Madrid Intercepting Ditch Enlargement, Samos and Vicinity, MO	1952	9.6	--	9.6	100	--
ST. FRANCIS BASIN						
Little River Drainage, MO	1963	298.9	--	298.9	100	--
St. Francis River, MO and AR	1953	658.0	--	580.4	88	--
West Memphis Drainage, AR	1951	19.8	--	19.8	100	--
Big Slough and Mayo Ditch, AR	1960	28.0	--	28.0	100	--
Tyronza River, AR	1939	12.7	--	12.7	100	--
L'Anguille River, AR	(1)	95.0	--	--	--	--
LOWER WHITE RIVER BASIN, AR						
Cache River Basin, AR	1972	231.5	--	7.2	3	--
Big Creek and tributaries, AR	(1)	103.8	--	--	--	--
WEST KENTUCKY TRIBUTARIES						
Obion Creek, KY	(1)	41.7	--	--	--	--
WEST TENNESSEE TRIBUTARIES						
MS River, Western TN tributaries (Backwater Areas) (1946 Act)	1952	34.3	--	34.3	100	--
Obion River Diversion Channel, TN (1946 Act)	(1)	9.3	--	--	--	--
Reelfoot Lake-Lake No. 9, KY and TN	1974	15.8	--	3.0	19	--
Running Reelfoot Bayou, TN	1955	19.7	--	19.7	100	--
MS River Below Cape Girardeau: West TN tributaries (1948 Act)	1961	225.0	--	93.0	41	--
Wolf River and tributaries, TN	1960	24.7	--	24.7	100	--
NONCONNAH CREEK, MS AND TN						
Nonconnah Creek, MS and TN	1990	18.2	--	1.26	7	--
HELENA HARBOR, PHILLIPS COUNTY, AR						
Helena Harbor, AR(2)	1989	2.25	--	2.25	100	--

1. Not started.
2. Data for Stage 1 only.

TABLE 41-R PUMPING STATIONS: NEW ORLEANS DISTRICT (FISCAL YEAR 2003)

Name	Authorized Size (CFS)	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)	Rehabilitation Status (If Applicable) Year Initiated	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)
Bayou Yokely	489	100	1955	1990	100	1991(A)
Bayou Yokely Enlargement	568	100	1963	1990	100	1991(A)
Centerville	332	100	1964	1991	100	1992(A)
Ellerslie	136	100	1953	--	--	--
Franklin	144	100	1958	1992	100	1993(A)
Franklin Enlargement	144	100	1978	1992	100	1993(A)
Gordy	238	100	1964	--	--	--
Maryland	136	100	1957	1991	100	1992(A)
North Bend	52	100	1962	--	--	--
Tiger Island	75	100	1955	--	--	--
Wax Lake East	1,008	100	1961	1990	100	1992(A)
Wax Lake West	496	100	1965	1990	100	1992(A)
Teche Vermilion	1,300	100	1982	--	--	--
Pointe Coupee	1,500	100	1983	--	--	--
David Pond	570	100	2000	--	--	--
TOTAL	6,618					

TABLE 41-S PUMPING STATIONS: VICKSBURG DISTRICT (FISCAL YEAR 2003)

Name	Authorized Size (CFS)	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)	Rehabilitation Status (If Applicable) Year Initiated	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)
Chauvin Bayou, LA	250	100	1994	1991	100	
Bawcomville	270	100	1955	1992	100	1993
Jonesville	180	100	1952	--	--	--
Natchez Port	100	--	--	--	--	--
Wilson Point	50	--	--	--	--	--
Greenwood - Lee Street	90	100	1953	1952	--	--
Greenwood - Wilson Street	67	100	1953	1952	--	--
Greenwood - Walker Lake	675	100	1949	1952	--	--
Yazoo City	540	100	1954	1957	--	--
Columbia	45	100	1939	--	--	--
Calion	200	100	1959	--	--	--
McKinney Bayou, MS	250	100	1962	1961	--	--
Lake Chicot	6,500	100	1987	--	--	--
Tensas Cocodrie	4,000	100	1986	--	--	--
Yazoo Backwater	10,000	--	--	--	--	--
Natchez Area	300	--	--	--	--	--
Bushley Bayou	300	--	Indef[1]	--	--	--
Bushley Bayou	20	--	Indef[1]	--	--	--
Sicily-HAHA Bayou	750	100	2000	--	--	--
Sicily - Fool River	300	100	2000	--	--	--
Pelucia Creek - Rising Sun #1	10	100	1992	--	--	--
Pelucia Creek - Rising Sun #2	15	100	1992	--	--	--
Pelucia Creek Pump	75	100	1993	--	--	--
Below Red River	500	--	Indef[1]	--	--	--
Bayou Rapides	222	100	1936	--	--	--
Ouachita Parish, River Styx Bayou, LA	500	100	2000	--	--	--
Total	25,709					

[1] This project has been placed in the inactive category.

TABLE 41-T PUMPING STATIONS: MEMPHIS DISTRICT (FISCAL YEAR 2003)

Name	Authorized Size (CFS)	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)	Rehabilitation Status (If Applicable) Year Initiated	Percent Complete Thru This FY	Year Complete (Schedule/ Actual)
Devall's Bluff	215	100	1949	1987	100	1989
Des Arc, Ark.	30	100	1954	--	--	--
Ensley	900	100	1966	--	--	--
DD #17, Station #1	375	100	[1]	--	--	--
Huxtable Pumping Plant	12,000	100	1977	--	--	--
Graham Burke	1,500	100	1964	--	--	--
Finley Street	100	100	1978	--	--	--
Dyersburg	26	100	1961	--	--	--
Cotton Slough	50	100	1964	--	--	--
West Hickman	190	100	1976	--	--	--
Cypress Creek	3,000	100	1944	--	--	--
Fairfax	53.5	100	1950	--	--	--
Goose Pond	110	100	1976	--	--	--
Marble Bayou	220	100	1952	--	--	--
Workhouse Bayou	520	100	1950	--	--	--
Nonconnah	1,620	100	1944	--	--	--
L&DD #3 Peafield	400	100	[1]	--	--	--
Treasure Island	150	100	1976	--	--	--
Lake No. 9	500	100	1981	--	--	--
Cairo 10th Street	65	100	1981	--	--	--
Cairo 28th Street	65	100	1981	--	--	--
DD #17, Station #2	700	100	1981	--	--	--
Drinkwater Sewer	150	100	1979	--	--	--
May Street	5	100	1948	--	--	--
Cairo 22nd Street	37	100	[1]	--	--	--
Gayoso Bayou	1,500	100	1915	--	--	--
Mud Lake	200	--	--	--	--	--
Madison	25	--	--	--	--	--
Cache River	200	--	--	--	--	--
New Madrid	1,500	--	--	--	--	--
St. John's Bayou	1,000	--	--	--	--	--
Drinkwater #2	150	100	2001	--	--	--
TOTAL	27,556.5					

[1] Unknown constructed by local interest.

TABLE 41-U COSTS DURING FISCAL YEAR 2003

Item	Construction	Maintenance	Other
FEDERAL FUNDS			
Flood control, Mississippi River and tributaries:			
St. Louis District:			
St. Francis Basin-Wappapello Lake	$ --	$ 7,787,702	$ 0
Subtotal		7,787,702	0
Memphis District:			
Cache Basin, AR	--	--	--
Channel improvement	16,518,438	24,918,822	--
Eastern Arkansas Region (Comp)	166,348	--	--
Francis Bland Floodway Ditch (Eight Mile)	2,925.197	--	--
General investigations	--	--	1,514,100
Helena & Vicinity	1,644,709	--	--
Helena Harbor, Phillips County		464,899	--
Hickman Bluff, KY	66,656	--	--
Horn Lake Creek & Tribs	--	--	--
Horn Lake Creek Modification, MS	277,533	--	--
Inspection of Completed Works	--	766,831	--
L'Anguille River, AR	--	--	--
Mapping	--	430,378	--
Memphis Harbor (McKeller Lake)	--	2,162,012	--
Nonconnah Creek, TN & MS	1,369,952	--	--
Nonconnah Creek, Environmental Enhancement	13,729	--	--
Nonconnah Creek, Flood Control Extension	118,937	--	--
Nonconnah Creek, Recreation Extension	23,846	--	--
Mississippi River Levees	13,410,145	4,797,095	--
St. Francis River & Tributaries, AR	3,808,199	15,162,639	--
St. Johns Bayou & New Madrid	177,566	--	--
West Tennessee tributaries	90,549	--	--
White River Backwater	--	1,387,612	--
Subtotal	40,611,804	50,090,289	1,514,100
Vicksburg District:			
Channel Improvement	14,926,215	15,407,796	--
General investigations	--	--	1,297,884
Inspection of completed works	--	325,014	--
Lower Arkansas – South Bank	--	124,877	--
Lower Arkansas River – North Bank, AR		84,681	--
Lower Red River--South Bank Red River Levee	--	2,647,512	--
Mapping	--	365,548	--
Mississippi River levees	19,476,314	2,095,250	--
Tensas Basin	271,831	12,871,362	--
Yazoo Basin Tribs	41,493,311	20,357,844	--
Greenwood Less Greenwood Protection	--	714,654	--
Greenville Harbor	--	321,224	--
Grenada Lake	--	6,541,567	--
Sardis Lake	--	8,408,098	--
Sardis Dam	1,595	--	--
Vicksburg Harbor	--	306,000	--
Subtotal	76,169,265	70,571,428	1,297,884

TABLE 41-U (Continued) COSTS DURING FISCAL YEAR 2003

Item	Construction	Maintenance	Other
New Orleans District:			
Atchafalaya Basin	22,366,304	13,276,247	--
Atchafalaya Basin Floodway System	6,796,997	1,745,341	--
B. R. Harbor Devil Swamp	--	670,834	--
Bayou Cocodrie and Tributaries	--	49,513	--
Bonnet Carre Spillway	--	2,410,636	--
Channel Improvement	4,646,936	14,252,152	--
General Investigations	--	--	4,964,606
Inspection of Completed Works	--	358,752	--
Louisiana Penitentiary Levee	2,245,784	--	--
Mapping	--	285,933	--
Mississippi & LA Estuarine	2,636	--	--
Mississippi Delta Region	1,894,914	602,473	--
Mississippi River Levees	3,308,281	1,747,568	--
Old River	--	9,805,608	--
Subtotal	41,261,852	45,205,057	4,964,606
Total Federal Funds	**$158,042,921**	**$173,654,475**	**$7,776,590**
CONTRIBUTED FUNDS			
Memphis District			
Bayou Meto			177,194
Helena & Vicinity, AR			
Helena-West Helena – Phillips County		563,326	
Horn Lake Creek Modification, MS		15,298	
Nonconnah Creek, Flood Control Extension		78,337	
Nonconnah Creek Recreation Extension		7,944	
Nonconnah Creek, TN & MS Flood Control			
Reelfoot Lake TN & KY	--	--	4,309
White River Basin			17,419
Wolf River	--	--	74,886
Vicksburg District			
Southwest Arkansas			500,403
Southeast Arkansas Feasibility			468,856
New Orleans District:			
Morganza, LA to Gulf of Mexico			356,443
Atchafalaya Basin			375,330
Louisiana Penitentiary Levee	--	504,400	--
Mississippi Delta Region		-20,445	--
Old River	--	59,431	--
Total Contributed Funds	**0**	**1,208,290**	**1,974,841**
Grand Total, Federal and Contributed Funds	**158,042,921**	**174,862,765**	**9,751,430**

TABLE 41-V STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
ALLOTMENTS AND ACCRUED EXPENDITURES CHARGEABLE AGAINST FLOOD CONTROL ACT LIMITATIONS:			
COMPLETED WORKS:			
Waterways Experiment Station	$ 874,000	$ 874,000	$ --
Office, Chief of Engineers	19,158	19,158	--
Rock Island District:			
S. G. & O. prior to Aug. 18, 1941	14,010	14,010	--
St. Louis District:			
S. G. & O. prior to Aug. 18, 1941	169,352	169,352	--
Subtotal	1,076,520	1,076,520	--
Memphis District:			
Des Arc, AR	178,925	178,925	--
Contraction works	8,692,791	8,692,791	--
DeValls Bluff, AR	231,215	231,215	--
Mapping	1,450,337	1,450,337	--
Memphis Harbor	18,736,432	18,736,432	--
New Madrid Floodway	6,521,543	6,521,543	--
Wolf River and tributaries	1,723,620	1,723,620	--
Roads on levees (Mississippi River levees)	12,426	12,426	--
S. G. & O. prior to Aug. 18, 1941	1,998,766	1,998,766	--
Subtotal	39,546,054	39,546,054	--
Vicksburg District:			
Boeuf Basin levees	2,764,605	2,764,605	--
Channel realignment, Arkansas River	125,074	125,074	--
Contraction works	1,972,183	1,972,183	--
Eudora Floodway	826,235	826,235	--
Vicksburg Harbor	4,664,515	4,664,515	--
Greenville Harbor	2,864,516	2,864,516	--
Grants Canal (Mississippi River levees)	7,070	7,070	--
Mapping	1,531,021	1,531,021	--
Jonesville, LA	172,950	172,950	--
Tensas National Wildlife Refuge, LA	3,980,000	3,980,000	--
Roads on levees	105,660	105,660	--
S. G. & O. prior to Aug. 18, 1941	2,350,201	2,350,201	--
Subtotal	57,184,031	57,184,031	--

TABLE 41-V (Continued)

STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
New Orleans District:			
Baton Rouge Harbor, LA	699,185	--	--
Atchafalaya River and Basin, LA	3,375,492	--	--
Bonnet Carre Spillway, LA	14,212,198	14,212,198	--
Contraction works	1,258,916	1,258,916	--
Mapping	1,112,967	--	--
Roads on levees	540,838	540,838	--
S. G. & O. prior to Aug. 18, 1941	2,701,566	2,701,566	--
Wax Lake Outlet and Charenton Canal	10,098,817	10,098,817	--
Morganza Floodway and structure	35,992,117	35,992,117	--
Lake Pontchartrain	5,513,110	5,513,110	--
Teche Vermilion Basin Water Supply	34,506,000	34,506,000	--
Old River	292,274,000	292,274,000	--
Atchafalaya Basin, rights-of-way and flowage, Bayou des Glaises setback	387,917	387,917	--
Subtotal	402,673,123	402,673,123	--
All other completed items:			
Surveys under Sec. 10, Flood Control Act of 1928	4,995,215	4,995,215	--
Impounded savings	1,593,097	1,593,097	--
Plant transferred to revolving fund	24,924,578	24,924,578	--
OCE (portion of allotment transferred to revolving fund, Washington Dist.)	19,882	19,882	--
Subtotal	31,532,772	31,532,772	--
TOTAL COMPLETED WORKS	532,012,500	532,012,500	--
UNCOMPLETED WORKS:			
Rock Island District:			
Levees under Sec. 6, Flood Control Act of 1928	579,462	579,462	--
St. Louis District:			
Levees under Sec. 6, Flood Control Act of 1928	1,897,980	1,897,980	--
Subtotal	2,477,442	2,477,442	--
Memphis District:			
Mississippi River Levees	270,763,601	270,378,165	385,436
New Madrid	98,000	98,000	--
Channel improvement:			
Revetments	472,300,306	472,232,166	68,140
Dredging	58,566,439	58,566,439	--
Dikes	270,867,942	270,832,944	34,998

TABLE 41-V (Continued) STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
Memphis District: (Continued)			
Reelfoot Lake	439,434	439,434	--
Reelfoot Lake, Lake No. 9, TN-KY	7,896,000	7,896,000	--
St. Francis Basin:			
Wappapello Lake	9,019,908	9,019,908	--
St. Francis River and tributaries	320,826,412	320,689,882	136,530
Big Slough and Mayo Ditch	965,429	965,429	--
Little River Drainage	52,486,092	52,485,397	695
Lower White River:			
Clarendon Levee	652,115	652,115	0
Augusta to Clarendon, AR	1,788,846	1,788,846	--
White River backwater levee, AR	10,624,501	10,624,501	--
Horn Lake Creek & Tribs	2,195,300	2,187,930	7,370
Horn Lake Creek Modification, MS	509,000	505,740	3,260
Hickman Bluff, KY	17,339,600	17,293,035	46,565
Memphis Harbor Ensley Berm	3,510,000	3,510,000	--
Nonconnah Creek, Flood Control Ext.	280,000	279,544	456
Nonconnah Creek Recreation Facility	10,910	10,900	10
Nonconnah Creek Environmental Enhancement	61,510	61,479	31
Nonconnah Creek, TN & MS	14,855,399	14,808,061	47,338
Nonconnah Creek, Recreation Extension	24,000	23,846	154
West Memphis and Vicinity	571,000	571,000	--
Whiteman's Creek, Ar	1,895,500	1,895,010	490
Levees under Sec. 6, Flood Control Act of 1928	108,651	108,651	--
West Tennessee Tributaries	54,299,255	54,297,752	1,503
Helena Harbor, Phillips County, AR	14,473,700	14,473,700	0
Helena & Vicinity, AR	6,941,478	6,502,830	438,648
Cache Basin, AR	10,850,000	10,849,291	709
West Kentucky Tributaries	1,440,000	1,440,000	0
Mud Lake Pumping Station, TN	100,000	100,000	0
L'Anguille River	237,432	236,840	592
Eight Mile Creek	3,896,000	3,895,161	839
St. Johns Bayou & New Madrid Floodway	5,261,847	5,249,447	12,400
Eastern Arkansas Reg (Comp)	36,674,361	36,673,606	755
St. Francis Bland Floodway Ditch (Eight Mile Creek)	4,977,789	4,976,403	1,386
Wolf River, Memphis, TN	5,000		5,000
Subtotal	1,657,812,757	1,656,619,452	1,193,305
Vicksburg District:			
Mississippi River Levees	364,665,977	364,362,126	303,851
Section 6 Levees	9,000	9,000	--
Lower Arkansas River:			
North Bank	7,049,414	7,049,414	--
South Bank	15,676,286	15,676,286	--
Tensas Basin:			
Lake Chicot Pumping Plant	95,639,986	95,639,945	41
Tensas River	41,505,235	41,505,235	--
Red River Backwater:			
Below Red River	639,400	639,400	--

TABLE 41-V (Continued)

STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
Red River Backwater Levee, LA	137,460,254	137,437,714	22,540
Tensas Cocodrie Pumping Plant	56,071,200	56,071,167	33
Lower Red River South Bank Red River Levees	756,300	756,300	--
Channel improvement:			
Revetments	554,503,704	554,484,337	19,368
Dredging	23,919,516	23,919,516	--
Dikes	197,601,175	197,585,292	15,882
Levees under Sec. 6, Flood Control Act of 1928	958,175	958,175	--
Ouachita River Levees	400,000	400,000	--
Yazoo Basin:			
Sardis Lake	26,502,400	26,502,400	--
Enid Lake	21,292,400	21,292,400	--
Arkabutla Lake	16,000,700	16,000,700	--
Grenada Lake	45,401,494	45,401,494	--
Greenwood	11,543,000	11,543,000	--
Belzoni	316,656	316,656	--
Yazoo City	2,205,611	2,205,611	--
Will M. Whittington auxiliary channel	10,950,966	10,950,966	--
Big Sunflower, etc.	102,996,592	102,939,777	56,815
Main Stem	34,675,248	34,675,220	28
Upper Yazoo Projects	198,524,646	198,333,027	191,619
Yazoo Basin--Tributaries			
Tributaries (Except Ascal-Tippo-Opossum Bayous)	107,497,582	107,480,891	16,691
Tributaries--Bank Stabilization	612,484	612,484	--
Ascalmore-Tippo-Opossum Bayous	23,977,200	23,977,200	--
Yazoo Basin Backwater			
Yazoo Backwater less Rocky Bayou	57,037,435	57,029,560	7,875
Rocky Bayou	3,401,500	3,401,500	--
Yazoo Backwater Pumping Plant	22,649,724	14,969,566	7,680,158
Muddy Bayou	5,145,200	5,145,200	
Yazoo Backwater, F&WL Mitigation	6,415,500	6,415,405	95
Yazoo Basin Reformulation	30,313,143	30,289,926	23,217
Streambank Erosion Control, Eval. and Demo.	14,767,000	14,767,000	--
Yazoo Basin, Demonstration Erosion Control	309,273,741	308,733,487	540,254
Dam Safety Assurances-Sardis Dam	23,235,000	23,235,000	0
Subtotal	2,571,590,845	2,562,712,378	8,878,467
New Orleans District:			
Bayou Cocodrie and Tributaries	5,008,008	5,008,008	--
Miss. & LA Estuarine	4,634,591	4,634,585	6
Channel Improvement:			
Dredging	35,945,266	35,945,266	--
Revetments	1,073,944,792	1,073,856,909	87,884
Louisiana Penitentiary Levee	18,104,502	18,048,724	55,778
Lower Red River (South Bank Levees)	18,056,600	18,056,600	--

TABLE 41-V (Continued)

STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
New Orleans District (Continued):			
Levees Under Sec. 6, Flood Control Act of 1928	200,680	200,680	--
Mississippi River Levees	375,362,524	375,338,811	23,713
Mississippi Delta Region	96,198,143	96,015,402	182,740
Atchafalaya Basin Floodway:			
Atchafalaya Basin	937,342,961	937,069,219	273,742
Atchafalaya River Navigation	303,463	303,463	--
Atchafalaya Basin Floodway System	102,864,814	98,290,988	4,573,825
Subtotal	2,667,966,344	2,662,768,655	5,197,689
TOTAL UNCOMPLETED WORKS	6,899,847,382	6884,577,920	15,269,461
ADVANCE ENGINEERING AND DESIGN (CONSTRUCTION)			
Memphis District:			
L'Anguille River Basin, AR	150,000	150,000	--
Reelfoot Lake, Lake No. 9	30,000	30,000	--
Cache River	420,000	420,000	--
Big Creek and Tributaries, Lower White River	365,000	365,000	--
Clarendon Levee, Lower White River	65,000	65,000	--
West Kentucky Tributaries	175,000	175,000	--
Mud Lake Pumping Station, TN	350,000	350,000	--
Harris Fork Creek, KY & TN	540,000	540,000	--
Subtotal	2,095,000	2,095,000	--
Vicksburg District:			
Yazoo Basin, Big Sunflower River, Steele Bayou	29,700	29,700	--
Tensas - National Wildlife Refuge, LA	200,000	200,000	--
Subtotal	229,700	229,700	--
New Orleans District:			
Mississippi Delta Region (EP 309)	69,753	69,753	--
Teche Vermilion Basin-Water Supply	1,109,000	1,109,000	--
East Rapides & S. Central Avoyelles Parishes	965,247	965,247	--
Subtotal	2,144,000	2,144,000	--
TOTAL ADVANCE ENGINEERING AND DESIGN	4,468,700	4,468,700	--
TOTAL COMPLETED WORKS, UNCOMPLETED WORKS AND ADVANCE ENGINEERING AND DESIGN	7,092,188,627	7,084,648,067	7,540,560

TABLE 41-V (Continued) STATEMENT OF ALLOTMENTS AND ACCRUED EXPENDITURES FOR FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, FROM MAY 15, 1928, THROUGH SEP. 30, 2003

District or Installation and Class of Work	Allotments	Accrued Expenditures	Unexpended Balance Sep. 30, 2003
RECREATION FACILITIES--COMPLETED PROJECTS			
Eight-Year Project Funds			
St. Louis District:			
Wappapello Lake, MO	2,405,300	2,405,300	--
Wappapello Lake, MO, Rockwood Landing	203,286	203,286	--
Subtotal	2,608,586	2,608,586	--
Vicksburg District:			
Sardis Lake	1,584,339	1,584,339	--
Enid Lake	2,268,209	2,268,209	--
Arkabutla Lake	2,189,280	2,189,280	--
Grenada Lake	1,631,281	1,631,281	--
Subtotal	7,673,109	7,673,109	--
Total Eight-Year Program Funds	10,281,695	10,281,695	--
Total chargeable against Flood Control Act Limitations excluding flood control emergencies	7,446,610,287	7,431,340,822	15,269,465
Total maintenance since Jul. 18, 1941	3,858,101,003	3,856,380,225	1,720,779
Total rehabilitation	31,113,000	31,113,000	--
Total flood control emergencies	14,900,300	14,900,300	--
Total general investigations	149,373,640	148,946,903	426,737
Total flood control, MR&T appropriations	11,500,098,230	11,482,681,249	17,416,981
Appropriations in addition to flood control, MR&T Other appropriations itemized in footnote (1), pp. 2068-69, Annual Report for 1953	32,068,909	32,068,909	--
Grand total appropriated to Sep. 30, 2003	11,532,167,139	11,514,750,158	17,416,981

Note: Preauthorization study costs chargeable to the MR&T authorization have been transferred to completed work. Costs not chargeable have been excluded from this report.

TABLE 41-W

COST AND FINANCIAL STATEMENT

Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Sep. 30, 2003
Mississippi River and tributaries						
(Regular Funds)[1]	General investigations:					
	Allotted	4,298,200	9,326,826	7,960,700	7,323,000	149,373,640
	Cost	4,343,534	8,815,991	7,985,147	8,325,015	148,946,904
	Construction (includes advance engineering and design):					
	Allotted	180,682,819	193,639,344	182,406,588	161,733,375	7,266,427,388
	Cost	181,928,513	191,326,010	178,368,141	158,042,921	7,251,157,929
	Maintenance					
	Allotted	124,434,981	156,492,122	155,624,712	173,121,625	3,858,101,003
	Cost	123,983,756	155,041,146	156,017,523	173,655,475	3,856,380,204
	Rehabilitations					
	Allotted	--	--	--	--	31,113,000
	Cost	--	--	--	--	31,113,000
	Flood control emergencies (Maintenance)					
	Allotted	--	--	--	--	14,885,992
	Cost	--	--	--	--	14,885,992
(Contributed Funds)	New Work:					
	Contributed	--	--	--	--	34,339,413
	Cost	--	--	--	--	33,270,005
	Maintenance					
	Contributed	6,127,991	1,977,852	4,326,000	1,391,824	20,408,034
	Cost	7,675,222	2,022,470	2,955,166	2,416,581	17,897,372

1. Appropriations were as follows:

Appropriations chargeable against Flood Control Act authorizations:		
Flood Control, MR&T except for emergencies (excludes Maintenance allotments Aug. 18, 1941, through Sep. 30, 2003):		
Net total allotted for works under Mississippi River Commission:	7,435,908,816	
Eight-Year Program Funds, Construction General:	10,281,695	
Surveys under Sec. 10, Flood Control Act of 1928 (not under MRC):	4,995,215	
Transferred to revolving fund:	24,944,460	
Impounded savings:	1,593,097	7,477,723,283
Flood control emergencies:		
Net total allotted:	14,885,922	
Impounded savings:	14,378	14,900,300
Additional funds not chargeable against Flood Control Act authorizations:		
Appropriations for Flood Control, MR&T, except for flood control emergencies:		
General investigations:	149,373,640	
Maintenance allotments Aug. 18, 1941, through Sep. 30, 2001	3,858,101,003	4,007,474,643
Appropriations in addition to appropriations for Flood Control, MR&T (itemized in footnote (1), pp 2068-69, Annual Report for 1953):	32,068,909	
Budgetary and OCE Reserves:		
Grand total:		11,532,167,139

TABLE 41-W
(Continued)

COST AND FINANCIAL STATEMENT

Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Sep. 30, 2003
	Reconciliation of appropriations and allotments:					
	Total allotted to Sep. 30, 2002				11,500,619,989	
	Transferred to revolving fund:				24,944,460	
	Surveys under Sec. 10, Flood Control Act of 1928 (not under MRC):				4,995,215	
	Impounded savings withdrawn by Chief of Engineers:				1,607,475	
	Total Appropriations to Sep. 30, 2001:					11,532,167,139
	Appropriations for past four reporting periods were as follows:					
	FY 98: $296,212,000	FY 00: $309,416,000				
	FY 99: $323,636,541	FY 01: $359,458,292				

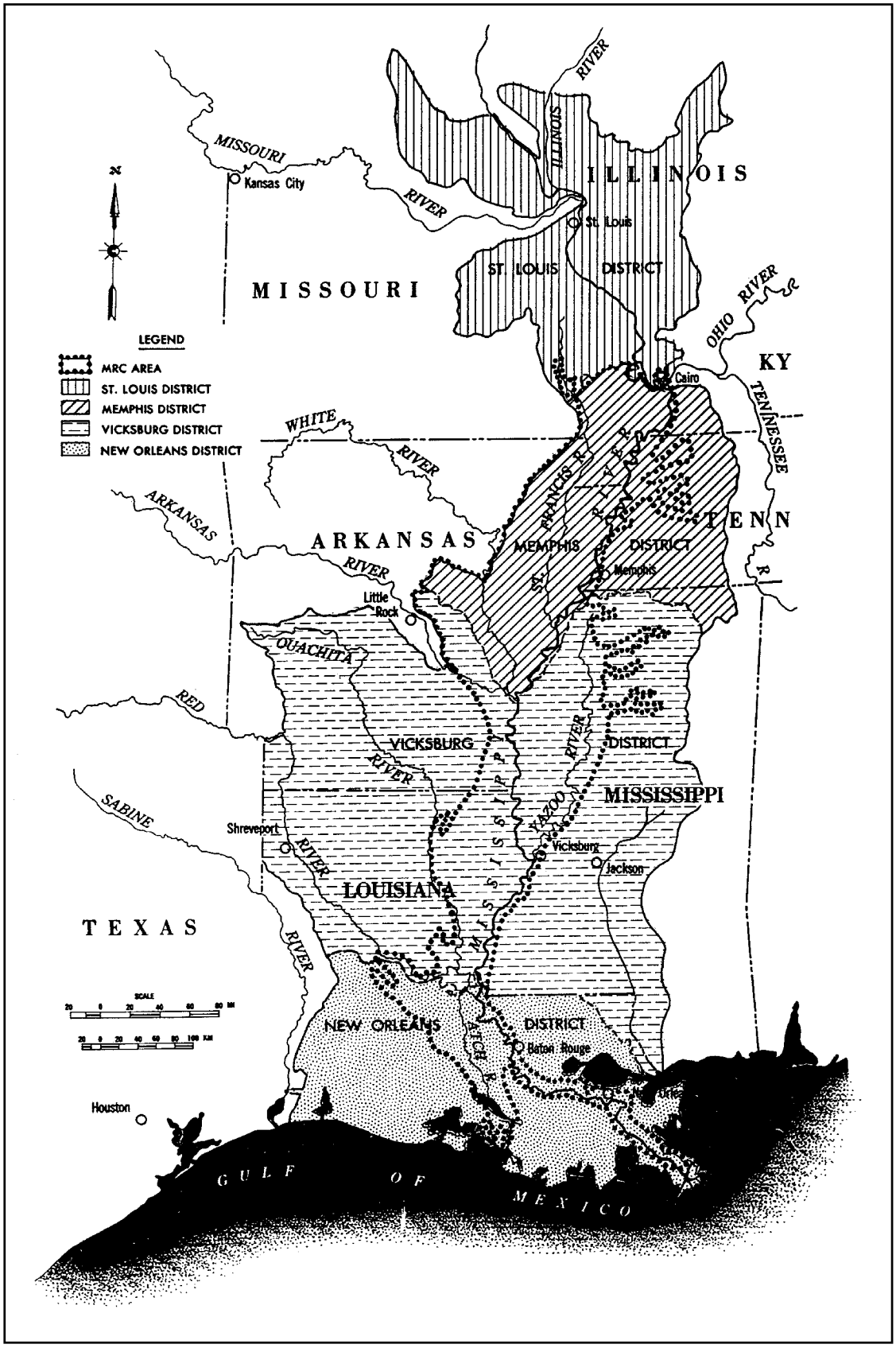
2. Totals for General Investigations include four projects transferred from Construction totals per DAEN-CWB-W, Aug. 4, 1978, teletype.

TABLE 41-X MISSISSIPPI RIVER AND TRIBUTARIES ACTIVE GENERAL INVESTIGATIONS (96X3112)

Item and CWIS Number	FISCAL YEAR COST Federal	Non-Federal	Total
SURVEYS (Category 110)			
Flood Damage Prevention (112)			
New Orleans District			
Morganza, LA to the Gulf of Mexico-012875	900,324	875,890	1,776,214
Subtotal	900,324	875,890	1,776,214
Vicksburg District			
Mississippi Delta, MS-12803	0	0	0
Southeast Arkansas Feasibility - 12756	299 401	0	299,401
Subtotal	299,401		299,401
Memphis District			
Reelfoot Lake, TN - 12394	0	0	0
Subtotal	0	0	0
Total (Category 112)	1,212,231	905,505	2,117,736
Flood Damage Prevention-Recon Study (113)			
St. Louis District			
MS River, Alex City, IL - 010462	77,668	0	77,668
New Orleans District			
Alexandria, LA to the Gulf of Mexico - 81308	525	0	525
Donaldsonville, LA to the Gulf of Mexico - 013510	295,036	0	295,036
Subtotal	295,561	0	295,561
Memphis District			
Wolf River, Memphis, TN - 13157	1,967	0	1,967
Millington and Vinicity, TN - 81375	29,933	0	29.933
Fletcher Creek, TN - 81409	29,568	0	29,568
Subtotal	61,468	0	61,468
TOTAL (Category 113)	413,246	179,485	592,731
Flood Damage Prevention – Feasibility Study (114)			
Memphis District			
Germantown, TN – 081361	190,750	0	190,750
TOTAL (Category 114)	190,750	0	190,750
Special Reconnaissance Study (115)			
Vicksburg District			
Spring Bayou, LA – 081338	114,506	0	114,506
TOTAL (Category 115)	114,506	0	114,506
TOTAL (Category 110)	1,739,982	1,084,990	2,824,973

TABLE 41-X (Continued) MISSISSIPPI RIVER AND TRIBUTARIES ACTIVE GENERAL INVESTIGATIONS (96X3112)

Item and CWIS Number	FISCAL YEAR COST Federal	Non-Federal	Total
COLLECTION AND STUDY OF BASIC DATA (Category 120)			
New Orleans District – Surveys, Gages & Observations – 81900	27,552	0	27,552
Vicksburg District - Surveys, Gages & Observations - 81900	233,882	0	233,882
Memphis District - Surveys, Gages & Observations - 81900	169,033	0	169,033
TOTAL (Category 120)	362,221	0	362,221
CONTINUATION OF PLANNING & ENGINEERING (Category 140)			
Flood Control Projects (140)			
Memphis District			
Reelfoot Lake, TN & KY, - 012394	55,003	0	55,003
Wolf River, Memphis, TN – 013157	169,556	0	169,556
TOTAL (Category 140)	224,559	0	224,559
PRE-CONSTRUCTION ENGINEERING & DESIGN (Category 160)			
Flood Control Projects (162)			
Memphis District			
Bayou Metro Basin, AR - 81307	2,074,477	0	2,074,477
Eastern Arkansas Region (Comp) - 081266	0	0	0
St. Johns Bayou & New Madrid Fdwy – 077005	0	0	0
Subtotal	2,074,477	0	2,074,477
New Orleans District			
Morganza, LA to Gulf of Mexico - 012875	320,019	0	320,019
Subtotal	320,019	0	320,019
TOTAL (Category 160)	2,212,268		2,212,268
GRAND TOTAL MR&T GENERAL INVESTIGATIONS	4,343,533	1,084,990	5,428,523



Mississippi River Commission

U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER

BACKGROUND

The research and development laboratories of the U.S. Army Corps of Engineers have served the Corps, the Army, and the Nation with technical accomplishments in a variety of engineering and scientific fields for more than 70 years. From beginnings in 1929 as a small hydraulics laboratory established to assist in developing a comprehensive plan for flood control of the Mississippi River to the 1999 establishment of the Engineer Research and Development Center (ERDC) consolidating the research and development efforts of the laboratories under the leadership of a single center, Corps' laboratories have been solving civil engineering and environmental quality challenges. ERDC offers a centrally managed center of seven laboratories that is the largest and most diverse civil and environmental research and development organization in the world.

During FY03, ERDC had 1,948 employees of whom 1,059 are highly trained engineers and scientists. The professional staff encompassed 301 Ph.D.'s and 438 Masters' degrees.

ERDC executed a Civil Works program totaling $116 million; of this total, $51 million was executed in direct allotted R&D Programs. The remaining $65 million was executed in support of USACE District and Division offices and non-Corps customers.

LABORATORIES

The diverse civil engineering and environmental quality research and development center consists of seven centrally managed laboratories located at Alexandria, VA; Champaign-Urbana, IL; Hanover, NH; and Vicksburg, MS. With world-renowned expertise and facilities, each laboratory adds a unique perspective and set of capabilities to the overall ERDC team.

Coastal and Hydraulics Laboratory

The Coastal and Hydraulics Laboratory (CHL) is the Nation's center for engineering and scientific research and development in the coastal, hydraulic, and hydrologic engineering and sciences. It conducts research and supports the Corps of Engineers in conducting it's navigation, flood and coastal storm damage reduction, environmental restoration, and military engineering missions. CHL is comprised of nationally and internationally recognized experts that perform research and site-specific investigations in the fields of rip-rap design; navigation engineering; pump station design; fisheries engineering; sediment transport; estuarine engineering; dredging; hydrodynamics; groundwater, watershed, and surface water modeling; coastal storm and flood damage protection; harbor design and modification; coastal and hydraulic structures; physical processes associated with water resources; environmental problems; military logistics-over-the-shore; wave climatology; and hydroinformatics.

Cold Regions Research and Engineering Laboratory

The Cold Regions Research and Engineering Laboratory (CRREL) maintains the finest research and engineering staff and facilities in the world for the study of cold regions science and technology. CRREL's experience spans nearly 60 years, starting with the Boston District's Soils Laboratory work on frozen soils in the early 1940s. The creation of CRREL began in 1961 with the merger of the Arctic Construction and Frost Effects Laboratory and the Snow, Ice, and Permafrost Research Establishment. This merger put the Department of Defense principal cold regions expertise in one place. In 1971 a long-term program by the Corps of Engineers to investigate ways of extending navigation on the Great Lakes-St. Lawrence Seaway throughout the winter also marked the beginning of Civil Works research at CRREL.

CRREL is recognized for its internationally known experts in the field of ice jam flooding and ice-hydraulics; ice control at locks, dams and other navigation channels; snowmelt modeling & simulation; and other areas ranging from geotechnical aspects of frozen ground to new admixtures for placing concrete in the winter. CRREL's specialized research facilities include a complex of cold rooms, an Ice Engineering Facility housing three special-purpose research areas; a large

low-temperature towing tank, a refrigerated flume for modeling rivers, and a large hydraulic-model room. CRREL is also home to the U.S. Army Corps of Engineers Center of Expertise for Civil Works Remote Sensing/Geographic Information Systems.

Construction Engineering Research Laboratory

The Construction Engineering Research Laboratory was chartered over 30 years ago to provide construction research that would address the entire spectrum of issues within military construction. This research is in support of sustainable military installations and encompasses construction, operations, and maintenance as well as environmental and safety concerns. These technologies have universal application and are of extreme value in the Civil Works arena as well. Civil Works efforts historically have been in the areas of corrosion control, high performance protective coatings (including over-coating of lead-based paint), management tools for Operation and Maintenance optimization, and environmental sustainment.

Environmental Laboratory

ERDC's Environmental Laboratory is the acknowledged international leader in environmental quality and environmental restoration research. Solving problems in these two areas has involved the Environmental Laboratory in the following activities:

- Evaluating and mitigating the consequences of water resources development, navigation, and dredging on the environment.
- Regulating and restoring wetlands and inland and oceanic water quality.
- Stewardship of natural resources.
- Managing cleanup of contaminated groundwater sediments and soils.

For over 30 years, an interdisciplinary staff of peer-recognized professionals, augmented with the finest network of academic and private scientists and engineers in the country, have provided the environmental quality and environmental restoration technology necessary to further the Corps' missions.

Notable examples of recent accomplishments include technology input to an ocean pollution treaty (London Convention), natural resource management to guide Corps stewardship at projects; improved techniques for stream and riparian restoration; research to accelerate growth of desirable, non-problem vegetation; distribution of the first-ever expert system/information manual on using biological control agents to manage nuisance aquatic plants; risk-based contaminated sediment and soil toxicological assessment protocols; and providing guidance to the field on controlling zebra mussel infestations using anti-foulant coatings (paints, thermal metal sprays, etc.), development of an upland disposal testing and assessment manual for dredged material, and continuous backwash filter systems for intakes that supply irrigation systems, water supply, and other low-flow requirements.

Geotechnical and Structures Laboratory

The Geotechnical and Structures Laboratory (GSL) was formed in October 2000, by consolidation of the Geotechnical Laboratory, established in 1931, and the Structures Laboratory, formed in 1983 by combination of the Concrete Laboratory and the Weapons Effects Laboratory. The Concrete Laboratory had existed at WES since 1946, when it was transferred from Mt. Vernon, NY. Formation of GSL was undertaken to capitalize on research synergies that had been developing over the years involving prediction of behavior of structures built in or with earth materials and the effects of weapons and explosives on earth materials or earth construction.

GSL conducts research in soil and rock mechanics, earthquake engineering and geophysics, tunneling and trenchless technology, engineering geology and seismology, vehicle mobility and trafficability, unexploded ordnance detection, and pavement technology. The Laboratory also researches the response of structures to weapons effects and other loadings, investigates methods for making concrete and other materials more durable and economical, studies the application of explosives technology to military and civilian engineering, and investigates the behavior of earth/structure systems subjected to blast loading and projectile penetration. GSL is a world leader in research on effects of earthquakes on embankment dams and the evaluation, maintenance, and rehabilitation of mass concrete, steel and reinforced structures.

Information Technology Laboratory

The Information Technology Laboratory (ITL) serves the U.S. Army and the Nation by advancing, applying, and delivering information technologies (IT) that address a wide range of engineering,

scientific, and management challenges. As the lead in delivering end-to-end solutions across the IT spectrum, ITL provides the underlying, enabling technologies needed to solve problems and assists in the transition and infusion of products to the customer. ITL ensures the integration, synergy, and leveraging of IT and closely related technologies across ERDC and facilitates R&D program development, management, integration, and marketing with particular emphasis in the areas of (a) information science, interoperability, and assurance and (b) computational science and engineering.

ITL manages one of the four High Performance Computing Major Shared Resource Centers formed under the auspices of the DoD High Performance Computing Modernization Program; and the CADD/GIS Technology Center for Facilities, Infrastructure, and Environment, a multi-agency vehicle to coordinate CADD/GIS activities within DoD and with other government agencies (one of two Corps of Engineers Enterprise Infrastructure Services Processing Centers). The Laboratory also has one of the largest high-bandwidth, high-speed data communication networks in the world, and one of the finest civil engineering libraries in the Federal Government.

ITL is also highly recognized for its expertise in the areas of Facilities Management technologies required by Army Civil Works projects; computer-aided interdisciplinary engineering and analysis; computer science applications; scientific visualization (including virtual reality); support to R&D and application efforts requiring sensors, graphic arts and publishing; and collaborative technologies.

Topographic Engineering Center

The Topographic Engineering Center (TEC) provides new topographic capabilities in geospatial science to the Civil Work's community to ensure superior implementation of the nation's civil and environmental initiatives through research, development, and application of remote sensing, geographic information, global positioning, topographic, hydrographic and information technologies. TEC scientists and engineers continue to develop faster, more accurate, and cost-effective ways to use new remote sensing technologies to describe, characterize, and analyze the surface of the earth. Remote sensing technologies form an essential part of a new national approach to infrastructure engineering and environmental stewardship.

Remote sensing tools can accurately characterize different surface characteristics, conditions, and future states, including certain types and conditions of vegetation, soils, and surface water. With further development, this will provide support in an effort to monitor and predict changes in the biosphere. These tools provide indicators for the location of point and non-point pollution sources as well as advise of impending negative or positive trends.

ARMY CIVIL WORKS R&D PROGRAMS

Army Civil Works research and development efforts cover virtually the entire spectrum of technology and problem areas in the Army's Civil Works arena.

Infrastructure Engineering Research Area

The focus of the Infrastructure Engineering Research Area is to provide new or enhanced technologies to extend the life and reduce life-cycle costs of Corps' Civil Works facilities in an environmentally friendly and sustainable manner. These technologies are produced by aggressively developing high-performance materials and systems, with major emphasis in reducing rehabilitation and maintenance costs; refining material characterization; and improving analytical procedures to assess the adequacy of aging facilities and design/analyze rehabilitation measures.

The research will furnish the Corps with improved analysis technologies to ensure a continued high level of safety and reliability, technologies to more economically design and construct required remedial and rehabilitation improvements, and technologies to conduct this work with minimum ecological impact, positive environmental support, and using sustainable methods and materials. The results of R&D efforts are posted on the web to assist rapid dissemination and updating as progress is made.

Infrastructure Technology Research Program. This program represents the reformulation of earlier Civil Works research programs (Earthquake Engineering, Geotechnical Engineering, and Concrete and Structural Engineering) into a new continuing program that addresses infrastructure-related issues involving all business areas within the Corps within an environmentally sustainable framework. Research activities under this program are focused on the development of technologies that

enable the Corps to: 1) enhance existing infrastructure to extend its functional life, improve operational efficiency, ensure a high level of reliability, produce a minimum of pollution, and avoid or repair environmental damage; 2) reduce operation and maintenance costs of existing water-resource infrastructure while supporting environmental sustainability; 3) provide innovative design and construction technologies to allow faster, more economical water-resource infrastructure construction and reduce the environmental impact of construction projects; 4) capture corporate knowledge to maintain corporate expertise and promote effective technology infusion into the field. FY03 accomplishments include:

- Developed computer tools with enhanced capabilities for erosion stability assessment of unlined rock-surface spillways/ channels.

- Developed guidance for safe and durable, but also sustainable, infrastructure repair and construction materials, design, construction and application procedures. Developed materials specifications for the improvement of concrete workability and testing methods for problem field cases. Investigated causes of adverse material interactions.

- Reviewed available techniques and methodologies applicable to the strengthening of damaged concrete in hydraulic structures for effective temporary repairs as well as for rapid execution of permanent repairs to extend their service life. Collected and analyzed data related to durability of concrete beams and updated web-accessible database and gained knowledge on how exposed materials perform under natural weathering cycles.

- Evaluated and compared load strength design factors used in design guidelines for reinforced concrete hydraulic structures (EM1110-2-2104) with current design building codes (ACI 318-02) using typical design cases. Developed a sensitivity analysis study of NISA (Nonlinear Incremental Structural Analysis) material parameters for preliminary design.

- Developed guidelines for high-performance bushing materials for tainter gates. Tested methodology for greaseless bushings to evaluate coefficients of friction and wear, both wet and dry, and for swell (or shrinkage) in water and to evaluate long-term creep. Provided a bearing rating system for use by the hydropower industry. Developed test methodology for greaseless bushings suitable for ASTM standard adoption.

- Developed finite-element models of typical connections on hydraulic steel structures to quantify stress concentration at girder downstream flange connections. Developed preliminary criteria and procedures on fitness for purpose analysis of hydraulic steel structures.

- Developed a nondestructive evaluation method for the condition assessment of lock and dam tainter gate anchors to measure the tensile stress in the tendons and to determine the degree of corrosion that is present. Developed ASTM standards for acoustic interrogation of embedded steel for the determination of tension and degree of corrosion on steel members surrounded by a concrete matrix with only a single exposed end.

- Developed tools to assure life-safety from earthquake damage to Corps' dams and reservoir control structures. Assessed existing and potential retrofit solutions for intake/outlet structures, which included the development of evaluation procedures for comparison of pre- vs. post-retrofit performance alternatives. Improved evaluation procedures for the assessment of the global (sliding and overturning) stability of concrete gravity dams.

- Developed guidance for performance evaluation of modified structures and assessment of relative technical merits of alternative remediation solutions. Developed guidance for evaluation, assessment and implementation of retrofit alternatives for intake/outlet structures.

- Developed guidance related to type, amount, and location of damage of earth embankments on weak foundations, including most appropriate remediation alternatives for various dam scenarios.

- Developed engineering procedures and computer tools for seismic sliding analysis of earth-retaining structures with permanent displacements. Developed simplified procedures for seismic response spectra based soil-structure interaction analysis of rock-founded massive concrete lock retaining walls with seismically induced rocking. Developed engineering procedures and computer tools for seismic

rotation analysis of earth-retaining structures with pool and partially submerged backfill. Developed guidance on seismic rehabilitation procedures for the backfill, foundation and structural elements of earth-retaining structures.

- Initiated the development of a field deployable, prototype acoustic imaging system that provides real-time, high-resolution 3D acoustical images of underwater objects that can be transferred to 3D software COTS programs.

- Modified coding and added features that extend the applicability of CASE (Computer Aided Structural Engineering) tools and documents by leveraging existing common delivery framework functionality and improved product transfer.

High-Performance Materials and Systems Program. This program concluded in FY03. The purpose of this program was to develop new and improved materials and technologies that will enable the Corps to significantly reduce project delivery times and operations, maintenance, and rehabilitation costs.

This program included results from many initiatives. Some of the overall advances include:

- Development of procedures for materials selection and mixture proportioning for a family of low-cost, high-performance concrete
- Evaluation to quantify the effects of moist curing on the strength and durability of concrete repairs; performance criteria for polymer-modified cement repair materials were developed
- Screening tests on shrinkage reducing admixtures were completed
- Evaluations of various combinations of cement, silica fume, fly ash, and blast-furnace slag for strength and resistance to freeze-thaw cycles.
- Evaluation of air entrainment effects on durability was completed
- Preparation of an evaluation matrix and field evaluation of self-lubricating bushings for lock machinery applications was completed and an evaluation of the performance of self-lubricating bushings for floating mooring bitts and culvert valves was completed
- Evaluation of recyclable steel abrasive to determine the amount of rounding that occurred from reuse as well as the rounding effects on the adhesion of both organic zinc primers and metallized coatings

FY03 accomplishments under this program include:

- Published report that provides guidance and field assistance in the proper selection, specification, inspection and performance of coating systems. The report also includes evaluations of the following products and effects:
    - New environmentally acceptable coatings.
    - Commercial products to replace SSPC Paint 25
    - Products to replace TT-P-38
    - The effect of recycling steel-grit blast abrasives on overall coating performance, the working parameters of metallizing equipment, and moisture cure urethane paint systems

- Published report documenting the evaluation of, and installation procedures for self-lubricating lock machinery such as lock gate pintle bearings.

- Completed laboratory tests with a follow-on field test demonstrating the capability of the Electro Osmotic Pulse (EOP) technology for controlling seepage in hydraulic structures. An EOP system was installed at the old lock house at Dresbach lock and dam, which provided a dry environment in what had previously been an area with ongoing moisture problems.

- Developed a method to provide entrained air in critical portions of roller compacted concrete (RCC) to improve the durability of RCC by making it more resistant to possible freeze-thaw damage.

- Tested ABC cement for durability including resistance to ASR, sulfate attack, and scaling due to deicing salts.

Risk Analysis for Dam Safety Program. The focus of the Risk Analysis for Dam Safety Program is to provide aid in allocating investments to improve the safety of Corps' dams. All Federal and state agencies responsible for the design, construction, operation, or regulation of water resource projects have recognized the need for making sound investment decisions regarding dam safety.

The USACE is responsible for managing risks for its 569 dams and protecting the public from the devastation that could be caused by catastrophic failure. While many of the USACE civil works

projects have not been subjected to their maximum design conditions, 65 Corps' dams have been identified as being hydrologically or seismically deficient. Developing and implementing risk analysis methods will enable the Corps to prioritize dams requiring initial investigations and subsequent analyses; prioritize funding for critical repairs, rehabilitation, or modifications; select and justify the optimal plan to protect human life, reduce property damage, and mitigate environmental damage; minimize the disruptions of service; and maximize effectiveness of infrastructure investments.

A multi-agency, multi-national workshop evaluated the current use of risk analysis for dam safety and provided an assessment of the research program to ensure it will meet USACE's future needs. To date accomplishments include, a well-calibrated engineering risk-based analysis framework for performing site-specific risk assessments and portfolio prioritization, along with guidance for estimating loss of life and economic consequences. Several demonstration projects were completed which document the development and fine-tuning of risk analysis procedures for a single dam site and for a regional portfolio of dams. A variety of models and procedures (estimate of annual probability of rare flood, simplified approach for uncertainty of dam stability caused by uplift pressures in foundation, prediction model for unlined spillway seepage and piping), which provide input for this framework, are being finalized. This process has led to the formation of a cadre of Corps personnel experienced in execution of these engineering risk studies.

FY03 accomplishments included completion of a Portfolio Risk Analysis of Huntington District and Baltimore District dams, and development of draft Guideline For Conducting Dam Safety Portfolio Risk Assessments For Corps Districts.

Navigation Research Area

The Corps of Engineers' navigation mission is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. The U.S. Marine Transportation System (MTS) consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels, and is an integral part of both the U.S. economy and national security system. The MTS contributes more than $700 billion per year to the gross domestic product, produces $150 billion per year in federal taxes, and employs more than 13 million people. It supports rapid deployment of military forces and movement of equipment and supplies from strategic ports. Despite its importance, the MTS is under serious strain. The Congressionally-mandated interagency MTS task force and maritime industry report that commercial navigation will double by 2020; yet the MTS is already operating at near-full capacity in many areas and is being challenged by new vessel designs and traffic loads which exceed its channel, harbor, and lock capacities. Eighty-three Corps' locks are older than their 50-year design life, and 11 of them are over 80 years old.

In light of these pressing national needs, this research and development program area provides tools and technology for the Corps of Engineers to improve the navigation system's functional performance, preserve and enhance the environmental quality of waterways, reduce unit costs, and improve safety. Specific objectives of this research are to develop engineering technologies that increase the effectiveness and reduce the per project costs of harbor and channel projects that provide deep-draft and shallow-draft navigation for domestic and international commerce.

Navigation Systems Program. This program includes specific shallow-draft and deep-draft (including the Great Lakes) focused R&D research in coastal and inland channel design; sedimentation and dredging; and structure evaluation and design. Under this program, engineering tools, computer models, and design guidance are developed for defining and managing water levels and currents that affect navigation and sedimentation, waves that impact coastal structures and drive sedimentation processes, sediment that settles in navigation channels and harbors, impacts of ice and debris on locks, and vessel transits within navigation channels and inland locks. Other engineering tools, computer models, and design guidance are developed to enable rapid and economical navigation facility design, construction, repair, and rehabilitation. This research program balances efforts on critical present-day problems facing the Corps of Engineers with those that prepare the Corps to meet U.S. navigation system needs of the future.

FY03 accomplishments of the Navigation Systems Program include:

- Development of Risk based guidance for design of navigation channels pertaining to required under keel clearance for deep-draft vessels in entrance channels. With increasing vessel drafts

and continued improvements in bulk carrier and intermodal transportation efficiencies, more accurate channel design guidance will enable greater capacity in existing navigation channels and optimize maintenance dredging costs

- Development of a hydrodynamic model as a screening tool in designing lock approaches and evaluating various wall types to ensure safe, efficient, navigation conditions, and minimize unnecessary costs. Improvements to lock approaches have a high potential for reducing traffic delays on the inland waterway system and increasing the capacity of existing locks.

- Improved wave and littoral transport models, by incorporating more realistic physics and a standard graphical user interface. Extensive field data sets were used to improve the models' formulations and verify their reliability. These tools will collectively provide the Corps with more effective management of coastal navigation projects with less impact on adjacent shorelines and improved estimates of channel infilling and dredging costs.

- Incorporated a state-of-the-art hydrodynamic model with a discrete element model (DEM) for simulating ice and debris flows through locks. This combined model will allow more accurate simulations of ice and debris fields at locks, thus providing the ability to develop more effective methods to reduce impacts of ice and debris. These developments will increase throughput at locks impacted by debris during floods, and at locks on the Great Lakes, Illinois, Mississippi, and Ohio River that experience ice problems.

Regional Sediment Management (RSM) Program. The ERDC laboratories and the Institute for Water Resources, along with partners from federal, state, and regional governments and academia, are pursuing a rigorous investigation of a regional sediment management approach to solving sediment related problems. The RSM program is developing tools and knowledge necessary to understand the effects of sediment management actions at both local and regional scales. The program is developing methods and procedures to design regional sediment plans. The studies include all landscapes, from the upper watershed to the coastline.

The major products resulting from the research include a watershed sediment budget tool that can be used to rapidly assess the impacts of upstream watershed activities on downstream channels; morphology modeling systems for coast and river systems that predict long-term, large-scale morphology changes; and a framework for developing RSM plans and implementing RSM in the field. RSM Focus Areas include (a) River-basin morphology modeling and management, (b) Coastal morphology modeling and management, (c) Sediment processes and assessment, and (d) Sediment management methods. The work areas fall into five categories; (a) Basic sediment processes, (b) Engineered solutions, (c) RSM tools, (d) Informatics, and (e) Technology transfer and insertion.

The RSM Demonstration Program showed that managing sediment on a regional scale results in significant cost savings and increased benefits. The Demonstration Program also showed that extensive and intensive partnerships and stakeholder involvement are necessary for successful regional sediment management. Because 'regions' may extend beyond the limits of Corps projects and, at times, beyond District boundaries, many stakeholders with varied objectives and disciplines must become involved. Often, the Corps is the facilitating agency in developing regional sediment management plans, as is the agency with the technological skill and capability to assess the impact of alternative plans.

Research accomplishments to date include identification of the information requirements (e.g., computational models, inputs/outputs of the models, sources of data, etc.) necessary for performing regional sediment management. An 'as-is' information model was developed and further analyzed to determine areas where data collection and dissemination processes could be streamlined to improve the interoperability of the computational models, reduce the development costs, eliminate or reduce the need for manual data manipulation processes, and allow RSM to leverage with other USACE efforts. This analysis resulted in a 'to-be' information model.

RSM management also proceeded with establishing the administrative and communications frameworks needed to keep all stakeholders informed about the state of the science investigated under the RSM programs. FY03 accomplishments of the Regional Sediment Management Program include:

- Sediment Impact Assessment Model, for quick and comprehensive analysis of upstream sediment supply change impacts on downstream conditions

- HEC-RAS sediment transport and morphology change computation capability added to the Corps' premier 1-D river hydraulics model.
- Computational library for sediment modules, including subroutine ONCE
- ADH adaptive-grid hydrodynamics model developed for river applications
- GSSHA overland sediment transport module added to multi-dimensional watershed model
- CASCADE model and toolbox developed for multi-project coastal region (e.g., inlets and adjacent beaches) simulations to cover decades of shoreline evolution
- Science and engineering data browser developed to interrogate web-served data sources, and to determine data type and availability for a specified geographic region
- RSM portal as an information source and communication forum for Corps RSM researchers and field personnel
- RSM website to provide information to the public on research activities, products, news, calendar events, and related research
- Product Life-Cycle Planning approach to formulating requirements for R&D to serve field needs, including identification of steps and proponents for developing capabilities and sustaining capabilities after development

Flood and Coastal Protection Research Area

The Corps of Engineers' flood and coastal storm damage reduction mission is to provide safe and reliable projects that reduce damages to property and prevent loss of life from both inland and coastal flooding. The Corps maintains over 8,500 miles of levees and operates 383 major lakes and reservoirs to reduce flood damages. In spite of the completed projects and in-place infrastructure, there are over $4 billion in flood damages annually. The overall objectives of this research in these areas are to develop new flood and coastal storm damage reduction technologies to enhance the effectiveness of projects, develop innovative techniques to reduce flood and coastal storm damages, and allow the integration of analysis tools to accelerate the study and design process for both inland flood damage reduction and coastal shore protection. Engineering tools, computer models, and design guidance are developed for flood and storm damage analysis, channel restoration evaluations, improvements in ice engineering, and evaluation and improvement of multi-dimensional hydrodynamic modeling.

Flood and Coastal Storm Damage Reduction Program. Technologies must be continually advanced for inland flood protection, coastal storm protection, beach nourishment, and the unique flood damage reduction demands of urbanized settings, to ensure that each project is sustainable. In the inland area, there is a shifting focus for new projects from large flood damage reduction projects towards watershed management and smaller flood damage reduction systems. This requires an emphasis on the development of appropriate design guidance and planning and engineering technology to accelerate the process of restoring channels in a more cost-effective and environmentally sound manner. The sedimentation response of flood-control channels, bank protection methods for flood-control and navigation channels, ice impacts on flood-control and navigation channels and structures, and impacts of climate change on hydrologic events must be addressed.

Historically, the focus of the Corps' efforts has been on the construction of large infrastructure projects for flood control and navigation, with an emphasis on sociological and environmental goals in the past several decades. The implementation of risk analysis in the planning of Corps projects has allowed a quantitative evaluation of the benefits and costs associated with different levels of protection. Future flood damage reduction projects in urbanized inland and coastal areas will require innovative planning, design, construction, operation and maintenance, and emergency response methods to provide adequate protection for current and projected growth.

As new and innovative technologies and methodologies are developed, it will be critical to transfer information about these innovations to the Corps, other Federal, state, and local agencies, and to the public as quickly and efficiently as possible so that they can be effectively applied. It is equally important to validate the applicability of the innovative technologies through demonstrations at Corps projects. There has been a new focus on development of innovative technologies for existing flood damage infrastructure, especially levees. New technologies are needed to ensure existing levees provide the authorized level of protection and to

assist with flood fighting operations. Innovative use of remote sensing for detection of weakened levees, satellite linked GIS/GPS laptops to assist with onsite flood fighting, and improved flood forecasting capabilities must be integrated.

While the emphasis for new types of projects is shifting, concurrently, existing projects must be kept optimally consistent with authorized purposes. Improved analysis methods for decision support of reservoir operations are needed. Also, watershed and riverine analysis methods need improvement to take advantage of new real-time data sources, such as precipitation radar, to accurately forecast real-time flow and stages. In addition, advanced statistical methods are needed to better understand project inflows and performance.

Increased research emphasis is being undertaken to develop new technologies for reducing flood damages in urban areas that include both structural as well as non-structural alternatives. Urban development in the inland areas, as well as the coastal areas, requires new technologies to reduce the flood damages. Innovative methods must be developed to reduce flood damages, protect vital urban infrastructure, and restore damaged urban channels.

FY03 accomplishments of the Flood and Coastal Storm Damage Reduction Program include:

- Released HEC-HMS Version 2.2.2 with applications guide and HEC-ResSim Version 2.0, a reservoir operation simulator
- Expanded features in HEC-GeoHMS and HEC-GeoRAS, by adding digital dozer and grid utilities
- Released 'alpha' version of HEC-FDA, Flood Damage Assessment tool.
- Grade control structure analyses at (a) Burney Branch, MS, (b) Blue Creek, IL, (c) Brush Creek, KN, (d) Blue River, CO, (e) Hotopha Creek, MS, (f) Little Snake River, CO, (g) South Fork Little Snake River, Co, (h) Middle Ford Worsham Creek, MS, and (i) Perry Creek, MS
- Numerical model SIAM validated for grade control siting
- Developed and tested method of combined ice and open-water stage frequency, and accepted by FEMA
- Designed and tested new ice motion detector, and tested new ice jam stage alarms
- Fully integrated the DSPM snowmelt modeling capability in HEC-HMS Version 3.0
- Improved GUI for SNOW to include expanded spatial modeling capabilities, and made it compatible with other USACE models (e.g., HMS, XMS, etc.)
- Successfully tested Electro-expulsion de-icing panel successful Starved Rock Lock
- CRREL and Bridgestone USA developed a new inflatable de-icer design
- Updated Engineering Manuals
- Published Technical Reports, Technical Notes, Conference Papers, and refereed Journal Articles

Technologies and Operational Innovations for Urban Watershed Networks (TOWNS) Program. The largest population growth areas in the United States are urban areas, particularly those near the coastlines and along rivers. More than 54 percent of the US population lives within 50 miles of a coast. Over the years, stream systems in the United States have been significantly altered by natural events and human activities. The construction of dams, levees, diversion structures, and the straightening, widening, deepening, and clearing of channel systems have been typical techniques for improving channel systems for a variety of purposes that include flood control, navigation, water supply, sediment management, irrigation, recreation, hydropower, mining, and fish and wildlife habitat improvement. Urbanization patterns in our nation's watersheds have also affected their hydrology, changing flood characteristics such as peak stage and time to peak. The cumulative impacts of these types of activities, combined with watershed changes such as deforestation, have significantly disrupted the dynamic equilibrium of stream systems and the ecosystems of which they are a part. To achieve effective flood damage reduction in urbanized inland and coastal areas, innovative planning, design, operation and maintenance, construction, and emergency response methods are required to provide adequate protection for current and projected growth.

The objectives of the TOWNS research program are to develop an improved understanding of urban flooding processes, both coastal and inland, and to apply this knowledge to the development of innovative and improved methods for the planning, design, construction, maintenance, operation, and monitoring of urban flood damage reduction projects to maximize benefits in a manner that is morphologically, environmentally, socially, and economically sustainable.

Three broad focus areas are identified within this strategic plan: (a) Urban Flood Damage Decision Support; (b) Sustainable Urban Flood Damage Reduction; and (c) Expedient Emergency Measures. Each of these basic research areas is divided further into individual subtasks. The topic areas and their subtasks are all interrelated and will be integrated through effective technology transfer to provide the tools necessary to meet the objectives of the TOWNS program. A web portal system for communication with field personnel was designed and implemented.

FY03 accomplishments of the TOWNS program include:

- Completed a geospatially-based analytical tool for the prediction of piping and seepage, as well as a workshop with the Corps Committee on Piping and Seepage to identify critical research area needs.

- Conducted second workshop to discuss identification of, and remedial approaches to, beach renourishment project hot spots. This workshop had 29 participants from Atlantic, Gulf of Mexico, Great Lakes, and Pacific coastal Districts, Divisions, HQ, and ERDC. The group discussed field experience related to project vulnerabilities from hot spots, and nine Districts presented 20 case studies. The workshop was summarized in a Technical Note that provides information on suspected causes and remedial approaches to erosion hot spots along with engineering guidance and analysis procedures.

- Defined the numerical modeling requirements and procedures necessary to develop a Shore Response Database (SRD) required by the CE-Shore Monte Carlo simulation model for economic evaluation of Storm Damage Reduction Project.

- Nonstructural flood damage reduction methods were addressed through the development of a design document for upgrades to HEC-FDA. Implementation was begun.

- As part of the integrated urban decision support system, a prototype for calculating damage with flood inundation boundary maps was developed, and integration in HEC-FIA has begun. A web-based reporting system was demonstrated for direct input of HEC-RAS inundation maps, and HEC-FIA damage and impact tables and coverages, into EngLink.

- The initial integrated messaging system among the levee warning system, (CWMS and EngLink) was implemented.

- A preliminary inland coincident frequency analysis method considering correlated frequencies was developed for use in risk and uncertainty analyses.

- In other modeling improvements, the SIAM model developed under RSM was modified for implementation in HEC-RAS. The user interface to enter all data for SIAM was completed, and SIAM was joined to HEC-RAS so that annual sediment budget computations can now be performed from within HEC-RAS. Several graphics and tables for showing SIAM output were developed.

- Progress on the evaluation of innovative structures for raising levee height was made on several fronts. A test protocol was developed for laboratory testing of methods and technologies. The laboratory facility was completed and tested, and all data collection programming was re-written and improved. A new system for tracking seepage flow was developed and implemented. The database of innovative flood-fighting technologies was updated and improved. A draft report on sandbag testing was completed.

- Developed initial user interface, image annotation, and real-time projection capabilities for the expedient documentation system.

- Constructed and tested a towed rapid geophysical survey system (RaGSS) with single frequency electromagnetic induction (EMI), multi-frequency EMI, total field magnetometer (TFM), capacitively-coupled resistivity, and DC resistivity, on a homogenous levee.

Environmental Technologies Research Area

The Corps operates and maintains 25,000 miles of inland and coastal navigation waterways, 562 reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, 879 flood control projects, and thousands of acres of adjacent lands as part of its water resource mission. Wide-ranging environmental stewardship is an integral part of Corps water resource management. Moreover, recent U.S. figures have estimated $16 billion per year in damages caused by point- and non-point-source pollution and up to 1 billion tons per year of eroded soils and industrial and agricultural contaminants deposited in the Nation's waterways. Over 12,000 miles of streams and rivers are directly impacted by acid mine drainage from an estimated 200,000-500,000 abandoned mines. These impacts are severely affecting multiple project uses, impeding navigation, and negatively affecting human and ecological health. A critical part of the Corps mission is to ensure that project planning, construction, operation, and maintenance activities address critical environmental problems and incorporate environmental stewardship and sustainability considerations, while ensuring economic viability.

The Environmental Technologies Research Area addresses the highest priority technical problems with state-of-the-science, cost-effective technologies for managing natural resources at Corps projects including: the development of system-wide modeling, assessment, and restoration technologies; ecosystem management and restoration; wetlands functional values; habitat management techniques for biota, including threatened and endangered species; assessment and management of water quality problems; and the identification, assessment, and management of contaminated sediments. This Area is providing scientifically proven and demonstrated economical solutions to the Corps' highest priority environmental problems, reducing unnecessary regulatory burdens, and providing environmental stewardship with a very high return on taxpayer investment.

Environmental Modeling and System-wide Assessment Center (EMSAC). ERDC's Coastal and Hydraulics, Environmental, and Information Technology Laboratories partnered to create the Environmental Modeling and System-wide Assessment Center (EMSAC). EMSAC is chartered to develop and apply tools for managing impacts in complex environmental systems across multiple media and over broad spatial scales. EMSAC advances system-wide applications of predictive environmental modeling, assessment, and management tools for the Corps of Engineers, the Army, Department of Defense, and the Nation in the following four focus areas:

- Technically complex environmental research and development integrating hydrodynamics, hydrology, ecology, and related disciplines.
- Effective applications of technology, modeling and informatics for alternatives analysis and decision-making.
- Comprehensive environmental management systems that integrate products from R&D Programs into significant studies.
- Broad national research and development needs to achieve environmental sustainability.

Meeting the technology needs of the Corps requires capability in areas such as watershed and basin modeling, ecosystem modeling coupled with expanding investigations such as groundwater modeling and surface water – groundwater flow and transport, require ever-increasing levels of technical interaction and teaming between ERDC laboratories. EMSAC relies on a matrix of ERDC elements to form technical teams of engineers and scientists to solve complex, system-level environmental problems. Additionally, EMSAC will team with sister Federal agencies, different levels of government, academic institutions, the private sector, and stakeholders, as necessary, to execute studies in the fully partnered context typically required of large studies. Through EMSAC, the ERDC is able to achieve the level of enhanced coordination required to address national challenges in sustainable development.

Aquatic Nuisance Species Research Program (ANSRP). Aquatic nuisance species (ANS) are serious threats decreasing biodiversity, impacting human health, and imposing enormous costs on eradication and management efforts. Increased trade, tourism, transport, and travel have enhanced the introduction and spread of invasive aquatic species allowing them to easily move beyond natural geographic barriers and inhabit new sites. By altering species diversity, hydrology, nutrient cycling, and other ecosystem processes, ANS can change whole ecosystems and irreparably damage natural resource industries. Aquatic nuisance species are of concern for Corps of Engineers missions and seriously impact maintenance of harbors, waterways, locks and dams, flood control, and ecosystem restoration efforts. The Aquatic Nuisance Species Research Program

(ANSRP) benefits Corps projects by minimizing adverse impacts and maximizing control opportunities with respect to invasive aquatic nuisance species.

The major objective of the ANSRP is to conduct interdisciplinary research on the prevention, control, and management of ANS that impact Corps projects and public facilities. Significant accomplishments in FY03 included:

- Development of management technologies that prohibit the establishment of zebra mussels in confined systems.
- Investigation of innovative large-scale barrier technologies to inhibit the spread of ANS.
- Examination of the potential for zebra mussel predation by fishes.
- Testing of a passive low-velocity filtration strainer for use in excluding zebra mussel larvae from water intake systems.
- Distribution of over 10,000 copies of the computer-based "Zebra Mussel Information System – ZMIS" and dissemination of key ANS profiles that include information on management technologies for use by operational personnel.

SMART Program. The System-wide Modeling, Assessment, and Restoration Technologies (SMART) Program embodies a holistic approach to providing tools and technologies to the Corps and its partners for system-wide assessment, management, and restoration of water resources related ecosystems. The program crosses all business areas in the CE. This program is fundamental to meeting Corps objectives of sustainability and the seven Environmental Operating Principles:

- Principle 1. SMART provides enhanced tools for decision-making that allows evaluation of operation, management, and restoration alternatives with balanced considerations for effects on associated environmental, social, and economic assets of the affected system over multiple scales.
- Principle 2. A major effort in SMART is to link hydrodynamic/physical models to ecological/biological (including social) models to allow for balanced analysis of alternatives.
- Principle 3. The use of stakeholder input from planning to implementation, guidance from IWR/HQ policy studies, and effective communication with other agencies and NGOs throughout the development of SMART tools and applications provides tools agreed to and accepted by consensus.
- Principle 4. Applications with SMART tools takes into account corporate responsibility/accountability from the onset and contains opportunities for evaluating the continued viability of natural systems. Implementing a Product Life Cycle plan to monitor milestones, products, and applications provides a system of metrics to evaluate product development and use.
- Principle 5. SMART is designed to allow system-wide assessments that deal with issues of multiple scales and multiple projects within a system (including projects built/operated by others). EPA has already recognized the value of this approach for assessing and mitigating for cumulative impacts and the approach in SMART is parallel to their outlined method for cumulative impact assessment and adds a means for quantification.
- Principle 6. SMART was developed using an integrated, multidisciplinary approach providing access to the primary knowledge bases within the Corps. SMART tempers development with practical input from MSCs and districts, and incorporates the knowledge and expertise in other agencies and organizations to provide increased understanding of our work.
- Principle 7. SMART applications incorporate this philosophy from the beginning of process research, through the development of tools and technologies, and throughout the implementation and infusion of developed products including effective technology transfer to end-users with appropriate training.

FY03 accomplishments included:

- Identified information gaps, interagency coordination needs, input from the MSC's and districts, and the initiation of collaborative efforts with MSC's and their sponsors for the development of prototype system-wide applications.
- Developed an iterative process to provide feedback from end-users (i.e., MSC's and districts) and between the research focus areas and related R&D Programs.
- Linked a lumped-parameter watershed model (HSPF) that is currently used extensively in

establishing TMDLs, to a very powerful, two-dimensional water quality model (CE-QUAL-W2) to allow assessing responses in receiving water bodies associated with changes in watershed land uses.

- Refined process-based information that is critical to the development of the next generation of watershed models (e.g., distributed models such as GSSHA).

- Prepared various guidance documents for tool implementation. These documents describe methods for developing conceptual models for system-wide assessments, state of the art for ecological modeling, and details for specific numerical model applications for watershed assessments.

Environmental Technologies Program. The Corps has many small and large-scale water resource development projects that include ecosystem restoration and enhancement opportunities authorized under WRDA Sections 1135 & 206 and other specific GI authorities. The broad scope of these environmental projects, in addition to changing legislative mandates, requires sound science-based research and development (R&D) to provide new and expanding technologies that reduce costs and provide fully functional / environmentally sustainable projects.

Environmental technologies R&D efforts are in direct support of the Corps' Environmental Operating Principles. Potential ROI through application of these tools/guidance is conservatively estimated at 100:1 based on the large costs often associated with Corps water resource projects. Leveraging R&D dollars through cooperative agreements with other Federal, state, local agencies and stakeholders ensures continued access to cutting-edge technology with savings to the taxpayer.

The objective of the Environmental Technologies Program is to provide rapid, cost-effective technologies that support the Corps' Environmental Business Program and its associated performance measures. This quick-response R&D program is directed at developing project-level/user-oriented engineering, design, and planning guidance for ecosystem restoration and environmental stewardship activities, but it also provides critical components for the development of larger-scale watershed modeling capabilities. Current research focus areas include:

- Stream and riparian restoration.
- Aquatic habitat evaluation.
- Wetlands and special aquatic site restoration.
- Ecological effects of dam removal.

Products provide cost-effective, science-based solutions to address Corps performance measures as well as the R&D needs of other Federal, state, local agencies, and stakeholders. These products give "how-to's" for low-cost / innovative techniques that reduce overall manpower requirements and improve environmental performance / sustainability - without compromising other project objectives. They also advance the Corps' environmental leadership role and promote multi-agency approval of Corps-developed techniques. FY03 products include:

- A handbook of tools and techniques for ecological restoration and management of urban streams.

- A guidance document for reestablishing riparian hardwood ecosystems in arid and semi-arid regions.

- Design guidance/models for constructing small floodplain pools as habitat for fishes and amphibians.

- Community index templates for assessing terrestrial, coastal, and aquatic ecosystem functions.

- A review of approaches to coastal wetland restoration in Northern Gulf of Mexico.

- Hydrogeomorphic (HGM) functional assessment guidebooks for:
  - Tidal Fringe Wetlands of Gulf of Mexico.
  - Intermontaine Prairie Potholes of Northern Rocky Mountains.
  - Wet Pine Flats of Gulf Coast Plains.
  - Flats Wetlands of Everglades.
  - Riverine Wetlands of Western Tennessee.
  - Riverline Floodplains of Northern Rocky Mountains.
  - Riverine Wetlands of Peninsular Florida.

Long-term Effects of Dredging Operations (LEDO) Program. The LEDO Program has supported dredging and contaminated sediments programs involving the Corps water resources development mission, as well as cleanup and restoration activities for about 20 years. The LEDO Program was terminated at the end of FY03 due to GI program funding constraints. The effects of high-profile, new toxic substances and pathogen microbes in contaminated sediments are not well-known.

Identification, assessment, and interpretive techniques are underdeveloped. Environmental, legislative, and public interest groups' concerns are intense and result in a plethora of laws, regulations, and litigation to address their concerns. Disposal management includes aquatic, wetland, and upland disposal alternatives and addresses environmentally important classes of toxic substances associated with these sediments and their acute, chronic, and sublethal tools and procedures to quantify the effects and exposure components of the risk and support implementation of the CE/EPA Technical Framework, associated manuals, and legal requirements. Restoration needs are addressed through WRDA, Superfund, and Congressional initiatives. LEDO objectives were to:

- Provide a cost-effective, yet environmentally sound, risk-based approach (including effects assessment, exposure assessment, risk characterization, and risk management) to managing sediments contaminated with high-profile toxics and microbial pathogens. This will allow the Corps to meet its dredging and environmental constraints in a cost-effective manner.
- Support environmentally sustainable restoration.
- Reduce or eliminate unnecessary constraints.

The LEDO Program work units encompass ecological and human health effects in three environmental impact areas: aquatic, wetlands, and upland management. Current research emphasizes development and/or refinement of risk-based procedures for effects and exposure assessment (chronic/sublethal/genotoxicity), exposure assessment (bioaccumulation, geochemistry, volatiles, pathogenic microbes, surface runoff), and risk characterization (interpretative guidance).

Major accomplishments for FY03 included technical notes and journal articles on the following subjects:

- PAH and Heavy Metal Extraction with Artificial Invertebrate Gut Fluids.
- Using Geosensors to Screen for Toxic Effect of Contaminated Sediments on Population of Marine/Estuarine Organisms.
- Using a Toxicological Challenge Protocol to Assess PCB Bioaccumulation by Aquatic Organisms.
- Bioavailability and Thermal Release Energy of Hydrophobic Organic Compounds in Contaminated Sediments.
- Toxicity of Contaminated Sediment Extractable Fractions in Relation to Bioassay Response.
- Assessment of the Origin of Human Health Pathogens Found in Contaminated Sediments Through DNA Analyses.

Geospatial Technologies Area

The Geospatial Technology Area comprises Survey and Mapping, Remote Sensing, and Geographic Information Systems (GIS) and a Common Delivery Framework. Activities in this area focus on geospatial data collection, management, analysis, and exploitation techniques for information tied to the earth's surface and subsurface. To reduce costs for developing and applying science and engineering technologies, a new framework approach for managing software guidance, capabilities, and resources for model/application developers in a consistent, corporate context is being developed. Typical data types include bathymetric and topographic survey, digital elevation models, dredge cuts, placement sites, sub-bottom compositions, soil types, wetlands, land cover, endangered species and their habitat, stream and tide gages, cross sections, training structures, levees, dam deformation, HTRW sites, permits, piezometers, archeological sites, snow water content, Corps projects, relief wells, damage from disasters, recovery activities, mission status, etc.

Data may be collected for and analyzed for projects at specific sites or as part of systems: from sub-basins to large river systems, from individual beaches to large coastal segments. Other objectives of this Area include automated presentation capability, improved QA/QC, improved data retention and longer data life, reduced re-collection costs, increased data sharing, and improved, more defensible decision making. These efforts support decision makers in all Corps business areas: navigation, flood control, hydropower, regulatory, environmental, emergency management, recreation, water supply, and work for others. Each business area requires accurate and reliable geospatial data for effective project planning, design, construction, operation, maintenance, and rehabilitation. Annual expenditures for these data average $200M, thus significant savings from more effective and efficient data collection and management technologies, data analysis, and data exploitation will be realized.

Remote Sensing and Geographic Information Systems Center (RS/GISC). The RS/GISC is the Corps' Center of Expertise for Civil Works remote

sensing and GIS and is the principal catalyst for the evolution and application of emerging remote sensing and geographic information systems technologies in execution of the Corps' Civil Works planning, engineering, operations, and maintenance activities. As the Corps' "One door" to ERDC geospatial capabilities, the Center provides cost-effective technology transfer and applications development in support of Corps mission responsibilities in all business areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environment, emergency management, recreation, water supply, and work for others. Continuing interaction with other researchers and practitioners throughout the Corps, government, the private sector, and academia assures knowledge of evolving trends that are important for the Corps and that duplication of effort is avoided.

The RS/GISC manages the Corps' geospatial research and development program, remote sensing and GIS research and development programs, and the HQUSACE Enterprise GIS (CorpsMap). The Center provides emergency management RS/GIS support, supports RS/GIS activities in the Corps' Water Control Data System (WCDS) Software Modernization Program, GIS support for the national management of Formerly Used Defense Sites (FUDS) cleanup, GIS Support for emergency operations command and control system (EngLink); GIS and remote sensing assistance in the delineation and mapping of wetlands. The RS/GISC also acts as the principal technology assistance hub for new applications of RS/GIS technologies for the Corps district offices across the nation.

Geospatial Technologies Research Program. Based in the RS/GIS Center, Remote Sensing and Geographic Information Systems research programs support the Army's civil works mission by improving methods for acquisition, image processing, and development; management; and analysis of geospatial data. An enterprise approach to corporate geospatial data and the integration of all geospatial data (data from GIS, RS, survey and mapping, and CADD), and the development of applications meeting the needs of Corps civil works business areas are critical focus areas.

The Remote Sensing/GIS Center executed over 100 distinct research, development, and technology transfer programs during FY03. Significant accomplishments include:

- Serving as the key resource and technology point of contact for the US Army Corps of Engineers for Civil Works remote sensing and GIS; acquired and distributed enterprise geospatial data to all Corps entities and evaluated Corps geospatial data requirements.

- Continued technology transfer through training courses, briefings, technical papers, technical demonstrations, pilot programs, and conferences

- Evaluating Corps geospatial data requirements with Corps headquarters; providing the venue for and teaching eight Corps PROSPECT GIS training courses for over 200 students each year and developing and teaching a PROSPECT remote sensing course.

- Provided State-of-the-art remote sensing, image processing, and geospatial data systems support to the Corps' Civil Works Program through management of the remote sensing and GIS R&D programs.

- Support was also provided to Corps' district offices for the development of implementation plans for geospatial data management, including development of enterprise geospatial data approaches.

- Maintained a 2-terabyte library of geospatial data available for all Corps business practice applications and reviewed work in all Corps civil works research and development programs to assure non-duplication of geospatial efforts.

- Participated in development of Future Operating Capabilities and a redefined strategic approach to Civil Works R&D.

- Sponsored and participated in program development of national and international remote sensing and GIS conferences, expanding the capability of Corps-wide GIS viewers for common data.

- Developed and transferred improved techniques for the integration of snowmelt into water control activities.

- Conducted analyses of ordinary high water mark indicators and flood volume-duration-frequency in the southwestern United States.

- Developed advanced satellite-tracking hardware and software for sensitive cargo.

- Revised the USACE Manual of Remote Sensing.
- Released a publicly accessible GIS for Formerly Used Defense Sites.
- Supported the Army Civil-Military Emergency Planning program in Georgia, Armenia, and Azerbaijan.
- Developed the Iraq reconstruction tracking system; a web based geospatial information system for monitoring and managing reconstruction activities in Iraq.
- Revised coordinate conversion routines to enable accurate geoid conversions between GPS derived ellipsoid heights and ground elevations.
- Continued development of Long Range Real-Time High Accuracy 3-D positioning from Nationwide Differential GPS sites, through partnership with Federal Highway Administration and U.S. Coast Guard to establish and operate test sites.
- Collaborated with industry to develop new software capabilities that would allow the exchange of Corps map data layers, vector features, and imagery for display on any map browser. National data from other government agencies can also be used with this capability.
- Published an open standard for LIDAR data for standardized data storage and archiving, and better data interchange, which will lead to robust off-the-shelf commercial capability to enhance the use and re-use of existing LIDAR data for future Civil Works projects.

Common Delivery Framework. The Common Delivery Framework (CDF) is an ongoing research and development (R&D) initiative that focuses on improving reuse and integration of science and engineering (S&E) tools, models, and data. The CDF defines the guidance, standards, and conventions as well as the sharable functionality through common software libraries and Web services needed to improve how technology is delivered and inserted.

USACE developers, contractors, and partners use the Web accessible library of software resources and technical guidance provided in the CDF to develop specific S&E applications and suites of applications. The CDF provides the operational platform to achieve cost reductions and improved customer service through integration of technical approaches, managed reuse of component capabilities, and interoperability of data and tools. The objectives of the CDF are to:

- Develop a framework that meets USACE S&E objectives.
- Ensure the security, integrity, and availability of S&E functionality and information.
- Provide guidance to support the exploitation of the CDF.
- Cultivate coordination and collaboration within USACE programs.
- Support life-cycle management of USACE S&E information and technologies.
- Provide a common technology baseline.
- Provide common access to both internal and external data sources.
- Provide a common information/functionality baseline.
- Enable sharing of technology and products across research or program areas.

CDF products to date include:

- CDF Web Services. Provide programmatic access to functionality and information
- CDF Technical Notes. Technical guidance documentation that describes “how to” develop and consume CDF services, set up a CDF development environment, etc.
- CDF Web Service Registry. Provides a searchable Web-accessible catalog of all services contained within the CDF, metadata describing how to use the service, and guidance for developing and registering new Web services.
- S&E Data Browser provides access to common layer model data, via the DataNet, for a specified geographic area based on the Information Architecture.
- S&E DataNet. Provides a Web-centric framework for acquiring, managing, and sharing S&E data.
- XMDF Technical Reference Document. Provides technical implementation details for software developers as well as background information, motivation, and an overview of the eXtensible Model Data Format.
- EasyHPC. Web-based client application that provides easy, secure access to high performance computing platforms.
- Content Services. Repositories of S&E information available via the Web, designed to improve locating, sharing, delivery, and reuse of S&E information

- On-Line Knowledge Centers. Web portals that consist of reusable components that deliver content (information) and serve as gateways to computational and data resources.

FY03 Accomplishments

- Developed CDF Web Service Registry accessible via the CDF portal.

- Developed CDF Web Services to deliver the following sources of data for programmatic consumption by S&E models and/or decision support tools:
    - USGS National Elevation data
    - USGS Landuse/Landcover data
    - USGS stream flow data
    - NOAA estuarine bathymetry
    - USACE National Inventory of Dams
    - USDA STATSGO (soils)
    - CWMS realtime gage data
    - CWMS dss data
    - METAR current surface condition data

- Developed beta version of the S&E Data Browser tool to provide access to common layer model data via the CDF Web Services

- Extended CDF security services to include AKO as an authentication source and user profiles as an authorization vehicle.

- Developed eXtensible Model Data Format (XMDF) Technical Reference Document and Version 1 of the XMDF

- Prepared technical notes for the following topics:
    - Service for User Authentication
    - Service for Content Publishing and Retrieval
    - Embedding the CDF .NET Database Connectivity Libraries in Code to Create a Database Web Service
    - Understanding the NED Data Service: How to Retrieve USGS NED Data Using SOAP Attachments with .NET and Java-AXIS
    - User Profiling Implementation within the Common Delivery Framework
    - An E-Mail Service for Use in Automated Systems
    - Using SOAP with Attachments in .NET and Apache Axis

- Established Web Farm as the operational platform for CDF

Other Research Areas

Aquatic Plant Control Research Program (APCRP). The APCRP is the Nation's only federally authorized research program providing the technology to manage invasive aquatic plant species. The objective of the program is to develop cost-effective, environmentally compatible aquatic plant management technologies, which address national needs and priorities in water resources management. Research is conducted on the biology, ecology, and management of invasive aquatic plants and on developing biological, chemical, ecological, and integrated control methods. The APCRP provides water resources managers with the tools needed to restore aquatic ecosystems to achieve sustainable benefits provided by a healthy and diverse aquatic plant community dominated by native aquatic plant species. Annual cost savings resulting from application of APCRP research results nationwide are estimated at $30 to $40 million.

APCRP accomplishments for FY03 include:

- Development, in cooperation with industry, of the first microbial formulation for cost-effective control of hydrilla.

- Obtained national labels for two new aquatic herbicides (triclopyr and imazapyr).

- Developed new mass-rearing techniques for insect biocontrol agents of hydrilla.

- Produced an endothall herbicide polymer formulation that has significantly reduced human health hazards.

- Continuing technology transfer of research results using innovative traditional and non-traditional mechanisms, including the dissemination of over 10,000 copies of the computer-based "Aquatic Plant Information System - APIS."

Dredging Operations and Environmental Research (DOER) Program. The DOER Program is an extremely important effort that combines engineering, operational, and environmental components of waterways management to address issues impacting our ability to maintain a safe, reliable, environmentally sustainable, and

economically efficient navigation system. The program has validated the nearshore placement of mixed-grain sediments that, coupled with the recently developed knowledge of chronic turbidity on fishery resources, will allow for environmentally acceptable aquatic disposal of dredged material at minimal cost and positive impacts.

Using DOER research results and in conjunction with the National Research Council, guidance was prepared to help lessen the negative impacts of environmental windows (seasonal restrictions) through a thorough knowledge of various impact categories and use of operational guidelines. Guidance is being developed to fully assess bioremediation, solids separation, and phytoreclamation of contaminated dredged material in traditional confined disposal facilities for beneficial reuse of the material. A PC-based human health and ecological risk assessment program was completed that provides a quick and accurate decision support tool for evaluating dredged material disposal and management alternatives. Innovative dredging and placement technology and operations and management techniques that will reduce cost, take less time, and are environmentally friendly (e.g., silt wing, super dust pan dredges, and telescoping weirs) are being demonstrated at typical navigation projects. The DOER Program won first place in the USACE National Product Delivery Team award in 2001.

Accomplishments for FY03 included continuing research in the following four programmatic areas to address the navigation dredging and environmental protection mission:

- Dredged material to include development and validation of numerical models, software tools, and guidance documents to assess efficient, environmentally sound, and cost-effective methods for dredging, handling, transport, and placement of dredged material.
- Risk to include contaminated sediment characterization, management, and treatment (reduce costs, increase options) and environmental risk assessment and management for dredged sediments (factors economics, engineering, human health, and ecological and comparative risk).
- Environmental resource protection to include nearshore/aquatic placement of dredged material (in coastal, estuarine, and river waters) and environmental windows for dredging operations (assure environmental sensitivity as well as realistic controls based on facts).
- Innovative technologies to include cost-effective application of innovative technologies (includes contracting and other dredging activities).

DOER accomplishments for FY03 also included the following:

- Developed guidelines for environmentally acceptable methods of aquatic placement of mixed (fine and coarse grained) sediments, along with a database of dredged material geotechnical properties that can be used for modeling and related design. Released improved models for predicting sediment resuspension at different types of dredges.

- Conducted research on field validation of chronic/sublethal testing, CDF effluent treatment, manufactured soil, biomarker analyses, runoff test, environmental effects in CDF's, and biomarker analyses.

- Continued environmental windows research with an emphasis on collaborative interagency studies of physical monitoring of suspended and settled sediments and associated effects on sensitive biota in support of science-based determination of windows for effective protection while maintaining necessary navigation in an economically efficient manner.

- Completed risk assessment PC-based decision support tools for all environments for rapid automated field use and completed theoretical bioaccumulation potential uncertainty analyses.

- Pursued innovative (off-the-shelf) technologies that can be applied to Corps navigation projects. Alternatives to traditional dredging were evaluated to determine the feasibility of extending periods between required channel maintenance. High priorities were innovative dredging and placement equipment, operations, and management techniques to reduce costs, take less time, and are environmentally friendly.

- Initiated instrumentation research on developing improved sensors to measure dredged material loads removed by hopper dredges, and silent inspection for scows and barges.

Recreation Management Support Program (RSMP). The RMSP conducts research and provides related technical assistance in support of the Civil Works Recreation Business Area. The program is

divided into three major elements: management studies, management assistance, and information exchange. The following RMSP major activities occurred in FY03:

- The knowledge management Website (the NRM Gateway) www.CorpsLakes.us that was deployed in April of 2001 has now received more than 5 million hits, 2.9 million alone in FY03. This site provides Corps natural resource managers with over 25,000 pages of information.

- Recreation trends affecting the Corps' recreation program were monitored. Results were integrated into a Corps recreation program strategic plan.

- A process to define national goals for the Corps' recreation program was facilitated in collaboration with the Recreation Leadership Advisory Team.

- Customer satisfaction recreation visitors to Corps lakes were monitored as a part of the American Customer Satisfaction Index.
- National trends in recreation activity participation were monitored under a collaborative project organized by the American Recreation Coalition.
- Technical assistance was provided to field staff on the use of the Visitation Estimation and Reporting System and Automated Use Permit System.

Aquatic Nuisance Species Research Program (ANSRP). Aquatic nuisance species (ANS) are serious threats decreasing biodiversity, impacting human health, and imposing enormous costs on eradication and management efforts. Increased trade, tourism, transport, and travel have enhanced the introduction and spread of invasive aquatic species allowing them to easily move beyond natural geographic barriers and inhabit new sites. By altering species diversity, hydrology, nutrient cycling, and other ecosystem processes, ANS can change whole ecosystems and irreparably damage natural resource industries. Aquatic nuisance species are of concern for Corps of Engineers missions and seriously impact maintenance of harbors, waterways, locks and dams, flood control, and ecosystem restoration efforts. The Aquatic Nuisance Species Research Program (ANSRP) benefits Corps projects by minimizing adverse impacts and maximizing control opportunities with respect to invasive aquatic nuisance species.

The major objective of the ANSRP is to conduct interdisciplinary research on the prevention, control, and management of ANS that impact Corps projects and public facilities. Significant accomplishments in FY03 included:

- Development of management technologies that prohibit the establishment of zebra mussels in confined systems.

- Investigation of innovative large-scale barrier technologies to inhibit the spread of ANS.

- Examination of the potential for zebra mussel predation by fishes.

- Testing of a passive low-velocity filtration strainer for use in excluding zebra mussel larvae from water intake systems.

- Distribution of over 10,000 copies of the computer-based "Zebra Mussel Information System – ZMIS" and dissemination of key ANS profiles that include information on management technologies for use by operational personnel.

Water Operations Technical Support (WOTS) Program. The WOTS Program provides comprehensive and interdisciplinary technology transfer and technology application to all Corps water resource projects. WOTS is managed to maximize cost-effectiveness and ensure broad dissemination and implementation of technology and information. The program provides effective environmental and water quality engineering technology to address a wide range of water resource management problems at Corps reservoir and waterway projects, and in the river systems affected by project operations nationwide. In addition, WOTS provides technology to address problems occurring from the presence of zebra mussels and other non-indigenous aquatic species, tail-water fisheries at pump-back hydropower projects, water quality impacts of shoreline erosion control and reservoir sedimentation, and other project operations related to environmental and water quality issues.

Since its inception, the WOTS Program has successfully responded to over 1,200 requests for direct technical assistance and over 2,000 one-stop service requests from all Corps districts throughout the Nation. These requests have significantly improved water resources uses, benefits, and operations. The program annually publishes numerous copies of manuals, bulletins, notes, and reports. WOTS

annually conducts specialty workshops, training personnel on the latest environmental and water quality management techniques. WOTS continually endeavors to coordinate with water quality elements of other Federal agencies such as the Environmental Protection Agency, Tennessee Valley Authority, Bureau of Reclamation, Fish and Wildlife Service, and the Bonneville Power Administration. These efforts have involved watershed management activities, problems on the spread of zebra mussels, the impacts of hydropower facilities, and cold water releases. In FY03, the WOTS program conducted eight technology demonstration efforts to verify management strategies and techniques, five training workshops on environmental and water quality management techniques, and prepared ten technical publications for distribution to the field.

Dredging Operations Technical Support (DOTS) Program. The DOTS Program fosters a "one-door-to-the-Corps" concept by providing comprehensive and interdisciplinary technology transfer, technology application, and training opportunities in a number of formats for all stakeholders in the Corps' navigation mission. DOTS serves as both an archive for, and gateway to Corps technology; for example, through Web-based information databases. The program's major objective is to maximize access to existing and newly developed technology in as cost-efficient a manner as possible. The program also fulfills many requirements associated with consistent implementation of National policies and laws.

DOTS has adopted a strong emphasis on optimized accessibility through Internet tools and resources, and the program's Website receives thousands of visits from navigation stakeholders on a monthly basis. The DOTS-sponsored navigation outreach site has become the most heavily visited of all Corps websites. The DOTS Program serves as a storehouse of information on state-of-the-art technologies, relevant applications, and completed and ongoing research addressing problems identified by field offices. Emerging engineering and environmental issues sometimes cause uncertainty in administration of the Corps' navigation dredging program.

To satisfy an important need for up-to-date technological solutions, DOTS provides a ready response mechanism, including necessary training for Corps personnel and other government and public stakeholders. Short-term work efforts to solve generic Corps-wide technical problems for maintaining navigable waterways are major features of the DOTS Program. Transfer of new and emerging technologies for application at Corps and stakeholder navigation maintenance projects is an important DOTS activity. In response to ever-expanding, complex research thrusts, and continuing personnel turnover, the DOTS Program will continue to seek improved and innovative forms of technology transfer.

DOTS emphasizes transfer of technology developed by the Corps, but also establishes links to proven technology of international origin, with particular reference to maintenance and management of navigation structures and navigable waterways. Typical technology transfer and training includes management of contaminated dredged material, application of innovative risk-based technologies to contaminated dredged material, maintenance of coastal inlets and adjacent shorelines, shoreline stabilization and river training activities, assessment and management protocols for beneficial uses of dredged material, channel realignments, protection of endangered species, equipment selection, science-based application of dredging environmental windows, lock and dam maintenance needs, channel and harbor maintenance activities, and ship simulation activities.

A key feature of the program is effective, annual workshops and seminar forums for training of Corps staff, navigation stakeholders, and others who have regulatory authority over Corps navigation maintenance activities on the latest environmental and engineering techniques. The program also supports joint USACE and USEPA activities dealing with environmental aspects of the national navigation program.

FY03 accomplishments include:

- Transfer of technology dealing with maintenance and management of navigation structures and navigable waterways, including the following specific topics:
  - Management of contaminated dredged material.
  - Application of innovative risk-based technologies to contaminated dredged material.
  - Maintenance of coastal inlets and adjacent shorelines.
  - Shoreline stabilization and river training activities.
  - Assessment and management protocols for beneficial uses of dredged material.
  - Channel realignments.
  - Protection of endangered species.

- Equipment selection.
- Rational application of dredged windows.
- Lock and dam maintenance needs.
- Channel and harbor maintenance activities.
- Ship simulation activities.

- Training of Corps staff and others having regulatory authority over Corps navigation maintenance activities.

- Development and preparation of manuals with EPA that implement the inland and ocean disposal programs.

- Completion of short-term work efforts to address generic, Corps-wide technical dredging and dredged material management problems, as well as other technical problems at navigation projects.

CUSTOMER SUPPORT

Increasingly, ERDC expertise and products developed in R&D programs are being requested to solve challenges in critical areas of concern.

Examples of Customer Support:

Cleanup Efforts at Lake Washington. Lake Washington is a large lake that drains a heavily urbanized watershed including Seattle Washington. The lake has been undergoing clean-up efforts for decades and is a major success story in terms of eutrophication abatement via nutrient load reduction. ERDC is furthering the clean-up effort through application of the combined CH3-D, CE-QUAL-ICM hydrodynamic/eutrophication model package. To our knowledge, this is the first application of a combination of three-dimensional hydrodynamics, eutrophication kinetics, and sediment diagenesis models to a lake. This technology has been often applied to estuaries but never to a large, freshwater system. The application provides numerous challenges, especially with regard to transfer of the estuarine hydrodynamic model to a lake.

ERDC also provided the framework for a toxics model of the system. Basic kinetics for an organic toxicant and an inorganic toxicant are being added to the model. A training workshop was held at which ERDC scientists and engineers instructed the sponsor and interested parties on the application of the modeling package. The sponsor will apply Corps' models to two adjacent lakes, Lake Sammamish and Lake Union. The completed model provides the sponsor with state-of-the-art capability to manage the three-lake drainage system.

Investigation of Chemical Contaminants for Aberdeen Proving Grounds. ERDC team members from the Environmental and Coastal and Hydraulics Laboratory investigated the fate of chemical contaminants in the upper Chesapeake Bay for the Aberdeen Proving Grounds. Simulations were made with TOXI, a three-dimensional toxics water quality model, for the purpose of determining sediment and water column concentrations of various chemicals resulting from the breakdown of UXO. Numerous long term simulations were performed using different loading assumptions to investigate potential fate and transport of contaminants.

Modifying Effluent Treatment Facilities at Chicago CDF. ERDC personnel assisted the Chicago District in identifying possible modifications to effluent treatment facilities at the Chicago Area Confined Disposal Facility (CDF). The District approached ERDC with questions about what steps could be taken to increase the effluent treatment system's capacity to facilitate hydraulic dredging. ERDC personnel developed a study plan for the Chicago District and provided guidance for them as they determined whether the current CDF was capable of supporting hydraulic dredge material operations.

ENVVEST Project at Puget Sound Naval Shipyard. ERDC team members from the Environmental and Coastal and Hydraulics Laboratory, and the U.S. Navy, and Concurrent Technologies Corporation personnel collaborated to develop watershed water quality models for the Sinclair and Dyes Inlet drainage areas of the Puget Sound. The ENVVEST Project's goal is to quantify the nutrient and contaminant loadings entering into the Sinclair and Dyes Inlet with the goal of determining alternative land management scenarios for the drainage areas. Another goal of the project is to determine the eco-risk of the existing nutrient and contaminant loads to the waterbodies as well as to determine the benefit of decreased loadings to the eco-risk of the system.

San Jacinto Watershed Water Quality Analysis. ERDC team members from the Environmental and the Coastal and Hydraulics Laboratories, worked with Los Angeles District personnel to develop watershed water quality models for the San Jacinto Watershed. This work is intended to be a start in developing a model that can help to answer TMDL questions as well as can assist

ecologists in developing better methods to measure the health of riparian areas found within the watershed.

Numerical Fish Surrogate to support design of bypass systems for endangered salmon in the Columbia and Snake Rivers. Efficient bypass systems, along with other measures, will help restore populations of threatened and endangered salmon. ERDC staff were requested to develop a comprehensive software package to aid design of fish bypass systems at CE Snake and Columbia River Dams so that juvenile outmigrating salmon would be routed around the hydropower turbines. To meet this need, ERDC developed the Numerical Fish Surrogate (NFS). It uses advanced mathematical methods to couple a computational fluid dynamics model with a fish behavior model to create an agent-based modeling system. The NFS creates a virtual representation of both fluid flow and fish response to a specific hydraulic design of sufficient accuracy that performance of the bypass system can be assessed during the design phase instead of during post construction monitoring. In addition to being an advancement in modeling technology, it also has the potential to save many millions of dollars by improving design in a virtual context and thereby minimize endangering valuable stocks of salmon during testing to improve system design. The system is presently being used to guide fish bypass design and operation at Lower Granite and Ice Harbor Dams on the Snake River, is being developed for the Dalles Dam on the Columbia River, and is being discussed as a preferred technology for private sector dams. This work was performed in collaboration with scientists at the University of Washington (fish behavior) and University of Iowa (computational fluid dynamics).

St. Paul District: Devils Lake Study Review. The St. Paul District had been tasked by Congress to develop plans for developing an emergency outlet from Devils Lake that releases into the Sheyenne River in order to relieve rising lake levels in the lake. Two models , 5-Box Model and HEC-5Q, were used to look at future conditions in Devils Lake and the Sheyenne River when the emergency outlet was operating. The MVP requested ERDC to review the HEC-5Q modifications and application to the Devils Lake project. The ERDC also provided recommendations for future modeling needs to simulate impacts of project operations on higher trophic levels (several algal groups, benthos, fish, etc.).

Insect Biological Control Work - Lower Rio Grande Valley. Work is progressing on the management of both hydrilla and waterhyacinth along the lower Rio Grande Valley using insect biological control agents through a project funded by the Bureau of Reclamation with supplemental support by the Aquatic Plant Control Research Program (APCRP). These invasive plants continue to impact irrigation operations and public municipalities as infestations disperse and expand. Some relief was experienced as increased rainfall has removed a large proportion of the waterhyacinth. Unfortunately, hydrilla continues to increase. Surveys conducted as part of the project and in conjunction with the U.S. Border Patrol, Texas Game Wardens, and Mexican officials have revealed several new and potentially damaging hydrilla infestations close to the International Amistad Reservoir. In addition, several other invasive plants were identified including giant cane, elephant ear, salt cedar, and large infestations of Eurasian watermilfoil, all of which can rapidly become serious. Additional releases of the leaf-mining flies of over 500,000 immatures from rearing facilities at various ERDC facilities were accomplished during FY03 in some of the larger hydrilla infestations. In addition, monitoring has revealed significant decreases in hydrilla likely caused by the feeding action of the leaf-mining hydrilla flies released over the last two years. Releases and supplemental monitoring are planned for 2004.

Noxious and Nuisance Plant Management Information System (PMIS): A large number of introduced and naturalized terrestrial, aquatic, and wetland plant species cause serious problems in many areas of the United States including many U.S. Army Corps of Engineers' installations. Developing effective management strategies is directly dependent on access to pertinent and up-to-date information on plant identification, biology, ecology, and applicable management technologies. Unfortunately, because of the tremendous number of plant species and associated management techniques, access to pertinent and up-to-date information can be a daunting requirement. While traditional methods of technology transfer (including technical reports, scientific papers, oral presentations, posters, etc.) are adequate more rapid and efficient access is warranted.

Toward this goal, the ERDC has developed a computer-based information/expert system that provides rapid access to current information on the various management and control methods available for over 100 terrestrial, aquatic, and wetland plant

species. This system is entitled the "Noxious and Nuisance Plant Management Information System" (PMIS). The systems are PC-based and operate under the entire Windows operating system family, which ensures a high degree of portability for a wide variety of different computer configurations. The systems' technology core was developed in-house. Access to the information is accomplished via an easy to use graphical interface known as the information manager through the use of in-depth textual information, maps, videos, illustrations, as well as numerous photographic quality diagrams and images.

Information contained in the systems includes plant biology, ecology, introduction history, distribution, identification, basic management concepts, and specific management strategies. System use is enhanced through sophisticated programming algorithms that allow for user-friendly identification of invasive plant species and associated management options based on site-specific characteristics. The information systems are distributed via CD-ROM's, which allow for user access in many different locations and on various computer systems. However, recognizing the need for rapid updates, these systems are linked to specific Web pages, allowing for quick updates as information content evolves and changes.

This hybrid computer and Web-based system has proven to be a viable and highly useful technology transfer mechanism. The PMIS has been updated numerous times and is now in its sixth printing (Version 5.3). As a testament of the utility of these systems, in less than a year, close to 10,000 copies of the Aquatic Plant Information System and Noxious and Nuisance Plant Management Information System (version 5) have been distributed in the Unites States and ten foreign countries. These systems are highly recommended at all levels and are being used by many Federal and state agencies as the foundation document in their training classes and actual operations. For example, both the Bureau of Reclamation and the Armed Forces Pest Management Board (AFPMB) utilize these CD's exclusively as training aids for invasive plant management. The AFPMB uses the PMIS as the official invasive plant management guide for the entire Department of Defense (DOD). Many state and local noxious weed boards also use the systems' as training and operational guides. Numerous Federal agencies and Federal funding sources have contributed to the developmental effort so they can have plants added that are of particular concern. These include, DOD's Legacy program, the Department of Interior, National Highway Administration, National parks Service, and Bureau of Reclamation. Additionally, numerous college and high school instructors have requested copies to enhance instruction in their classes. PMIS was recently updated to version 5.3 with the enhancement of many of the graphics, addition of new plant species, and review of existing information. PMIS can be accessed online at http://www.wes.army.mil/el/pmis

Coast 2050/Louisiana Coastal Area (LCA) Comprehensive Study. Louisiana has been losing approximately 25-35 square miles of coastal marsh for the last several decades. This loss has become increasingly disconcerting because of its threat to local infrastructure and human health and welfare and to national concerns for energy production, navigation, and fisheries harvests. The threat of significant hurricane damage to cities and human populations in the coastal zone has also increased as the storm- buffering capacity of coastal marshes has declined, further heightening concerns.

Since 1990 Federal legislation has provided funds for coastal marsh protection. However, an analysis of the effectiveness of the program was conducted in the late 1990's and found that, although the rate of loss had declined, significant losses continue. Therefore, the New Orleans District, working with the state of Louisiana, the Mississippi River Division, and Headquarters, U.S. Army Corps of Engineers initiated efforts for a more comprehensive approach to address this major threat to a national treasure, the Louisiana coastal marshes. An interagency team was formed and established in the New Orleans District to develop the plan and submit it for inclusion in the WRDA 04 budget. The plan is expected to require approximately 30 years and bear a $14-billion price tag.

Two scientists from the ERDC Environmental Laboratory were assigned to the collocated team to make available all the technical resources throughout ERDC and to assist in developing the plan. Points of Contact and alternates were established in all ERDC labs and provided the network for which the New Orleans District, could access ERDC expertise. At the request of the New Orleans District, ERDC established a National Technical Review Committee composed of 10 internationally known scientists representing different technical disciplines to review interim products and provide technical recommendations as the District proceeds through the planning process. ERDC scientists serve on small working groups to develop tools for ecosystem modeling for assessment of different alternatives and

to develop criteria for assessing project benefits. ERDC scientists also work with staff from the Governor's Office to aid in developing a comprehensive river management study to examine sediment and water budgets in the Mississippi River and to assess the feasibility of reconnecting the river to the coastal marshes for marsh restoration. ERDC has also provided technical training in dredging and dredged material disposal and in ecosystem modeling.

Making the Classroom Connection with K-12 Educational Outreach. The Dredging Operations Technical Support Program (DOTS) has taken the lead in developing the Corps Education Center (http://education.usace.army.mil/) for K-12 outreach. Website objectives are to:

- Promote understanding of the USACE
- Create a Corps classroom connection
- Spark interest in applied sciences.

The Corps Education Center provides a wealth of printable or online lesson materials for educators. Students can use the resources for online learning activities, interactive educational games, and schoolwork resources. Corps employees can utilize the resources when conducting classroom outreach or assisting teachers. New Corps employees can also use the lessons as an orientation tool. The Corps Education Center has four main components:

- Young Engineers' Club
- Classroom Resources
- Corps Classroom Connection
- USACE Mission Lessons

The "Young Engineers' Club" is designed for kindergarten through early elementary ages and features Corps-related activities, puzzles, reading materials, and more. The "Classroom Resources" are not specific to USACE but provide related links and lessons. The "Corps Classroom Connection" provides USACE-related resources and lessons categorized by classroom subject. The "USACE Mission Lessons" provides mission- specific unit lessons, classroom activities, interactive quiz games, puzzles, glossaries, links, and good news stories. Each of these four components will continue to be updated or developed further.

A highlight of the site is the "Fun Science Experiments," which includes over 250 experiments and demonstrations in 30 topic categories. Each illustrates a science or engineering principle using inexpensive and simple household materials. These are easy for educators and students to reproduce and create eye-catching outreach programs. They are a fun way to illustrate Corps-related concepts.

Currently, the navigation section is more developed than the other mission areas within the "USACE Mission Lessons" due to the funding focus by DOTS. Navigation lessons and activities include:

- Navigation and the USACE
- Modern Transportation on Ancient Highways
- ImPORTance of Ports
- Navigation Channels-Our Underwater Highways
- Hydrographic Surveys-Keeping our Underwater Highways Safe
- Dredging-Keeping our Underwater Highways Open
- Beneficial Uses of Dredged Material
- Planning a Dredging Project.

Lessons and activities for the other mission areas will be developed similarly.

Contributions of educational materials, links, and good news stories are being solicited throughout the Corps. This is a chance to highlight the outreach being done throughout the Corps and pool the educational outreach resources. One such contribution received is the "Mississippi River Adventure" developed by the Public Affairs Offices of the Mississippi Valley Division. This is an interactive quiz in a video game format for ages 8-14 and can be found in the "USACE Mission Lessons."

The Corps Education Center can be accessed online at http://education.usace.army.mil/. The site was launched on 13 April 02 and receives over 12,000 hits per day. In FY03, the site received more than 2.5 million hits. The site is one of the most popular websites for the entire Corps, and generates large volumes of requests from students, teachers, parents, and other general public.

Great Lakes and Ohio River Division (LRD): Lock Extensions and Navigation Improvements. ERDC is assisting LRD in the development of navigation improvements for many of their projects. Design alternatives for the J. T. Myers lock extension project located in the Louisville District are being evaluated using physical hydraulic models. A study using a 1:100-scale navigation model of approximately 2 miles both upstream and downstream of the dam, including both the dam and

the locks was used during FY 03. Study results were used to improve navigation conditions in the upper and lower lock approaches after installation of the proposed 600-ft Auxiliary Lock extension. The model was also used to determine the minimum length of additional approach walls in the upper and lower lock approaches that would be necessary. The maximum design length developed during feasibility studies was estimated to be approximately 1/3 of the total cost of the project. The use of the physical navigation model and involvement of the towing industry in the evaluations of the wall lengths has reduced the total wall length needed by approximately 40 percent, providing significantly reduced construction cost and adequate navigation conditions.

A study using a 1:25-scale model of the lock filling and emptying system for J. T. Myers was completed in early FY03 and another 1:25-scale model of the lock discharge outlet is presently being used to finalize the outlet design. An innovative filling and emptying system was developed for the lock extension and consisted of a through-the-sill intake, an in-chamber culvert system and a landside outlet diffuser. The challenge for a lock extension project is to provide the most cost effective and hydraulically efficient filling and emptying system for the new lock extension and at the same time minimize down time for the main chamber during the construction of the lock extension. Placing the lock outlet diffuser on the landside allows construction to take place without interfering with the main chamber traffic. A unique angled-vane type manifold and outlet basin were developed that provided good energy dissipation of the lock discharges during emptying and directed the discharge away from the river bank. The outlet design will help prevent scour of the river channel and banks and reduce sediment deposition in the lower approach.

ERDC is also using a 1:25-scale physical hydraulic model of the filling and emptying system for the Greenup Lock Extension in the Huntington District (LRH) to evaluate and verify the design. The filling and emptying system developed by LRH uses split laterals that deliver water to the lock chamber during filling and remove the water during emptying. Due to site constraints, the intake for the lock extension filling and emptying system was located near the left bank and the culvert feeding the laterals in the lock extension had to be located landward of the existing culvert. The model experiments verified that the system performed quite well hydraulically. Experiments are currently underway to evaluate the landside outlet diffuser for the lock extension. ERDC is working with the Detroit and Huntington Districts to develop the filling and emptying system design for the lock replacement proposed for the Soo Lock Project. Innovative through-the-sill intakes and outlets with multiple in-chamber culverts are under evaluation using a 1:25-scale physical hydraulic model. The 1200-ft lock will replace two of the smaller existing locks at the project. Initial experiments showed that strong vortices occurred in the upper lock approach during lock filling. The face of the intakes was changed slightly and the upper bulkhead sill was modified to produce more streamlined flow into the intakes and reduce vortex formation. Initial evaluation of the lock filling system indicated excessive surface turbulence was present and large hawser forces were measured on a ship moored in the chamber. Design changes are underway to develop a filling and emptying design that will produce the target filling times with acceptable hawser forces.

Shoreline Erosion Evaluation for Sabine Pass to Galveston Bay, Texas. The Galveston District is currently developing and evaluating approaches to abate severe shoreline erosion, and to manage coastal sediment resources, on a 140-km reach of open coast between Sabine Pass and San Luis Pass, Texas. The study area includes a variety of settings, including cohesive and non-cohesive sediment beaches, structured and unstructured coastal inlets, and coastal wetlands. ERDC is providing engineering support to the District by developing and executing computational and analytical models that characterize hydrodynamic and sediment transport processes in the area. Wave climate, wave transformation, storm surge, cross-shore and alongshore sediment transport, and sediment budget models were developed, validated, and executed by ERDC personnel. Processes are characterized at both regional and project-level scales. Model results are used to develop project design parameters and assess with and without project alternatives. Specifically, these tools are used to evaluate shoreline erosion on a storm event-related basis, and to evaluate long-term shoreline change. Due to the large spatial scales encompassed by the models, project alternatives are evaluated in the context of Regional Sediment Management.

Grays Harbor, Washington, North Jetty Study. Grays Harbor, located in southwest Washington state, is one of the largest estuaries in the continental U.S., with a correspondingly large tidal prism. Facing the northwest Pacific Ocean, the entrance to Grays Harbor experiences the most extreme wave climate in the continental U.S.

Changes occur in the tidal channel locations and topographic features at all spatial and temporal scales.

Congress authorized the Grays Harbor entrance and navigation channel in 1896. Since that time, the Corps has developed, built, and maintained two rubble-mound jetties, a deep-draft navigation channel, and other navigational features in Grays Harbor. The North Jetty was originally constructed during the period 1907-1913. Its functions are to block southward transport of sediment, and to protect and maintain an entrance navigation channel. The north jetty has decreased in effectiveness as a result of subsidence and deterioration. Sediment is being transported into the channel and on to neighboring shoals, potentially increasing the need for maintenance dredging. Recently, the North Beach has exhibited a tendency to erode, reversing a historic trend of advance. Issues of concern include future channel maintenance requirements, jetty maintenance if the North Beach recedes, sediment supply to the environmentally sensitive Damon Point from the bypassed sediment, and impacts of the navigation project on the beach to the north.

Recently, the Corps and non-federal entities have constructed or considered spur attachments to jetties as an innovative means of reducing channel and jetty maintenance. Limited data and experience are available to evaluate the functioning and design requirements of a spur. A study was completed in FY03 or the U.S. Army Engineer District, Seattle (NWS) by ERDC to identify and evaluate engineering alternatives for reducing annual maintenance for the Federal navigation channel by reducing the amount of sand bypassing the north jetty. A secondary benefit to this study was protection of north jetty from scour and undermining during times of beach erosion and shoreline recession. The work included field, numerical, and physical model studies that are reported in ERDC technical reports. The study revealed many wide-area processes controlling sedimentation in and around Grays Harbor.

The scale of change in the southward-directed bypassing of sediment expected to occur after construction of any of the evaluated alternatives was found to be small compared to scale of transport at the Grays Harbor entrance from sources originating outside the entrance or by being reworked and redistributed in the entrance. Modification of the north jetty is one of relatively few options for controlling sedimentation in the outer navigation channel; others include channel realignment and modifications to the south jetty.

Navigation Improvements at Colorado River and Gulf Intracoasal Waterway Intersection. ERDC performed a numerical model study of hydrodynamics, including currents, salinity, and sediment changes associated with the plan to open Parker's Cut and/or Southwest Cut in Matagorda Bay, Texas. The study investigated whether opening the cuts would improve the navigation currents at the Gulf Intracoastal Waterway (GIWW) intersection with the Mouth of Colorado River Bypass Channel for the existing GIWW configuration. Special attention was given to potential impacts on salinity in Matagorda Bay and sedimentation in the area, specially the old Colorado River channel and river delta, to assist in making environmental determinations. The effect of allowing some flow from the Colorado River to the old river channel through the diversion dam was also evaluated.

The two-dimensional model contained the intersection between the GIWW and the Colorado River, as well as an extensive area beyond it, including all of East and West Matagorda Bay. The model was calibrated and verified successfully, which enabled the evaluation of several proposed alternatives.

A number of scenarios and their different combinations were modeled in an attempt to cover the several possibilities available to alleviate navigation currents at the GIWW/Colorado River intersection. Parker's Cut and Southwest Cut were analyzed at various dimensions to evaluate whether the cut's size would effect a reduction in current velocities. Also, analyzing combinations of these options allowed for a clearer determination of which alternative produces greater benefits.

The largest reduction in peak currents at the GIWW-Bypass Channel intersection was between 8 and 9 percent for a Parker's Cut configuration at 4 ft deep by 350 ft wide and a Southwest Cut configuration of 5 ft deep by 100 ft wide. This reduction, combined with the study's other findings, did not support the implementation of either cut as a navigation improvement to the intersection. However, one of the scenarios modeled, the implementation of a Diversion Dam Cut at a 4 ft deep by 50 ft wide configuration, appeared desirable for safety reasons to allow small craft navigation between the Old Colorado River channel and the Colorado River Bypass Channel without having to navigate through the GIWW locks. This option does

not impact the system adversely in terms of salinity. Currently, ERDC is evaluating this alternative more closely to assist the design and implementation process of this scenario.

Breakwater Repairs at Lajes Air Force Base, Lajes, Azores. Two-dimensional and three-dimensional physical model studies are continuing from FY03 to study repair scenarios for the breakwater at Lajes Air Force Base, Lajes, Azores. In addition, wave transmission into the lee of the breakwater is being measured for various breakwater repair scenarios. The intent of the study is to determine the optimum breakwater repair plan.

The Azores islands are located in the mid-Atlantic Ocean. Praia da Vitoria is a bay located on the eastern coast of the island of Terceira in the Azores. The harbor has direct exposure to severe open Atlantic Ocean storms from the east. A breakwater was constructed in 1963 on the north side of the bay entrance to provide safe refuge and port for U.S. ships arriving at Lajes Air Force Base. A wharf is located directly in the lee of the breakwater. The breakwater was originally armored with 15-ton tetrapods. The armor layer has sustained significant damage beginning during initial construction. Repairs to the structure were undertaken in 1963, 1964, 1966, 1970, 1973, 1985, 2002, and 2003. The structure continues to deteriorate. In 2001, the U.S. Air Force employed the U.S. Navy to develop a permanent repair for the structure.

At the request of the U.S. Navy, two 1:56-scale physical hydraulic models were designed and constructed at ERDC to study repair scenarios. One model of a breakwater section was built in a 1.5-m-wide by 61-m-long flume. A second model was also constructed, being a 3-D model of the breakwater and bay covering a region roughly 2 km by 2 km in a directional wave basin. A 27.4-m-long multidirectional, spectral wave generator, an automated data acquisition and control system, and capacitance-type wave gauges are being used in model operation. Modifications to the breakwaters are being tested that include a CORE-LOC® and antifer cube armor layer with an optional fronting berm of mobile stone. The design CORE-LOC® weight is 31.6 ton. The tested options appear to be entirely stable. Investigations continue to identify the least cost option.

Saluda Dam, South Carolina, direct shear test program. The Federal Energy Regulatory Commission (FERC) recently identified Saluda Dam near Columbia, South Carolina as susceptible to failure during an earthquake. The FERC has required that action be taken to avoid a catastrophic event under severe seismic loading. Saluda Dam is owned and maintained by South Carolina Electric and Gas Co. (SCE&G). The dam also includes a hydroelectric generating plant. The dam was constructed in the 1920's and at that time, was one of the largest embankment dams in the world. It remains a significant dam in the Columbia, South Carolina area.

SCE&G has proposed construction of a roller-compacted concrete (RCC) dam immediately downstream of the existing dam. Due to the limited space between the existing dam and the powerhouse, the footprint for the RCC dam will be less than has been typical of existing RCC dams. The FERC has evaluated the proposed RCC structure and determined that extensive cracking along the RCC lift joints would likely occur during a seismic event. If failure of the RCC lift joints were to occur, then the residual strength of the lift joints would ultimately determine whether the dam remained stable.

ERDC performed direct shear tests on the lift joints of 120 blocks of RCC, cut from test sections, to evaluate different RCC mixtures, joint bedding procedures, and joint maturity levels. The results of the failure envelope profiles were developed for each of the different test scenarios.

The primary purpose of this test program was to determine residual sliding resistances on pre-cracked RCC lift joints through shear displacements of up to 0.5 in. The results of the test program ultimately allowed for the determination of the proposed dam's ability to remain stable in the case of a maximum probable earthquake. In addition, because of the difficulty in performing these tests, little work has been done in this area. The results of this work will stand as a major source of data for use in analyzing the stability of any RCC dam that may be subjected to unusual or non-static loadings such as earthquakes.

Vicksburg District: Hydrilla study, Lake Ouachita, Arkansas. Using remote sensing techniques, the ERDC assessed the extent and density of infestation of the submerged aquatic weed hydrilla in Lake Ouachita, Arkansas, at the request of the Vicksburg District. The proliferating weed threatens fish species that are the source of the economically critical sport fishing industry. ERDC obtained and analyzed Quickbird panchromatic and multispectral imagery to determine extent and density of infestation. The results enabled better coordination

with state offices and effective use of resources to reduce the infestation

Satellite and Airborne Remote Sensing. The ERDC-TEC Imagery Office serves as the Army's Commercial/Civil Imagery acquisition monitor, repository of selected data, and interface with military sources and commercial satellite imagery vendors. In FY03, imagery products were delivered to 15 Corps district, division, Headquarters and ERDC offices for various applications, from disaster relief to terrain analysis, resulting in a cost avoidance of over $600,000.

GPS Tides. ERDC continued development of a GPS-based tide level measurements system in support of hydrographic surveying and dredging. With this technology, a survey vessel or dredge can measure tide level in real-time, eliminating the need for gauge readings or vessel squat measurements. Such a system provides savings in survey and dredging costs, and leads to more consistent survey results among in-house and contractor vessels. In FY03, this system was installed in Charleston; the fourth district to implement the technology.

Inland Electronic Navigation Charts (IENCs). ERDC continued development and publication of large-scale, accurate, and up-to-date digital charts of inland waterways. IENCs enable commercial on-board electronic chart systems that provide accurate and real-time display of vessel position relative to waterway features, and greatly enhance voyage planning and monitoring, training for new personnel, and display of radar, and Automatic Identification Systems. This project, coordinated by ERDC and involving Corps districts, divisions, and contractors, resulted in 2,900 miles of electronic river charts on the Mississippi and Ohio Rivers and some tributaries in FY03, that are available to the public on the web. The ERDC also coordinated with the U.S. Coast Guard and National Oceanic and Atmospheric Administration, as well as a European consortium, by developing similar river charts on the Danube and Rhine.

Coastal Navigation Channel Data. ERDC began a project to coordinate chart and geospatial data products on coastal and Great Lakes navigation channels. The first phase involves development of a channel framework (left-right boundaries, centerline) of all Corps channel projects, which will provide a common and consistent reference nationwide. Data from eight districts covering 28 ports was collected, and coordination began with the National Oceanic and Atmospheric Administration to develop a common corporate reporting process for channel condition data.

Missouri River Watershed snow water equivalent estimation method. A total snow water equivalent (SWE) estimation method over the Missouri River Watershed between Fort Randall MT and Sioux City, IA was developed and demonstrated. This involved estimating snow-covered area and volume from remotely sensed sources combined with on-the-ground measurements to provide gridded estimates of SWE for use in runoff predictions.

Frazil ice blockage studies. Several reimbursable studies were carried out to evaluate and provide mitigation measures for frazil ice blockage of cooling water intake screens at nuclear power plants. When this occurs, the plant must be shut down, initiating a nuclear incident report and decrease in available power supply.

Detroit and Huntington Districts. The ERDC reviewed ice congestion problems at the new Soo Locks and provided technical advice on techniques to avoid similar problems with the new locks now in design.

New England District emergency management support. The ERDC provided emergency management support to the New England District in the form of monitoring and technical support for ice jam mitigation during winter 2003-2004. This support included aerial and field monitoring of ice conditions, the installation of ice motion detectors, mitigation advice to state and local emergency managers, and updates to the Ice Jam Data Base.

Ice Boom Evaluations. The ERDC evaluated ice booms for the Portland and Pittsburgh Districts: the Deschutes River ice boom was evaluated for effectiveness and numerical modeling was used to develop solutions to increase operational effectiveness; operation of the Oil City ice boom was evaluated and alternatives were provided for a replacement boom with lower initial and operating and maintenance costs. The ERDC also provided ice melt estimates for varying reservoir discharges to clear ice form navigation and developed a method to estimate benefits for ice control structures

Upper Connecticut River Study. The ERDC conducted an ice-affected hydraulic analysis for the Upper Connecticut River in support of the FEMA Map Modernization Program. The study entailed obtaining historical ice records used in the simulation of ice jams along a 70-mile river reach to develop

ice-affected stage-frequency curves. These curves were then combined with open-water stage-frequency curves to provide all-seasons stage-frequency data for the reach.

Remediation and Restoration of Abandoned Mine Lands Engineer Manual. The ERDC developed a new Engineer Manual with support from HQUSACE for use in the remediation and restoration of abandoned mine lands. The Engineer Manual is currently in review.

Paint Technology Center (PTC). The ERDC Paint Technology Center provides Corps districts with a center of expertise for all paint related issues. The Center conducts research on high performance coatings for hydraulic structures including surface preparation, application, and performance. Services also include failure analysis, QA paint testing, and both in-house and on-site consultation services and training. Corps districts have been provided guidance on the paint selection for dam and bridge restoration projects as well as guidance in paint specification and inspection. The PTC's paint testing capability has helped over 20 Corps districts avoid construction delays. A test report is provided for each sample, which provides testing results and final recommendation for the approval or refusal of the sample. In a typical year over 200 paint/coating samples are tested and over 600 telephone inquiries for paint information are answered. In FY03, the PTC provided the Little Rock District with on-site paint training at their Ozark dam. The training was based on Little Rock District's current painting contract and was attended by both district and painting contractor personnel. The paint training stressed compliance and inspection of the contract provisions and included an evaluation of the on-going painting project.

Super-computer-based Watershed Analysis. Developing integrated, distributed, super-computer based watershed management simulation models to test the long-term hydrologic impact of proposed regional plans and policies. Test application in development with Rock Island District to evaluate urban growth possibilities in the Chicago Metro growth area.

INSTITUTE FOR WATER RESOURCES

The Institute for Water Resources (IWR) is a field operating activity under the staff supervision of the Deputy Commander for Civil Works, Headquarters, U.S. Army Corps of Engineers (HQUSACE). The Center consists of the Hydrologic Engineering Center, the Institute for Water Resources, the Navigation Data Center, and support elements. It is located at the Humphreys Engineer Center, Alexandria, Virginia, with satellite elements at other locations, including the Hydrologic Engineering Center in Davis, California; and the Waterborne Commerce Statistics Center, part of the Navigation Data Center, in New Orleans, Louisiana.

The accomplishments of WRSC during FY03 are listed by division.

HYDROLOGIC ENGINEERING CENTER (HEC)

Summary: FY 2003 was a busy and productive year for the Hydrologic Engineering Center. HEC fielded new versions of it's flagship NexGen software products; devoted substantial resources to the implementation of the initial version of the Corps Water Management System to the 30 Corps offices; and continued with the development of future versions of CWMS. HEC's third full year as an organization within the 'new' Institute for Water Resources was a smooth one, with the new alignment benefiting both HEC and the previous organizations within the 'old' IWR - a good match. All in all, 2003 was a busy, productive, and interesting year.

NexGen Software: HEC-HMS (Version 2.2.2) was released. This version of the Corps standard watershed model includes a moisture accounting loss algorithm and several improved display and interface features. An Applications Guide is now available. The guide provides detailed information on the application of the program to a wide variety of studies. Study types that are addressed include urban flooding, flood frequency, flood-loss reduction, flood warning system planning, reservoir spillway adequacy, and environmental restoration. Intensive work is underway on the next version that will replace the user interface with newly designed functionality, and completes the transition from the proprietary user interface platform of the past. The companion GIS utility package (HEC-GeoHMS) has been updated and new features added. This utility provides substantial capability to effectively use national terrain data sets to rapidly develop HEC-HMS models. HEC-RAS (Version 3.1.1) was released in March. New features include mixed flow regime for unsteady flow, navigation dam simulation, pumps, and additional hydraulic design functions such as uniform flow analysis, stable channel design, and sediment transport capacity computations. The companion GIS utility package (HEC-GeoRAS) has also undergone improvements and was released simultaneously with HEC-RAS Version 3.1.1. New HEC-GeoRAS features include a cross section plotting tool; ineffective flow areas theme; levee alignment theme; storage areas theme; and water surface profile results processing. The major flood damage and risk analysis software package, HEC-FDA, continues to be improved, with progress made in integrating the event program HEC-FIA, nonstructural measures and GIS capabilities into the risk analysis program HEC-FDA. The new stand alone NexGen software package HEC-ResSim was successfully released after undergoing significant testing. This is the successor to the legacy reservoir systems program HEC-5. The new reservoir simulation model, HEC-ResSim version 2.0 had its initial release in 2003. HEC-ResSim features a map-based schematic development environment, simulation of multiple dams and outlets, and an operations scheme to define the reservoir's operating goals and constraints in terms of pool zones and zone dependent rules. Important capabilities include operation of multiple reservoirs for a common downstream control (while balancing storage among reservoirs), configurable plots, integration with HEC-DSSVue, and a familiar Window look and feel.

CWMS: The project to modernize the Water Control Data System (WCDS) software began in FY 1997 and the initial version is now completed and deployed. Because the modernized system is much more than a data system, it was renamed to the Corps Water Management System (CWMS). The CWMS is the decision support Automated Information Systems (AIS) that supports the Corps water management mission. It embodies data acquisition, validation, transformation and management; forecasting, simulation and decision support analysis; and information dissemination. Modernizing and deploying

the corporate software for CWMS was a six-year, $7.6 million PRIP funded, Corps AIS improvement project managed under the Corps Life Cycle Management of Information Systems (LCMIS) process. Deployment began in FY 2002 and was concluded in December 2002. CWMS Version 1.2 is now installed in all Corps field offices. Improvements to the system continue via a field-prioritized betterments program. The improved CWMS will be released for upgrading existing field installations in calendar year 2004. Improvements include the addition of snow-melt modeling, several new features in HEC-ResSim, the capability of storing, retrieving, and editing rating table information, upgraded data stream processing, new security features, and visualization scaling. The management and funding structure provides for a modest field-directed betterments program that will be ongoing throughout the life cycle of CWMS. Information about CWMS and other HEC software is available on the HEC Web site: http://www.hec.usace.army.mil/cwms/.

Training: HEC continued the training program rebound by presenting eleven week-long PROSPECT courses and five field workshops that totaled an additional five weeks of training. The courses covered several hydrologic engineering and planning analysis topics including HEC-RAS, HEC-HMS, GIS applications, watershed/river and wetlands restoration courses, and advanced courses in unsteady flow and HMS applications. Attendance averaged about 25 students per course. The on-site workshops focused on HEC software such as HEC-RAS, HEC-HMS and HEC-DSSVue.

Technical Assistance/Reimbursable Projects: Reimbursable project work was undertaken for Corps field offices as well as HQUSACE Civil Works Planning and Engineering, Engineering Research and Development Center – Coastal and Hydraulics and Environmental Labs, the Federal Emergency Management Agency, the National Institute for Building Sciences, and the US Bureau of Reclamation. Projects include watershed and reservoir system modeling, water quality, risk analysis, river hydraulics, wetlands hydrology, water control management, regional statistical analysis, flood damage analysis, flood warning response systems, GIS applications in hydrology and hydraulics, groundwater modeling and water supply in support of the CALFED investigations. For several years, HEC has managed a project to update the model geometry for the Mississippi Basin Model System (MBMS) to reflect more recent mapping and to develop an inundation-mapping component based on the new mapping. The significant work includes cutting the new river section geometry, integrating these new digital map-based geometry sections into the UNET models, re-calibrating the models, and preparing final reports. Work was essentially completed early in FY 2002. HEC also continued support in modeling the Sacramento and San Joaquin river basins for flood control operations with a task to adapt the HEC-5 models to the new HEC-ResSim, The GIS-based package coined 'Ecosystem Functions Model,' developed for the comprehensive study, is intended to assist in regional-scale environmental evaluation of alternatives, continues to be developed by HEC for applications elsewhere. Some work continued on application of reservoir optimization models to study reservoir storage utilization in support of improved flood operation for the American River below Folsom Dam. Groundwater modeling work was undertaken in the Lake Tahoe Basin, Ft. Huachuca Arizona, and Santa Claus Alaska. Reimbursable funding paid for improvements to HEC-RAS (internal boundary condition for MVP), and HEC-HMS (dam safety for FEMA). Jefferson Parish - Existing UNET unsteady flow models were converted to HEC-RAS for compatibility with current floodplain management studies. HEC provided a detailed review of the models and advised the district of necessary changes; Anacostia H&H – HEC developed the baseline hydrology using HEC-HMS and the baseline hydraulics using HEC-RAS. Frequency-based estimates were made for flow and stage at all locations; Tooele Army Depot Ground Water – A ground water model was developed and calibrated for this waste disposal site; Susquehanna River Flood Warning System – a river hydraulics model was developed using HEC-RAS and flood damage analysis was performed with HEC-FDA. A GIS based flood warning system was developed to predict flooded areas and damages for real time monitoring and response actions. Savannah River Drought Contingency Study – HEC developed new hydropower simulation capabilities in HEC-ResSim to support system hydropower operations, pump-back storage operation, period average operation goals, and numerous other capabilities needed for the drought study and an on-going comprehensive study of the

Savannah watershed. The total reimbursable project program was about $1.0 million with individual projects ranging from a few thousand dollars to upwards of $150,000.

HEC is in a position to undertake new reimbursable work this year. HEC is especially interested in applying new methods and tools to Corps and others water resource problems, and in developing new or adapted tools as would be helpful in project studies and water control management.

Overview 2004: The HEC program for FY2004 will continue FY2003 efforts as reflected at the end of the year. HEC will continue developing and fielding new versions of the NexGen software packages HEC-RAS, HEC-HMS, HEC-ResSim, and HEC-FDA and companion GIS utility software. Version 1.3 of CWMS will be released to Corps offices. HEC is excited about entering into an agreement with The Nature Conservancy to build products and work collaboratively on Sustainable River Projects throughout the country. We expect far reaching benefits to the Corps, both districts and HEC, and TNC. HEC is also advancing our Corps planning capabilities by participating in the Corps' Planning Associates Program. PROSPECT training is expected to remain high, continuing at about the same rate as FY 2003. It is expected that civil works Research and Development funding, the base funding for improvement in methods that enhance the NexGen software family, may continue to decline along with the overall decline of the Corps R&D budget, and software maintenance and support will stay about the same to slightly increase, CWMS modernization, maintenance and funding will stabilize (as planned) at about half what it was at its peak two years ago, and reimbursable technical assistance and special projects will be about $1.5 million. On balance, with the constrained Federal budget for FY 2004, the coming year is expected to be a challenge for HEC to maintain a vigorous work program.

DECISION METHODOLOGIES DIVISION

The Decision Methodologies Division **mission** is to develop tools to help people make better, more informed decisions in water resources. The Division team accomplishes this mission through research, studies, corporate service, and field support.

The traditional core of the Division's work is in conducting **research and studies** related to decision-making methodologies. Division products include IWR-MAIN, a water demand forecasting software, IWR-HydroRepair, a tool for evaluating major rehabilitation investments for hydropower plants, IWR-HarborSym and IWR-NavSym, which are tools for evaluating the economic benefits of navigation improvements, IWR-PLAN, a program for conducting cost effectiveness and incremental cost analyses for ecosystem restoration, and ABS_Cube, a multi-dimensional analysis tool for the Corps Civil Works O&M budget. FY03 research programs and work units were:

- Investment and Management Decision Making Research Sub-Program, including continuing work focused on a multiple criteria decision making (MCDM) software module to aid in the formulation of multiple purpose/objective plans.
- Principal Investigator for the national Flood Damage Data Collection Program.
- Technical Support for the Corps' O&M Automated Budget System (ABS)

The Division's **corporate service** work results in wide-ranging applications throughout the Corps. Much of this work is performed for the Corps' Headquarters, and in FY03 included the following assignments:

- Support of the Planning Excellence Program, including:
    - Support to the new Planning Associates (PA) Program, including membership on the Program Steering Committee; and project management of the PA Kick-Off Session, the two-week Washington Experience session, and the Program Graduation session.
    - Development and updating of the Roster of Planning Technical Specialists ("Technical 13s, 14s and 15s") in the Corps' Districts, Divisions and Headquarters.

- Development and distribution of the Planner's Reference CD.
- Co-Chair and staff participation in the Planning Models Improvement Program Task Force including writing the task force report.
- National survey to identify models being used by the agency.
- Initiating update of the NED manual series.
- Initiating development of an electronic version of Management Measures

- Assessing the use of air quality benefits in project evaluation.
- OMB questionnaires: The Division is responsible for maintaining OMB approval for civil works questionnaires and providing technical support to districts for implementing the surveys.
- Assisting the project delivery team for the Corps' P2 software for project management
- Technical Support for the Corps' O&M Automated Budget System (ABS)
- Support and presentations to the National Academies of Science team studying Corps' policies and practices pursuant to Section 216 of the Water Resources Development Act of 2000.
- Presentation and other support for training that develops and maintains essential technical capabilities, including training in:
  - Cost Effectiveness and Incremental Cost Analysis (IWR workshop).
  - Planning Principles and Procedures (Planning Core Capability Course).
  - Economic Considerations in Planning (Planning Core Capability course).
  - Economics Analysis for Water Resources Planners (PROSPECT course).
  - Risk Analysis in Water Resources Planning and Management (PROSPECT course).
  - Ecosystem Restoration Planning and Evaluation (PROSPECT course).
  - Regulatory I – Basic Regulatory Functions (PROSPECT course).
  - Regulatory IIA – Policy and Procedural Issues (PROSPECT course).
  - Regulatory IIB – Decision-Making (PROSPECT course).
  - Regulatory Executive Seminar.

The Decision Methodologies Division has a strong collection of **field support** activities that assist studies being conducted by Corps' Districts and Divisions. These activities range from free one-stop visits to discuss the specifics of a project to becoming intimately involved in study execution on a cost reimbursable basis. FY03 field support activities included:

- Membership on the National Technical Review Committee for the Louisiana Coastal Area Feasibility Study, with the New Orleans District.
- Application of IWR-HarborSym to the Sabine-Neches Navigation Feasibility Study, with the Galveston District.
- Application of IWR-HarborSym to the Tampa Bay General Reevaluation Report with the Jacksonville District.
- Application of IWR-NavSym to the Colorado River locks study, with Galveston District.

Products of the Decision Methodologies Division in FY03 included:

- "Planning References CD, January 2003, IWR CD-03-1

PLANNING, AND POLICY STUDIES DIVISION

INSTITUTE FOR WATER RESOURCES

The Planning and Policy Studies Division carries out its mission in support of the Director of Civil Works by conducting policy analysis, planning and studies of national and regional scope.

Since 1976, the program has contributed to the development of numerous policies and programmatic initiatives within the Civil Works Directorate as well as several important national and regional studies.

The program continues to serve the Corps by assessing and evaluating changing national and regional water resources issues; natural resources uses and management; and related public works infrastructure management needs as they affect Corps Civil Works missions, policies, practices, legislative mandates, and executive directives. During FY03 the division provided direct support to the HQ Planning and Policy Division through the Policy Studies Program. In addition to work within this program, special studies of national and regional scope were undertaken that built on the policy directives and research tools, which were developed at IWR.

Among the noteworthy national and regional special studies undertaken in FY03 were:

- National Shoreline Management Study
- Texas Water Assessment
- Corps Environmental Database Development
- Upper Mississippi River Flow Frequency Study: Climate Change and Variability
- Examination of Consistency within the Northwest Division Regulatory Program
- International Joint Commission Support for Lake Ontario Study
- Distribution of Shore Protection Benefits (for OMB)

Among the specific policy studies conducted during FY03, the following subjects and issues were included to support the development of legislation, policies, directives and guidelines for various activities within the Corps Civil Works (CW) program:

- Improving Environmental Benefits Analysis
- Integrated Water Resources Management and the Conserving Species at Risk
- National Water Demand and Availability
- Advanced Measures Forecasting (PL84-99)
- Integrated Technical Assistance for Flood Damage Reduction
- Regional Sediment Management Policy Issues
- Water Resources Adaptations to Climate Change
- Water Supply Study
- Revitalization of Corps of Engineers Projects
- Off-site Alternatives Permit Review
- Water Resources Development Implications for Freshwater Biodiversity
- Flood Hazard Mitigation (Disaster Mitigation Act 2000)

During the year, permanent staff personnel were joined by visiting scholars from leading universities in the country. Visiting scholars work full time in the division office or visit from time to time during their appointments. In FY03, Dr. Peter Rogers joined IWR as a Maass-White Scholar. Dr. Rogers is a Gordon McKay Professor of Environmental Engineering and Professor of City Planning at Harvard University. He contributed to discussions on numerous policy and special studies, including those related to integrated water resources management, governance issues, retaining National water resources planning expertise into the future IWR Maass-White visiting scholars contribute to a large number of policy and special studies and upon their return to teaching; their academic programs are enriched by exposure to information they learn while working for the Corps. Overall, the division staff and visiting scholars have a significant influence on the state of current knowledge, from papers presented at various workshops and conferences, as well as publications in peer-reviewed journals.

NAVIGATION AND WATER RESOURCES APPLICATIONS DIVISION

The Navigation and Water Resources Applications Division provides support for HQUSACE and field divisions and districts for project and system studies of navigation improvements and other water resources issues. The division conducts national and special studies as directed by HQUSACE. It also performs

recurring national-level analyses, such as the update of vessel operating costs for waterways and harbors, development of harbor and waterway commodity traffic and fleet forecasts, and analysis of the recovery of navigation costs. The division also provides program management and technical support for the Inland Waterways Users Board (IWUB), manages the U.S. Section of the International Navigation Association (PIANC), and supports overall Corps coordination with the Transportation Research Board (TRB) of the National Academy of Sciences. The division manages and conducts research in the Navigation Economic Technologies (NETS) and the Risk Analysis for Water Resources Investments R&D programs.

Major activities include the following projects and studies:

Continuing Support Activities: The foundation for evaluation of navigation projects, both waterways and deep draft harbors, is the comparison of transportation costs with and without proposed improvements. As part of the USACE Transportation Systems Program, the division maintains and verifies current data on ocean and waterway vessel operating costs, the dimensions of these vessels, the distribution of ocean vessel sizes in the world fleet, and the configuration of barge tows on waterways. This information is transmitted by HQUSACE to all Corps districts as CW planning guidance.

Coordination of Waterway Construction and Studies: The IWUB, created by the Water Resources Development Act of 1986, is charged with advising Congress on priorities for improving inland waterways. To provide technical information desired by the IWUB and the Army, the division performs ongoing analysis of construction and studies funding schedules for projects on the fuel-taxed waterway system. This analysis incorporates the USACE and IWUB priority evaluations of projects in accordance with the budget constraints imposed by the Trust Fund.

Research Activities: Navigation economic and risk analysis and research are designed to provide information and support for investment decisions. The NETS program was planned in FY 2002 and began in FY 2003 to advance the state of the practice in Corps navigation studies. Areas of focus include methods applied to waterways and harbors. Risk and associated uncertainties can provide vital information about project engineering and economic performance. Research in this area develops tools and methods to assist Corps district offices. These are transmitted to districts in the form of reports and software tools. Additionally, training is provided on risk analysis methods and specific applications to Corps business processes.

Ongoing Studies:

- Continuing Support Activities
  - Update and distribution to field of transportation cost models for barges, rail, and trucks
  - Update of both ocean and inland vessel operating and replacement costs
  - Enhancing a software package for customizing deep draft vessel operating costs
  - Development of national and regional commodity and fleet forecasts for use in planning studies
  - Analysis of waterway benefit categories, including regional economic benefits and non-traditional benefits such as reduction in air emissions, accident and congestion.
  - Assist in the development of the navigation component of the Value to the Nation website
  - Assist Savannah District with reanalysis of economic impacts from deepening
  - Savannah Harbor to include multi-port analysis
  - Hurricane preparedness and evacuation strategies for coastal and island communities

- Coordination of Waterway Construction and Studies
  - Program management support on activities of the IWUB
  - Analysis of waterway project schedules and financial status of the Inland Waterways Trust Fund

- Research Activities: Navigation Economic Technologies (NETS) R&D
  - Development and testing of four methods to estimate demand elasticity for waterway transportation services
  - Investigation and development of a spatial equilibrium model for evaluation of waterway investments
  - Development of a multiport analysis tool with emphasis on container traffic
  - Inland navigation models symposium to direct future inland navigation research and specify methods for peer review of models

- Research Activities: Risk Analysis for Water Resources Investments R&D

- Development of risk-based methods to apply to the evaluation of deep draft navigation projects
- Development and field application of risk analysis, event-based IWR-HarborSym software tool for evaluating harbor improvements
- Development and field application of risk analysis, event-based hurricane and storm damage reduction software tool
- Extension of the use of scenario analysis for making decisions under uncertainty

Recent Products:

- **Continuing Support Activities**
- National Dredging Needs Study (Section 402 of the WRDA of 1992)
- Evaluation of economic benefits of cruise ships
- Annual Report to Congress on the Status of the Harbor Maintenance Trust Fund
- Financing practices for international dredging of port and harbors
- Information Brochure: Inland Navigation Value to the Nation
- Projected and Actual Traffic on Waterways
- The Role and Value of Tributary Waterways
- Study of Data Needs for Low Commercial Use Harbors
- Development of alternative future scenarios for the Upper Mississippi and Illinois
- Waterway Study
- Economic Evaluation of North Carolina Beaches after Hurricane Fran

PROGRAM ANALYSIS DIVISION

The Program Analysis Division develops and carries out assigned program analysis and evaluation studies to assist HQUSACE in Civil Works program development, defense and execution. The Division also provides analytical support to HQUSACE and Corps field offices to describe, evaluate and improve the performance of the Civil Works program.

Major activities undertaken in FY 03 include the following:

- **Civil Works Planners Training and Development**. The Program Analysis Division continued to provide primary analytic and contract management support to this high priority Civil Works effort to improve planner capability. During FY 03 the division launched the Master's Degree in Water Resources Planning and Management. During this period students attended Johns Hopkins, Southern Illinois, and University of Arizona. It continued to develop course materials and plans of instruction for two of the seven "core curriculum" training courses for planners: a training course in plan formulation, and a course in public involvement. During this period the division staff also launched the planners' resource web site.

- **UNESCO Support**. The Program Analysis Division sent a representative to Delft, the Netherlands for several weeks to implement signed agreements between the Corps, the Institute for Hydraulic Engineering (IHE) and the United Nations Educational, Scientific and Cultural Organization (UENSCO). During this period IHE became one of the UNESCO learning organizations (UNESCO-IHE). The purpose of the agreement is to promote training and research exchanges, and IWR continues to actively engage in that process. Close working relations were also established with the Dutch Rijkswaterstaat through technical exchange trips and participation on a World Water Forum panel.

- **Civil Works Strategic Plan.** The division continued with the development of the Civil Works Strategic Plan. This plan lays out a future direction for the civil works program stressing the adoption of a watershed perspective in all aspects of water resources planning and management activities. The plan provides goals, objectives, and performance measures that will be used to evaluate program performance in Navigation, Flood and Coastal Storm Damage Reduction, Environmental Stewardship and Restoration, Water Supply, Recreation, Hydropower, Regulatory, and Emergency Management business lines. The plan was sent out for public review and commend during fiscal year 2002. In fiscal year 2003 comments received from the public and other agencies were addressed in a revised draft plan, which was then coordinated with the Office of Management and Budget. The plan was also briefed to many audiences within the Corps as well as at several public forums during the year.

- **Value to the Nation Initiative**. The purpose of this initiative is to call attention to the value the Nation receives from its investment in the Civil Works program. Products from this initiative include a web-site and a series of brochures focused on Corps project results. In FY03, the web-site, which provides users with information about Corps projects and their contributions to the Nation's economic, social and environmental well-being, was updated and enhanced. In addition, Value to the Nation brochures describing the value created and delivered by several Civil Works programs were completed, including the navigation, environment, emergency management and regulatory programs.

THE NAVIGATION DATA CENTER (NDC)

Waterborne Commerce and Vessel Statistics

Under the authority of the River & Harbors Act of 1922, as amended, and codified in 33 U.S.C. 555 the Corps is to collect, process, distribute, and archive commercial vessel trip and cargo data. These data and statistics are used to analyze the feasibility of new water transportation projects and activities; to set priorities for new investment and rehabilitation; and for management of the operations and maintenance of existing projects.

Under Federal law, vessel operating companies must report domestic waterborne commercial vessel movements directly to the Corps. The types of vessels include: dry cargo ships and tankers, barges (loaded and empty), towboats (with or without barges in tow), tugboats, crew boats and supply boats to offshore locations, and newly constructed vessels from the shipyards to the point of delivery. Vessels remaining idle during the monthly reporting period are also reported.

U. S. Foreign waterborne import, export, and in-transit cargo and vessel movement data are provided to the Corps by the U. S. Customs Service, the Bureau of the Census, and the Port Import Export Reporting Service.

Movement data acquired by the Waterborne Commerce Statistic Center of NDC is primarily for the use of the Corps and other governmental agencies; however, summary statistics, which do not disclose movements of individual companies are also released to private companies and to the general public.

The Waterborne Commerce Statistics Center's standard publication, **Waterborne Commerce of the United States**, is issued in five parts (Atlantic Coast, Mississippi Valley and Gulf Coast, Great Lakes, Pacific Coast, and a National Summary). For the 2002 data year, published in 2003, the new trip ton-mile performance measure was incorporated into these publications. Trip ton-miles measures the total contribution a specific inland waterway or inland port makes to the national waterway system. Also available is **The Public Domain Database** that contains aggregated origin to destination information of foreign and domestic waterborne cargo movements.
Transportation Lines of the United States in three volumes contains a national summary of U.S. vessels, listings of domestic vessel operators, plus details their equipment and references their service areas.

Most data are available in both hard copy and electronic form.

Ports and Waterways Infrastructure

This information supports the Corps Federal Central Collection Agency responsibility for documenting the nation's commercial port infrastructure served by Federal channels. In FY 2003, five of the 56 volume Ports Series Reports were completed, distributed, and available for sale. PS No. 20A – Mississippi River Ports Below and Above New Orleans, LA; PS No. 25 – The Port of Corpus Christi, TX; PS No. 26 – Ports of Freeport, Point Comfort/Port Lavaca, Brownsville and Ports along the Gulf Intracoastal Waterway, TX; PS No.35 – The Ports of Tacoma, Olympia, and Grays Harbor, WA; and PS No. 38 – Ports of Southeast Alaska. In addition to the completed reports, field surveys were conducted and data entered into the Ports and Waterways Information Management System (PWIMS) for the following: PS No. 39 – The Ports of Southwest and Western Alaska; PS No. 65 – Ports on the Illinois Waterway (Miles 0-291, Grafton to

Lockport); PS.No.69 – Ports of Minneapolis-St. Paul, MN and Ports on Upper Mississippi River (Miles 300-860 AOR); PS No. 72 – Ports of Natchez, Vicksburg, and Greenville, MS; and Ports on the Lower Mississippi River (Miles 255-620 AHP); and PS No. 11 – The Ports of Hampton Roads and Ports on the James and York Rivers, VA. In addition to the printed reports, data for the 9,280 individual docks are available in summary from and as data files on the Internet. These data are updated and posted as each port area is re-surveyed and verified as current. The data are also of interest and use by the coast Guard in their homeland security mission.

Lock Performance and Characteristics

The lock performance database provides the Corps access to individual lock near real-time information. The Coast Guard in their homeland security mission also uses the data. The database has improved in accuracy with the addition of selected rules and edits. A national data warehouse that will provide all Corps users direct access to current and historical data and summaries has been designed and is under construction. Lock characteristics, the physical descriptions of all the Corps owned/operated locks, are available on the web to all users. The lock databases are feeder systems to the Operations and Maintenance Business Information System (OMBIL) decision support system.

Dredging Statistics

This web-based ORACLE database is successful in supplying information on all Corps performed and contracted dredging to the Corps, industry and private users. Data entry and report generation is accomplished via the Corps Intranet and enables all Corps members access to the information in the central system. The data have also been used by other federal agencies (GAO, AAA) in their investigations of dredging practices and participants. Database modifications have been made to enhance the data and to address certain GAO suggestions. Biweekly reports are posted on the public web site to inform the industry and public of Corps and contracted dredging activities. Standard reports and summaries plus custom queries and reports are quickly generated to meet Corps and user needs. The use of the information by Corps and industry has resulted in improved bidding competition and a more efficient utilization of dredging equipment. The dredging database is a feeder system to the Operations and Maintenance Business Information Link (OMBIL) decision support system.

Integrated Civil Works Products

NDC's production databases provide water resources facility inventories, outputs, and activities for the Civil Works businesses of navigation, hydropower, recreation, environmental compliance, natural resources and regulatory. These data are combined and internally distributed through OMBIL decision support system to support a variety of Corps management initiatives, as well as federal and public data requirements.

In support of the Civil Works business performance measurements, NDC extracts expenditure data from CEFMS and combines it with the different business output data to generate efficiency and effectiveness measurements. These measurements are for both internal use in the Corps https://ombil.usace.army.mil and submission to higher authority including OMB. Also, NDC data supports and is a source for the Corps "Value to the Nation" and the federal government's recreation access site "rec.gov".

The navigation data has been integrated with CorpsMap that provides an intranet web-based GIS interface. This web site includes many of the Corps other data layers such as Digital Project Notebook, Inventory of Dams, Bridge Inventory Database, Division and District Boundaries and Real Estate Holdings plus many standard layers such as state, county, congressional district, zip codes and etc.

All of NDC's publicly available navigation and water transportation data is available via a single gateway at http://www.iwr.usace.army.mil/ndc or on its annual CD-ROM. The site also provides links to other Corps, Federal and public sites related to the navigation business. NDC continues to strive to provide single site portals related to various management views for accessing all data and information

INTERNATIONAL NAVIGATION ASSOCIATION (PIANC)

The International Navigation Association (PIANC) is an organization consisting of approximately 40 national members. From its headquarters in Brussels, Belgium, it acts as a clearinghouse of technology and experiences relating to ocean and inland navigation improvements which are exchanged among engineers, scientists, port operators, and marina and vessel owners, to name a few. Its objective is to advance, on a worldwide basis, the sustainable development of all kinds of navigation through the exchange of technical information on port and waterway development. The objective of the Association is met by holding International Congresses and by publishing technical bulletins and special reports. Special reports are published describing the results of the work of international research teams, or working groups, composed of those national members interested in the particular subject under study. The organization also serves as an excellent source of identifying individual and corporate expertise throughout the world on PIANC-related subjects. Personal interchange of ideas and information also is promulgated by members attending the International Congresses held once every four years, and technical working group meetings held several times each year.

The business affairs of the Association are managed by the Annual General Assembly (AGA). It is composed of delegates who represent each member government. The number of delegates is determined by the size of the national membership, but may not exceed 11 per country.

The United States (U.S.), which has been a member of PIANC since 1902, provides an annual appropriation for the support and maintenance of the organization. This includes an annual subvention to PIANC International and payment of a portion of the travel expenses of officially appointed national delegates (Commissioners) of the United States to meetings of the AGA and Congresses. Total annual appropriation for the U.S. Section, PIANC is currently $45,000, including the annual subvention of approximately $15,000.

The U.S. Section is administered by law, under the auspices of the Department of the Army (Corps of Engineers). It is located in the Institute for Water Resources (IWR), Casey Building, Humphreys Engineer Center. The U.S. Section is composed of both individual and corporate members who pay membership dues. Membership of the U.S. Section on September 30, 2003, totaled 271, consisting of 220 individual members, 50 corporate members and 1 student member.

United States National Commission

The United States National Commission constitutes the governing body of the National Section. In 2003 the ex-officio officers of the U.S. National Commission were: Chairman, John P. Woodley, Jr., Assistant Secretary of the Army (CW)); President, MG Carl A. Strock, Director of Civil Works); and Secretary, Mr. Ronald R. Conner an employee of IWR.

In 2003, U. S. National Commissioners were: Mr. Robert D. Nichol, President, Moffatt and Nichol Engineers; Mr. Kurt J. Nagle, President, American Association of Port Authorities; Mr. Charles C. Calhoun, Jr., Vice President representing the Central Region and consultant; Dr. Robert H. Randall, Texas A&M University; Mr. Joseph H. Pyne, President, Kirby Corporation; Ms. Doris J. Bautch, Director, Great Lakes Region, Maritime Administration, U.S. Department of Transportation; Mr. Shiv Batra, Vice President representing the Western Region and President, INCA Engineers, Inc.; and Mr. Thomas H. Wakeman, III, Vice President representing the Eastern Region and General Manager, Waterways Development Division, Port Commerce Department, Port Authority of New York and New Jersey.

In September of 2003, MG Carl A. Strock replaced MG Robert H. Griffin as Director of Civil Works for the U.S. Army Corps of Engineers and also assumed the position of President of the U.S. Section. Mr. John P. Woodley, Jr., also was appointed as Assistant Secretary of the Army (Civil Works) in September of 2003, and thus assumed the position of Chairman, U.S. Section PIANC.

The Treasurer is Captain James R. Carman, (retired) who formerly served as Chief, Division of Port and Intermodal Planning, Office of Port and Domestic Shipping in the Maritime Administration.

Activities

The U.S. Section PIANC Annual Meeting, Roundtable on Port Security Issues, and Technical Workshops on Wetlands Restoration and Passing Vessel Issues was held in Portland, Oregon October 28-30, 2003. Events included an evening social, boat tour of the Willamette River hosted by the Port of Portland, a plenary session, and the technical

workshops. The U.S. Section Commissioners also held a meeting during this event.

The U.S. Section PIANC also co-sponsored (along with the American Society of Civil Engineers) a New York Harbor Dredging Tour on September 24, 2003. This event featured an on-water briefing and field inspection of current harbor-wide dredging activities in the Port Jersey, Kill Van Kull, Arthur Kill, and Newark Bay reaches of New York Harbor. Commissioner Tom Wakeman was one of the organizers of this tour.

Another event was the Breakfast in Seattle on February 26, 2003. Commissioner Shiv Batra was the driving force behind this activity, which provided an informative presentation by Col.. Ralph Graves, the Seattle District Engineer, and a networking opportunity for PIANC members and others in the Pacific Northwest region.

In May of 2003, a U.S. Delegation composed of MG Robert H. Griffin, Mr. Ronald Conner, Mr. Thomas Wakeman, Ms. Doris Bautch, Mr. Walt Ritchie, Mr. Harry Cook, Mr. James Goldston, Mr. Robert Nichol, and LTG Vald Heiberg (ret) attended the Annual General Assembly in Bergen, Norway. MAJ Tim Holman, Executive Officer to MG Griffin also attended, as did Dr. Robert Engler and Mr. Thomas Ballentine. The major resolution arising from the Bergen meeting was entitled "The Waterway is the Better Way: Sustainable development requires increased efforts for waterborne transport."

In September of 2003, Ms. Doris Bautch, U.S. Commissioner, made a presentation on PIANC to the Organization of American States Inter-American Committee on Ports in Merida, Mexico. Her efforts resulted in a resolution promoting the development of a cooperative relationship between the Inter-American Committee on Ports and the U.S. Section PIANC.

The first U.S. Section PIANC Scholarship was awarded to Brajesh Kumar, a Graduate Student in Ocean Engineering at Texas A & M University.

The U.S. winner of the 2004 DePaepe-Willems Award was Mr. David Gordon of the U.S. Army Corps of Engineers, St. Louis District. His paper was entitled "Chronic Dredging on the Upper Mississippi River Remedied with Innovative River Training Structures."

Representatives to Committees and Commissions

The principal business of PIANC is the sponsorship of technical working groups. The U.S. Section is represented by Principal and Co-Principal members of the Commissions that manage the activities of the technical working groups. The representatives were:

Environmental Commission – Dr. Robert Engler, Engineer Research and Development Center.

International Cooperation Commission -- Dr. Anatoly B. Hochstein, National Ports and Waterways Institute, University of New Orleans and Mr. Shiv Batra, INCA Engineers.

Inland Navigation Commission -- Dr. Sandra K. Knight, P.E., USACE, Engineer Research and Development Center, Waterways Experiment Station; Co-Principal, Mr. Tim Parker, Parker Towing Company.

Maritime Navigation Commission – Mr. E. Dan Allen, Moffatt & Nichol Engineers.

Recreational Navigation Commission -- Mr. Richard B. Dornhelm, Vice-President, Moffatt & Nichol Engineers; Co-Principal, Jack C. Cox, PBS&J.

New Technical Working Groups

In 2003, nine new Working Groups were formed. The groups are listed below along with the name of the Principal U.S. Representative.

MarCom WG 46 – Maritime Freight Transshipment, Ms. Doris Bautch

MarCom WG 47 – Criteria for the Selection of Breakwater Types and their Optimum Damage Level, Dr. Jeffrey A. Melby.

MarCom WG 48 – Guidelines for Port Constructions, related to Bowthrusters, Mr. Marcel Hermans and Mr. Gary Greene.

EnviCom WG 12 – Sustainable Waterways within the Context of Navigation and Flood

Management, Dr. Craig Fischenich and Mr. John D. Clarkson.

EnviCom Experts Group 2 – Environmental Benefits of Waterborne Transport, Dr. David A. Moser.

EnviCom WG 13 – Best Management Practices Applied to Dredging and Dredged Material Disposal Projects for Protection of the Environment, Mr. Thomas Wang and Dr. Douglas Clarke.

EnviCom WG 14 – Dredged Material Beneficial Use Options and Constraints, Mr. Richard F. Gorini.

RecCom WG 16 – Protecting Water Quality in Marinas, Mr. Jack Cox and Mr. David Dykstra.

RecCom WG 17 – Guidelines for Marina Design, Mr. Dennis P. Kissman.

Working Group Reports Published in 2003:

MarComWG 28, Breakwaters with Vertical and Inclined Concrete Walls

MarCom WG 40, State-of-the-Art of Designing and Constructing Berm Breakwaters

MarCom WG 41, Guidelines for Managing Wake Wash from High Speed Vessels

EnviCom WG 6 – Guidelines for Sustainable Inland Waterways and Navigation

EnviCom WG 7 – Ecological and Engineering Guidelines for Wetlands Restoration in Relation to the Development, Operation and Maintenance of Navigation Infrastructures.

Active Working Groups and the names of the U. S. Representatives :

InCom WG 21, **Economic Studies of Inland Waterways**. Organized February 1996. Mr. David Grier, USACE, Institute for Water Resources.

InCom WG 22, Safety in Inland Navigation. Organized November 1996. RADM William T. McMullen, Texas A&M, Galveston, Texas.

InCom WG 23, Technical and Economic Problems of Channel Icing. Organized December 1997. Mr. Claude Strauser, USACE District, St. Louis. Report is being reviewed and should be published in 2004.

InCom WG 24, Vessel Traffic Management in the Inland Waterways. Organized March 1998. Mr. J. Michael Sollosi, U. S. Coast Guard. This working group completed their report and provided a technical brief on River Information Systems. This is the first PIANC working group to become a standing committee due to evolving trends in river management and information systems. The committee will be restructured for additional membership in 2004.

InCom WG 25, Maintenance and Renovation of Navigation Infrastructure. Organized July 1999. The group has met 5 times and is progressing on their report. Dr. James McDonald, USACE-ERDC (retired) was the U.S. representative and chaired the committee. Mr. James Blanchar, USACE-MVR (retired) served as corresponding member.

InCom WG 26, Design of Control Structures Used on Navigable Waterways: Controllable Weirs and Gates. Organized June 2002. Mr. Dale Miller, INCA Engineers and Dr. Richard Stockstill, USACE-ERDC. The most recent meeting of this group was sponsored by the U.S. members and held in Pittsburgh, Pennsylvania. The meeting included a field trip to the Braddock Dam.

InCom WG 27, Guidelines for Environmental Impacts of Vessels. Organized June 2002. Dr. Thomas Keevin, USACE-St. Louis District.

MarCom WG 36, Catalogue of Precast Elements. Organized October 1996. Dr. Billy L. Edge, Texas- A&M University.

MarCom WG 39, Monitoring of Breakwaters. Organized January 1998. Mr. James D. Prehn, RLS, Spacial Data Survey.

MarCom WG 42, Life Cycle Management of Port Structures – Implementation Manual. Organization 2000. Dr. Valery M. Buslov, Hans-Padron Associates.

MarCom WG 43, Minimizing Harbor Siltation. Organized July 2002. Dr. John Headland, Moffatt & Nichol.

MarCom WG 44, Accelerated Low Water Corrosion. Organized July 2002. Dr. Ashok Kumar, USACE-ERDC.

MarCom WG 45, Post Earthquake Actions for the Restoration of Port Structures. Organized July 2002. Dr. Stephen Dickenson, Oregon State University.

RecCom WG 9, Regeneration of Harbour Areas for Sport and Pleasure Navigation Use. Organized July 1995. Mr. Jack C. Cox, PBS&J Consultants.

RecCom WG 13, Dredging of Marinas. Organized July 1999. Mr. R. W. Lofgren, Lofgren Imagineering & Construction Company.

RecCom WG 14, Access to Sport and Recreation Boating for Persons with Disabilities. Organized February 2001. Mr. Daniel Natchez, Daniel S. Natchez and Associates, Inc.

RecCom WG 15, The Use of Alternative Materials in Marina Construction. Organized July 2002. Mr. Terrence Browne, Collins Engineering.

EnviCom WG 8, Generic Biological Assessment Guidance for Dredged Material. Organized January 2001. Todd S. Bridges, Ph.D., USACE-ERDC and Mr. Thomas H. Schadt, Anchor Environmental, LLC.

EnviCom WG 9, Environmental Impacts of Polar Marine Activities. Organized January 2001. Jon E. Zufelt, Ph.D., USACE, Cold Regions Research and Engineering Laboratory.

EnviCom 10, Environmental Risk Assessment in Dredging and Dredged Material Management. Organized June 2002. Dr. Jerome Cura, Menzie-Cura & Associates.

EnviCom 11, Management, Dredged Material Re-use and Transformation of Existing Confined Disposal Facilities. Organized June 2002. Dr. Michael Palermo, USACE-ERDC.

INTERNATIONAL BOUNDARY WATERS BOARDS

In order to carry out United States obligations under international agreements, the Office of the Chief of Engineers and several Corps divisions and districts with jurisdiction over areas bordering Canada have representation on numerous international boards, committees, and other groups. The majority of these boards were established by the International Joint Commission (IJC) as empowered in accordance with the provisions of the Boundary Waters Treaty of 1909 between the United States and Great Britain (for Canada). IJC boards fall into two broad categories: boards of control, which are more or less permanent and supervise compliance over an IJC order; and engineering, technical, or study boards, which are usually dissolved after completing and reporting on an investigation assignment.

In addition to boards created by the Commission, other international boards and committees are created by treaties or other arrangement in matters concerned with the water resources of joint interest, and the members report directly to the Governments or establishing agency. International boundary waters boards and committees having Corps of Engineers memberships during the fiscal year are listed in Table 45-1. For an explanation of the constitution of the various boards and committees, see the annual reports, Volume II for fiscal years 1977 and 1980.

In recent years the IJC has adopted an ecosystem approach for its Boards with a view toward amalgamating a number of its Boards, where it makes sense to do so, as a first step in the development of international watershed Boards. This approach stemmed from the Commission's recommendations in its 1997 report to the governments of the United States and Canada. This report was provided at the request of governments for a proposal on how the IJC might best assist them to meet the environmental challenges of the 21st century. Subsequently, governments asked the Commission, in a reference dated November 19, 1998, to further define the framework for operation of international watershed boards as recommended by the IJC in its 1997 report. The IJC provided governments with a December 2000 status report on the matter and several of its boards have been amalgamated since 1998.

TABLE 45-1
International Boundary Waters Boards Having Corps of Engineers Members

BOARD NAME	YEAR ESTABLISHED	UNITED STATES REPRESENTATION
1. Int. Lake Superior	1914	* Division Engineer, Great Lakes and Ohio River Division -- Chicago District Engineer -designated Alternate
2. Int. St. Croix River**	1915	*District Engineer, New England District
3. Int. Lake Memphremagog	1920	*District Engineer, New York
4. Int. Lake of the Woods Control Board	1925	*District Engineer St. Paul
5. Int. Lake Champlain	1937	*District Engineer, New York
6. Int. Kootenay Lake	1938	*1. District Engineer, Seattle 2. Dept. of Interior, USGS, Boise, ID
7. Int. Rainy Lake Board of Control	1941	*District Engineer, St. Paul
8. Int. Osoyoos Lake	1943	1. District Engineer, Seattle 2. *Dept. of Interior, USGS, Tacoma, WA 3. Washington State Parks & Recreation Commission, Olympia, WA

BOARD NAME	YEAR ESTABLISHED	UNITED STATES REPRESENTATION
9. Int. Red River Board ***	2000	1. District Engineer, St. Paul 2. * Dept. of Interior, USBR, Billings, MT 3. Dept. of Interior, EPA, Denver, CO 4. Dept. of Interior, USGS, Bismarck, ND 5. Mayor, City of Fargo, ND 6. ND State Water Commission, Bismarck, ND 7. MN Pollution Control Agency, Detroit Lakes, MN 8. MN Dept. of Natural Resources, Bemidji, MN 9. ND Dept. of Health, Bismarck, ND
10. Int. Niagara	1953	1. *Division Engineer, Great Lakes and Ohio River Division -- Chicago District Engineer -designated Alternate 2. Dept. of Energy, FERC, Wash., D.C.
11. Int. St Lawrence River	1953	1. *Division Engineer, Great Lakes and Ohio River Division Chicago District Engineer-designated Alternate 2. Civil Engineer, Retired 3. Mechanical Engineer, Retired 4. Rochester Institute of Technology 5. Atlantic Philanthropies
12. Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data	1953	1. * Great Lakes and Ohio River Division 2. Dept. of Commerce, Ann Arbor, MI
13. Int. Niagara Committee	1955	*Division Engineer, Great Lakes and Ohio River Division
14. Int. Souris River Board ****	2001	1. District Engineer, St. Paul 2. *ND State Engr., Bismark, ND 3. Dept. of Interior, USGS, Bismarck, ND
15. Columbia River Treaty Entities	1964	1. Division Engineer, Northwestern Division 2. *Bonneville Power Admin., Portland, OR
16. Columbia River Treaty	1964	1. *HQUSACE, CECW-ZB, Wash., D.C. 2. Department of Energy, Tucson, AZ
17. Int. Champlain-Richelieu	1975	1. *New York Dept. Environmental Conservation 2. District Engineer, New York 3. Vermont Environmental Conservation. Agency 4. New England River Basins Commission, Staff Associate 5. Dept. of Interior F&WS, Boston, MA
18. Lake Ontario - St. Lawrence River Study Board	2001	1. * Institute for Water Resources (IWR) 2. NY Department of Environmental Conservation 3. Cornell University 4. Rochester Institute of Technology 5. Saint Regis Mohawk Tribe 6. 6. Private Citizens (2)

* Signifies U.S. Section Chairman

** In September 2000, the International Joint Commission formally combined its existing International St. Croix River Board of Control and its International Advisory Board on Pollution Control - St. Croix River and established the International St. Croix River Board.

*** Amalgamated Board Comprised of Former Int. Red River Pollution Board and Red River Portion of Former Int. Souris-Red Rivers Engineering Board

**** Amalgamated Board Comprised of Former Int. Souris River Board of Control and Souris River Portion of Former Int. Souris-Red Rivers Engineering Board

Comprehensive Study on Regulating Water Levels on Lake Ontario and in the St. Lawrence River,

In FY2001, the International Joint Commission formed the Lake Ontario - St. Lawrence River Study Board to undertake a comprehensive five-year study to assess and evaluate the current criteria used for regulating water levels on Lake Ontario and in the St. Lawrence River. The Study Board engaged by the IJC is a bi-national group of diverse experts from government, academia, native communities, and interest groups representing the geographical, scientific and community concerns of the Lake Ontario - St. Lawrence River system. The U.S. Director of the Study is from IWR. The Corps of Engineers leads 5 of the 9 Technical Work Groups, and participates on 2 others.

The Mission of the Study is to consider, develop, evaluate and recommend updates and changes to the 1956 criteria for Lake Ontario-St. Lawrence River water levels and flow regulation, taking into account how water level fluctuations affect all interests and changing conditions in the system including climate change, all within the terms of the Boundary Waters Treaty. The Study Board is undertaking studies to provide the IJC with the information it needs to evaluate options for regulating levels and flows in the Lake Ontario-St. Lawrence River system in order to benefit affected interests and the system as a whole. These studies include:

a. Reviewing the operation of the structures controlling the levels and flows of the Lake Ontario-St. Lawrence River system in the light of the impacts of those operations on affected interests, including the environment;

b. Assessing whether changes to the Order of Approval or regulation plan are warranted to meet contemporary and emerging needs, interests and preferences for managing the system in a sustainable manner; and

c. Evaluating any options identified to improve the operating rules and criteria governing the system.

The Study Board will provide options and recommendations for the IJC's consideration. The Study Board will integrate as many relevant considerations and perspectives into its work as possible, including those that have not been incorporated in previous assessments of Lake Ontario-St Lawrence River regulation, to assure that all significant issues are adequately addressed.

INVESTIGATION OF PROJECTS UNDER FEDERAL POWER ACT

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REGULATORY, SUNKEN VESSEL REMOVAL AND NATIONAL EMERGENCY PREPAREDNESS ACTIVITIES

1. Regulatory Activities

Authorities. The following authorities charge the Corps of Engineers with the regulation of various construction related activities in U. S. waters and wetlands: Sections 9 and 10 of the Rivers and Harbors Act of 1899 (structures in waterways and the alteration of waterways); Section 103 of the Marine, Protection, Research, and Sanctuaries Act of 1972 (Ocean Dumping); and Section 404 of the Clean Water Act (discharge of dredged or fill material).

Work Completed. During FY 2003, the Corps reviewed and authorized approximately 86,000 permit activities, 88 percent of which were approved within 60 days. About 7300 projects were issued individual permits, and another 79,000 activities were reviewed and approved under regional or nationwide general permits. General permits are issued to the public at large and define types of minor activities with no more than minimal adverse effects on the aquatic environment, which do not usually require the extensive review necessary for projects authorized by individual permits. Use of general permits provides significant relief to the regulated public by avoiding red tape for small projects with minimal environmental impacts. The Corps denied approximately 200 permits during FY 2003 since most projects which might otherwise have been denied a permit were either modified or conditioned to meet Corps requirements, scaled down to qualify for approval under general permits, or withdrawn. About 4,500 permit applications were either withdrawn or canceled. Under the regulatory program, the Corps made over 78,000 jurisdiction determinations in FY 2003, many of which were made in response to requests from landowners who were not applying for permits

The Corps investigated approximately 5,700 alleged illegal activities, most of which were violations of Section 404 of the Clean Water Act. Under the permit program in FY 2003, the Corps authorized the filling of approximately 21,000 acres of wetlands but required the restoration, enhancement, or creation of approximately 43,000 wetland acres.

On January 9, 2001 the U.S. Supreme Court invalidated a Corps permit denial by the Chicago District for the filling of isolated waters associated with a landfill by the Solid Waste Agency of Northern Cook County (SWANCC). The Court determined that the Corps long established protocol of asserting section 404 jurisdiction based on use of waters by migratory birds was not supported by the Clean Water Act. This called into question other Section 404 jurisdictional criteria. The Corps and EPA published an Advanced Notice of Proposed Rule Making (ANPRM) on SWANCC jurisdictional issues in January, FY 2003. Subsequent review of the public comments to the ANPRM resulted in the decision not to conduct a rule-making and concentrate on improving consistency issues with regard to jurisdictional determinations nationwide.

TABLE A
GENERAL REGULATORY FUNCTIONS

Obligations		
Unobligated Balance - 30 Sep 02	$	7,168,285
Allotments	$	141,090,753
Total Funds Available	$	148,259,038
Obligations	$	141,289,383
Unobligated Balance- 30 Sep 03	$	6,969,655
Expenditures		
Unexpended Balance - 30 Sep 02	$	12,022,952
Allotment	$	141,090,753
Total Funds Available	$	153,113,705
Expenditures	$	140,663,293
Unexpended Balance - 30 Sep 03	$	12,450,412

Investigation and Removal of Sunken Vessels

Under the authority of Sections 19 and 20 of the River and Harbor Act of 1899, the Corps of Engineers investigated sunken vessels in navigable waters and removed those obstructing navigation. For obligation expenditures, see Table B (next page)

TABLE B
REMOVAL OF SUNKEN VESSELS
($000)

Obligations	
Unobligated Balance - 30 Sep 02	$ 16.1
Allotment	$ 475.9*
Total Funds Available	$ 492.0
Obligations	$ 577.6**
Unobligated Balance - 30 Sep 03	$ 10.0
Expenditures	
Unexpended Balance - 30 Sep 02	$ 16.1
Allotment	$ 475.9*
Total Funds Available	$ 492.0
Expenditures	$ 577.0**
Unexpended Balance - 30 Sep 03	$ 0.6

* $500 less O&M Savings and Slippage
** $85.6 Reprogrammed Into This Program During FY 2003

2. National Emergency Preparedness Activities

Authority. Executive Orders 10480 and 12656 and the Federal Emergency Management Agency (FEMA) under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121 et seq. are the basis of the Federal Response Plan. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps. This includes responsibility for development of comprehensive national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, plans for response(s) to acts of terrorism, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural/technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

Status. During FY 2003, the Corps of Engineers continued its effort to improve the command's readiness posture and its ability to respond to various national/regional catastrophic disasters to include terrorists attacks. Emphasis has been on those activities to prepare for catastrophic natural and technological disasters requiring major Federal support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The primary focus during FY 2003 was to provide support to two major national level civil planning areas: (a) support to the nation's ability to mobilize national assets to meet national/regional level emergencies and (b) support to continuity of government and continuity of operations during national emergencies. Lessons learned from past hurricanes, floods, earthquakes, and events of September 11, 2001 as well as more recent events such as Hurricane Isabel, the National Capitol Region workshop, the Alaskan Hurricane CPX and the evolving New Madrid earthquake scenario, clearly indicate that the current system does not adequately provide for a response to catastrophic disasters that is sufficiently timely or comprehensive. In this regard, the Corps has initiated a program that uses the

deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national/regional catastrophic disasters to include terrorist attacks. More extensive coordination with Federal, state and local entities will be incorporated into plan development. In this regard, following FEMA's program focus, USACE continues to play a key role in national security planning such as supporting Homeland Security strategic planning efforts, development of the National Capitol Region Response Plan and other plans as the New Madrid Earthquake, the South Florida Hurricane, the Southern California Earthquake, the New Orleans Hurricane and other contingencies with national implications. Additional efforts focus on continuing to strengthen COOP readiness. Exercises, involving federal, state and local officials, contribute to a more timely and effective execution of Corps responsibilities during disasters that have national impacts. In November 2003, a U.S. Army Corps of Engineers Regional Response Workshop was held in Anchorage Alaska. This workshop served to validate the Anchorage Earthquake Catastrophic Disaster Response Plan (CDRP), serve as a means of addressing the unique requirements of a CDRP occurring in an extremely harsh environment, and to set the stage and planning for a related Command Post Exercise (CPX). A North Atlantic Division Weapons of Mass Destruction Regional Readiness Workshop was conducted in the Washington DC area in April 2003. This workshop served to provide an understanding of U.S. Army Corps of Engineers (USACE) roles and responsibilities under the Federal Response Plan, particularly by examining the evolving USACE and ESF #3 role in relation to the department of Homeland Security and the National Capitol Region Weapons of Mass Destruction Incident Contingency Plan. Major efforts have been made since September 11 for continued inter-jurisdictional collaboration in planning, training, and exercising to improve preparedness for a terrorist event in the NCR. A regional response to a WMD incident requires intense intergovernmental and inter-jurisdictional collaboration and cooperation, as was evidenced by the response at the Pentagon 9/11 incident. Continuing to capitalize on existing planning efforts and forums, and taking advantage of the current atmosphere of urgency regarding emergency preparedness will advance preparedness among all levels of government to improve response and ensure the health and safety of citizens, workers, and visitors in the metropolitan Washington region. A HQUSACE Table-Top Exercise (TTEX) was held on 6 May 2003 in Washington, DC. The TTEX explored the ramifications of a multi-strike terrorism event while a hurricane was impacting the east coast, particularly the National Capital Region. Portions of Virginia, Maryland, and New Jersey were impacted by high winds and flooding before the storm moved back out into the Atlantic. During the TTEX, besides the hurricane response, USACE staff also had to work around depleted resources from the ongoing War in Iraq, while also responding to terrorists events in California and Virginia. Participants examined decisions made by Federal, state, and local agencies throughout the course of the disaster. Scenario briefings described the progress of events, as well as Federal, state, and local activities that would be underway. Special topic briefings were presented to educate participants and clarify new concepts. The exercise involved response, recovery, and preparedness efforts surrounding a multi-disaster event from the Federal, state, local, and regional perspectives. Also discussion involved contingency planning, resource availability, and interagency coordination to successfully meet short and long term needs resulting from the disaster. Recurring themes were COOP, including plans and alternate headquarters responsibilities, staffing shortfalls, and resources. Senior leaders were required to conceptualize operations under which the priorities, capabilities, and needs of all partners and customers in a disaster operation are synchronized over the operational continuum. While the HQTTEX scenario opened the door on a large number of topics, the focus of the exercise was the plan of action for the Federal Response Plan's (FRP) Emergency Support Function (ESF) #3 – Public Works and Engineering, for which USACE is designated the operating agent for Department of Defense (DOD). For National Emergency Preparedness fiscal year obligations and expenditures, see Table C.

TABLE C
NATIONAL EMERGENCY PREPAREDNESS

Obligations	
Unobligated Balance - 30 Sep 02	$ 1,507,472
Appropriations FY 03	$ 4,000,000
Total Funds Available	$ 5,507,472
Obligations FY 03	$ 3,508,868
Unobligated Balance - 30 Sep 03	$ 1,517,710
Expenditures	
Unexpended Balance - 30 Sep 02	$ 2,461,011
Appropriations FY 03	$ 4,000,000
Total Funds Available	$ 6,461,011
Expenditures FY 03	$ 3,382,071
Unexpended Balance - 30 Sep 03	$ 2,598,047

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
ALASKA										
Chena River Lakes	Chena Tanana	Chena River	Fairbanks	1979	2,000	NPP	FRD	Earth	50	40,200
ARIZONA										
Adobe	Gila	Skunk Creek	Phoenix	1982	18,350	NPP	FR	Earth	109	2,275
Alamo	Colorado	Bill Wms. River	Wenden	1968	1,045,300	560	FRSWX	Earth	283	975
Cave Buttes	Gila	Cave Creek	Phoenix	1979	46,600	NPP	FRX	Earth	109	2,275
Dreamy Draw	Gila	Dreamy Draw	Phoenix	1973	320	NPP	FRX	Earth	50	448
New River	Gila	New River	Phoenix	1985	43,520	NPP	F	Earth	104	2,320
Painted Rock	Gila	Gila River	Gila Bend	1959	2,476,340	NPP	FR	Earth	181	4,780
Tat Momolikot	Gila	Santa Rosa Wash	Casa Grande	1974	198,550	NPP	GWX	Earth	75.5	12,500
Whitlow Ranch	Gila	Queen Creek	Superior	960	34,500	NPP	F	Earth	25	978
ARKANSAS										
Blakely Mountain	Ouachita Dam	Ouachita	Hot Springs	1955	2,768,500	20,900	FP	Earth	235	1,100
Blue Mountain	Arkansas	Petit Jean River	Paris	1947	257,900	2,910	FRWX	Earth	115	2,800
DeGray	Ouachita	Caddo	Arkadelphia	1971	881,900	6,400	FPRSQN	Earth	243	3,400
DeQueen	Red	Rolling Fork River	DeQueen	1977	136,100	1,680	FSQRW	Earth	160	2,360
Dierks	Red	Saline River	Dierks	1975	96,800	1,360	FSRAW	Earth & Rock	153	2,500
Gillham	Red	Cossatot River	Gillham	1975	221,800	1,370	FSQW	Earth & Rock	160	1,750

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Millwood	Red	Little River	Ashdown	1966	1,854,930	29,200	FSW	Earth	88	17,554
Narrows Dam	Ouachita	Little Missouri	Murfreesboro	1949	407,900	2,500	FP	Con-crete	175	941
Nimrod	Arkansas	Fourche LaFve River	Plainview	1942	336,010	3,550	FSWX	Con-crete	97	1,012
CALIFORNIA										
Black Butte	Sacramento	Stony Creek	Orland	1963	160,000	770	FIRX	Earth	156	2,970
Brea	Santa Ana	Brea Creek	Fullerton	1942	4,009	NPP	FR	Earth	87	1,765
Buchanan Dam H.V. Eastman Lake	San Joaquin	Chowchilla River	Chowchilla	1975	150,000	470	FIRW	Earth & Rock	205.5	1,800
Carbon Canyon	Santa Ana	Carbon Canyon River	Brea	1961	6,614	NPP	FR	Earth	99	2,150
Coyote Valley	Russian	East Fork Russian River	Ukiah	1959	122,500	1,922	FRXS	Earth	160	3,500
Dry Creek (Warm Springs) Lake and Channel	Russian	Dry Creek	Healdsburg	1983	381,000	3,600	FRSW	Earth	319	3,000
Farmington	San Joaquin	Littlejohn Creek	Farmington	1952	52,000	NPP	F	Earth	60	7,800
Fullerton	Santa Ana	East Fullerton Crk	Fullerton	1941	764	NPP	FR	Earth	46	575
Hansen	Los Angeles	Big Tujunga Wash	Los Angeles	1940	51,000	120	FRX	Earth	97	10,475
Harry L. Englebright	Sacramento	Yuba River	Marysville	1941	69,000	400	DR	Con-crete	280	1,142
Hidden Dam- Hensley Lake	San Joaquin	Fresno River	Madera	1975	90,000	5,000	FIRW	Earth	163	5,730
Isabella	San Joaquin	Kern River	Bakersfield	1953	570,000	1,850	FIRW	Earth	185	4,952

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							Project Functions	Type	Height (Feet)	Length (Feet)
Lopez	Los Angeles	Pacoima Wash	San Fernando	1954	440	NPP	F	Earth	50	1,333
Martis Creek	Sacramento	Martis Creek	Reno	1971	20,400	71	FSR	Earth	113	2,670
Merced County Stream Group										
Bear	San Joaquin	Bear Creek	Merced	1954	7,700	NPP	F	Earth	92	1,830
Burns	San Joaquin	Burns Creek	Merced	1950	7,000	NP	F	Earth	55	4,075
Mariposa	San Joaquin	Mariposa Creek	Merced	1948	15,000	NPP	F	Earth	88	1,330
Owens	San Joaquin	Owens Creek	Merced	1949	3,600	NPP	F	Earth	75	790
Mojave River	Mojave	Mojave River	Victorville	1971	89,669	NPP	FR	Earth	106	1,250
New Hogan	San Joaquin	Calaveras River	Valley Springs	1963	325,000	715	FIRX	Earth & Rock	210	1,960
North Fork, American River	Sacramento	American River	Auburn	1939	14,700	280	DR	Con-crete	155	620
Pine Flat	San Joaquin	Kings River	Piedra	1954	1,000,000	NPP	FIRX	Con-crete	429	1,820
Prado	Santa Ana	Santa Ana River	Corona	1941	196,235	NPP	FRWX	Earth	106	2,280
Redbank and Fancher Creeks	San Joaquin	Fancher Creek	Fresno	1993	9,712	NPP	F	Earth	44	16,135
San Antonio	Santa Ana	San Antonio Creek	Upland	1956	7,703	NPP	FX	Earth	160	3,850
Santa Fe	San Gabriel	San Gabriel River	Duarte	1949	32,109	NPP	FRX	Earth	92	23,800
Sepulveda	Los Angeles	Los Angeles River	Van Nuys	1941	17,425	NPP	FR	Earth	57	15,444
Success	San Joaquin	Tule River	Porterville	1960	85,000	400	FIRX	Earth	142	3,490
Terminus	San Joaquin	Kaweah River	Visalia	1961	150,000	345	FIRX	Earth	250	2,375

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							Project Functions	Type	Height (Feet)	Length (Feet)
Whittier Narrows	San Gabriel	San Gabriel River and Rio Hondo	El Monte	1957	49,143	NPP	FRX	Earth	56	16,960
COLORADO										
Bear Creek	Missouri	Bear Creek	Denver	1978	30,600	107	FRX	Earth	180	5,300
Chatfield	Missouri	South Platte River	Denver	1974	235,098	1,423	FRX	Earth	148	12,500
Cherry Creek	Missouri	Cherry Creek	Denver	1950	92,126	844	FRX	Earth	141	14,300
John Martin	Arkansas	Arkansas River	Lamar	1943	605,115	1,844	FIR	Con-crete & Earth	106	13,962
Trinidad	Arkansas	Purgatoire River	Trinidad	1977	124,463	563	FIRX	Earth	200	6,610
CONNECTICUT										
Black Rock	Housatonic	Branch Brook	Thomaston	1970	8,700	20	FR	Earth	154	933
Colebrook River	Connecticut	West Branch, Farmington River	Riverton	1969	97,700	760	FRSX	Earth	223	1,300
Hancock Brook	Housatonic	Hancock Brook	Plymouth	1960	4,030	40	FRW	Earth	57	630
Hop Brook	Housatonic	Hop Brook	Middlebury	1968	6,970	21	FR	Earth	97	520
Mansfield Hollow	Thames	Natchaug River	Willimantic	1952	52,000	450	FRW	Earth	68	12,420
Northfield Brook	Thames	Northfield Brook	Thomaston	1965	2,430	8	FRW	Earth	118	810
Thomaston	Housatonic	Naugatuck River	Thomaston	1960	42,000	NPP	F	Earth	142	2,000
West Thompson	Thames	Quinebaug River	Thompson	1965	26,800	200	FRW	Earth	70	2,550

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							Project Functions	Type	Height (Feet)	Length (Feet)
IDAHO										
Lucky Peak	Columbia	Boise River	Boise	1955	306,000	2,820	FIR	Earth	340	2,340
ILLINOIS										
Alpine Dam	Upper Mississippi	Keith Creek	Rockford	1942	1,770	NPP	F	Earth	48	600
Carlyle	Upper Mississippi	Kaskaskia River	Carlyle	1967	983,000	26,000	FSNRWA	Earth	67	6,570
Farmdale	Upper Mississippi	Farm Creek	East Peoria	1951	15,500	NPP	F	Earth	80	1,275
Fondulac	Upper Mississippi	Fondulac Creek	East Peoria	1951	3,780	NPP	F	Earth	67	1,000
Lewings Lake Dam	Upper Mississippi	S. Branch Kent Creek	Rockford	1935	1,081	121	FR	Earth	23	1,090
Page Park Dam	Upper Mississippi	Kent Creek	Rockford	1980	12,014	NPP	F	Earth	41	3,670
Shelbyville	Upper Mississippi	Kaskaskia River	Shelbyville	1970	684,000	11,100	FSNRW	Earth	108	3,000
Rend Lake	Upper Mississippi	Big Muddy River	Benton	1970	294,000	18,900	FQRSW	Earth	54	10,600
INDIANA										
Brookville	Ohio	East Fork of Whitewater River	Brookville	1974	359,600	2,250	FRSW	Earth& Rock	182	3,000
Cagles Mill	Ohio	Mill Creek	Tere Haute	1952	228,120	1,400	FRX	Earth	150	950
Cecil M. Harden	Ohio	Raccoon Creek	Rockville	1960	132,800	1,100	FRX	Earth	117	1,790
J. Edward Roush	Ohio	Wabash River	Huntington	1969	153,100	500	FRW	Earth	91	5,332
Mississinewa	Ohio	Mississinewa	Peru	1967	368,400	1,100	FRW	Earth	137	8,100
Monroe	Ohio	Salt Creek	Harrodsburg	1964	441,000	3,280	FARS	Earth	93	1,400

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							Project Functions	Type	Height (Feet)	Length (Feet)
Patoka	Ohio	Patoka River	Ellsworth	1978	301,600	2,010	FRSQW	Earth & Rock	84	1,550
Salamonie	Ohio	Salamonie	Wabash	1966	263,600	976	FRW	Earth	133	6,100
IOWA										
Big Creek Barrier Dam	Upper Mississippi	Big Creek	Polk City	1974	4,200	100	F	Earth	83	4,550
Big Creek Diversion Dam	Upper Mississippi	Big Creek	Polk City	1970	27,500	7,600	FR	Earth	80	1,750
Big Creek Terminal Dam	Upper Mississippi	Big Creek Diversion Channel	None	1972	27,500	7,600	F	Earth	95	480
Coralville	Upper Mississippi	Iowa River	Iowa City	1958	475,000	5,430	FARWQ	Earth	100	1,400
Red Rock	Upper Mississippi	Des Moines River	Des Moines	1969	1,717,235	19,000	FARWQ	Earth	110	5,676
Rathbun	Missouri	Chariton River	Centerville	1969	552,000	11,000	FNRWXQS	Earth	86	10,600
Saylorville	Upper Mississippi	Des Moines River	Des Moines	1975	585,000	5,950	FARWQS	Earth	105	6,750
Virden Creek Dam	Upper Mississippi	Virden Creek	Waterloo	1979	8,300	NPP	F	Earth	33	3,040
KANSAS										
Clinton	Missouri	Wakarusa River	Lawrence	1977	397,200	7,000	FSWXRQ	Earth & Rock	114	9,250
Council Grove	Arkansas	Grand (Neosho)	Council Grove	1964	112,882	3,259	FSQR	Earth	96	6,500
El Dorado	Arkansas	Walnut River	El Dorado	1981	246,882	8,400	FSQRW	Earth	99	20,930
Elk City	Arkansas	Elk River	Independence	1966	287,200	4,440	FSQWR	Earth	107	4,840

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							Project Functions	Type	Height (Feet)	Length (Feet)
Fall River	Arkansas	Fall River	Fall River	1949	254,900	2,330	FSWQR	Earth	94	6,015
Hillsdale	Missouri	Big Bull Creek	Hillsdale	1981	160,000	4,580	FSQRWX	Earth	75	11,600
John Redmond	Arkansas	Grand (Neosho)	Burlington	1964	626,000	9671	FSQRW	Earth	86.5	21,790
Kanopolis	Missouri	Smoky Hill River	Marquette	1948	450,000	3,815	FRWXS	Earth	131	15,360
Marion	Arkansas	Cottonwood River	Marion	1968	141,890	6,210	FRQS	Earth	67	8,795
Melvern	Missouri	Marais des Cygnes	Melvern	1972	363,000	6,930	FRQWXS	Earth	98	9.700
Milford	Missouri	Republican River	Junction City	1965	1,160,000	15,600	FRSXWN	Earth & Rock	126	6,300
Pearson Skubitz Big Hill	Arkansas	Big Hill Creek	Cherryvale	1981	39,540	1,190	FSRW	Earth	83	3,902
Perry	Missouri	Deleware River	Perry	1969	770,000	12,500	FRSXWN	Earth & Rock	96	7,750
Pomona	Missouri	110 Mile Creek	Pomona	1963	230,000	4,000	FRSWXQ	Earth & Rock	85	7,750
Toronto	Arkansas	Verdigris River	Toronto	1960	200,800	2,660	FSQWR	Earth	90	4,712
Tuttle Creek	Missouri	Big Blue River	Manhattan	1962	2,346,000	15,800	FRWXQNS	Earth & Rock	157	7,500
Wilson	Missouri	Saline River	Wilson	1964	776,000	9,000	FIRWXN	Earth	160	5,600
KENTUCKY										
Barren River	Ohio	Barren River	Glasgow	1964	815,200	4,340	FARS	Earth	146	3,970
Buckhorn	Ohio	Middle Fork of	Buckhorn	1960	168,000	550	FQRW	Earth	162	1,020

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							Project Functions	Type	Height (Feet)	Length (Feet)
		Kentucky River								
Carr Creek	Ohio	Carr Fork	Hazard	1976	47,700	530	FQRW	Earth & Rock	130	720
Cave Run	Ohio	Licking River	Farmers	1974	614,100	6,790	FQRW	Earth & Rock	148	2,740
Dewey	Ohio	Johns Creek	Paintsville	1949	93,000	1,100	FRW	Earth	118	913
Fishtrap	Ohio	Levisa Fork, Big Sandy River	Pikeville	1968	164,360	569	FARW	Rock	195	1,100
Grayson	Ohio	Little Sandy	Grayson	1967	118,990	1,050	FQRW	Earth & Rock	120	1,460
Green River	Ohio	Green River	Camp-bellsville	1969	723,200	5,070	FRSQW	Earth & Rock	142	2,350
Martins Fork	Cumberland	Martins Fork	Harlan	1978	21,00	578	FQ	Con-crete	97	574
Paintsville	Ohio	Paint Creek	Paintsville	1983	73,500	261	FQRW	Earth & Rock	160	1,600
Nolin	Ohio	Nolin River	Kyrock	1963	609,400	2,890	FAR	Earth & Rock	174	990
Rough River	Ohio	Rough River	Leitchfield	1958	334,400	2,180	FRX	Earth & Rock	124	1,530
Taylorsville	Ohio	Salt River	Taylorsville	1983	291,670	1,625	FQRW	Earth &	164	1,280

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							Project Functions	Type	Height (Feet)	Length (Feet)
								Rock		
Yatesville	Ohio	Blaine Creek	Yatesville	1988	86,951	3,921	FQRW	Earth & Rock	105	760
LOUISIANA										
Bayou Bodcau	Red	Bayou Bodcau	Shreveport	1949	357,300	NPP	FRW	Earth	70	12,850
Caddo Lake	Red	Cypress Bayou	Shreveport	1971	175,000	32,700	NFRS	Con-crete & Earth		3,700
Wallace Lake	Red	Cypress Bayou	Shreveport	1946	96,100	2,300	FQRS	Earth	30	4,994
MARYLAND										
Jennings Randolph Lake	Potomac	North Branch Potomac River	Barnum	1981	130,900	952	FQRSW	Earth & Rock	296	2,130
MASSACHUSETTS										
Barre Falls	Connecticut	Ware River	Barre	1958	24,000	NPP	FRW	Earth & Rock	62	885
Birch Hill	Connecticut	Millers River	So. Roylaston	1941	49,900	NPP	FRW	Earth & Rock	56	1,400
Buffumville	Thames	Little River	Charlton	1958	12,700	200	FRW	Earth & Rock	66	3,255
Charles River Natural Valley Storage	Charles	Charles River	Millis	1983	35,000	NPP	F	Non-struc-tural	--	--

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							Project Functions	Type	Height (Feet)	Length (Feet)
Conant Brook	Connecticut	Conant Brook	Monson	1966	3,740	NPP	F	Earth & Rock	85	1,050
East Brimfield	Connecticut	Quinebaug River	Fiskdale	1960	30,000	360	FRW	Earth & Rock	55	520
Hodges Village	Connecticut	French River	Oxford	1959	12,800	NPP	FRW	Earth & Rock	55	2,140
Knightville	Connecticut	Westfield River	Huntington	1941	49,000	NPP	FRW	Earth & Rock	160	1,200
Littleville	Connecticut	Middle Branch, Westfield River	Chester	1965	32,400	275	FRWS	Earth & Rock	1,164	1,360
Tully	Connnecticut	Tully River	Fryville	1949	22,000	300	FRW	Earth & Rock	62	1,570
West Hill	Blackstone	West River	Uxbridge	1960	12,350	NPP	FRW	Earth & Rock	51	2,400
Westville	Thames	Quinebaug River	Sturbridge	1961	11,100	23	FRW	Earth & Rock	78	560
MINNESOTA										
Big Stone Lake-Whetstone River (HWY 75)	Upper Mississippi	Minnesota River	Odessa	1974	45,000	12,700	FRW	Earth	25	13,700

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							Project Functions	Type	Height (Feet)	Length (Feet)
Lac Qui Parle Chippewa River	Upper Mississippi	Chippewa River	Watson	1950	([2])	NPP	FRWX	Rolled Earth	23.3	17,975
LacQui Parle	Upper Mississippi	Minnesota River	Montevideo	1950	158,700	7,750	FRWX	Rolled Earth	25	4,100
Marsh Lake	Upper Mississippi	Minnesota River	Montevideo	1953	35,900	8,100	FARS	Rolled Earth	19.5	11,800
Orwell	Red River	Otter Tail River of the North	Fergus Falls	1953	14,100	790	FARS	Rolled Earth	47	1,355
Red Lake	Red River	Red Lake River of the North	Red Lake	1951	3,270,000	288,800	FARSX	Earth & Rock	15.5	36,500
MISSISSIPPI										
Arkabutla Lake	Lower Mississippi	Coldwater River	Arkabutla	1945	525,300	5,100	F	Earth & Rock	81	11,500
Enid Lake	Lower Mississippi	Yocona River Mississippi	Enid	1952	660,000	6,100	F	Earth & Rock	99	8,400
Grenada Lake	Lower Mississippi	Yalobusha River	Grenada	1954	1,337,400	9,800	F	Earth & Rock	102	13,900
Okatibbee	Pascagoula	Okatibbee Creek	Meridian	1969	142,400	1,280	FQSR	Earth	67	6,543
Sardis Lake	Lower Mississippi	Little Tallahatchie Rivere	Sardis	1940	1,570,000	10,700	F	Earth & Rock	117	15,300

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							Project Functions	Type	Height (Feet)	Length (Feet)
MISSOURI										
Bear Creek Dam	Upper Mississippi	Bear Creek	Hannibal	1962	8,700	NPP	F	Earth	81	1,250
Clearwater	White	Black River	Piedmont	1948	413,700	1,630	FRWX	Earth & Rock	154	4,225
Long Branch	Grand Chariton	Little CharIton	Macon	1980	65,000	2,430	FRSQW	Earth	71	3,800
Little Blue River Lakes										
Blue Springs	Missouri	Little Blue River	Kansas City	1988	26,600	560	FRW	Earth & Rock	78	2,500
Longview	Missouri	Little Blue River	Kansas City	1986	46,900	930	FRWQ	Earth	120	1,900
Pomme de Terre	Missouri	Pomme de Terre River	Hermitage	1961	650,000	7,820	FRWXA	Earth & Rock	155	4,630
Smithville	Missouri	Little Platte River	Smithville	1982	246,500	7,190	FSQRW	Earth	95	4,200
Wappapello	Lower Mississippi	St. Francis River	Wappapello	1941	613,200	4,100	FR	Earth & Rock	109	2,700
NEBRASKA										
Harlan County	Missouri	Republican Riv	Republican City	1952	850,000	13,600	FIRWXA	Earth	107	11,827

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							Project Functions	Type	Height (Feet)	Length (Feet)
Papillion Creek and Tributaries										
Glenn Cunningham (Site 11)	Missouri	Knight Creek	Omaha	1975	17,161	377	FQEX	Earth	67	1,940
Standing Bear (Site 16)	Missouri	Trib of Big Papillion Creek	Omaha	1973	4,876	125	FRX	Earth	70	1,460
Ed Zorinsky (Site 18)	Missouri	Boxelder Creek	Omaha	1991	10,686	259	FR	Earth	64	11,400
Wehrspann (Site 20)	Missouri	S. Papillion Creek	Omaha	1991	8,801	239	FR	Earth	59	11,810
Salt Creek & Tributaries Olive Creek (Site 2)	Missouri	S. Trib. Olive Br. Creek	Kramer	1964	4,957	162	FR	Earth	45	3,020
Blue Stem (Site 4)	Missouri	N. Trib Olive Br. Creek	Sprague	1963	9,660	309	FR	Earth	57	2,760
Wagon Train (Site 8)	Missouri	N. Trib. Hickman Creek	Holland	1963	8,929	277	FR	Earth	52	1,650
Stagecoach Site (9)	Missouri	S. Trib. Hickman Creek	Hickman	1964	5,864	195	FB	Earth	48	2,250
Yankee Hill (Site 10)	Missouri	Cardwell Creek	Denton	1966	7,463	211	FR	Earth	52	3,100
Conestoga (Site 12)	Missouri	Holmes Creek	Denton	1964	9,567	217	FR	Earth	63	3,000
Town Lake (Site 13)	Missouri	Middle Creek	Pleasantdale	1966	7,182	236	FR	Earth		
Pawnee (Site 14)	Missouri	N. Middle Creek	Emerald	1965	28,112	739	FR	Earth	65	5,000
Holmes Park Lake (Site 17)	Missouri	Antelope Creek	Lincoln	1963	6,628	123	FR	Earth	55	7,700
Branched Oak (Site 18)	Missouri	Oak Creek	Raymond	1968	96,774	1,847	FR	Earth	70	5,200
NEW HAMPSHIRE										

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							Project Functions	Type	Height (Feet)	Length (Feet)
Blackwater	Merrimack	Blackwater River	Webster	1941	46,000	NPP	FRW	Earth	75	1,150
Edward MacDowell	Merrimack	Nubanusit Brook	West Peterborough	1950	12,800	NPP	FRW	Earth	67	1,030
Franklin Falls	Merrimack	Pemigewasset River	Franklin	1943	154,000	NPP	FRW	Earth	140	1,740
Hopkinton-Everett	Merrimack	Contoocook River	West Hopkinton	1962	71,500	200	FRW	Earth	76	790
	Merrimack	Piscataquog River	East Weare	1962	87,500	120	FRW	Earth	115	2,000
Otter Brook	Connecticut	Otter Brook	Keene	1958	18,300	85	FRW	Earth	133	1,288
Surry Mountain	Connecticut	Ashuelot River	Keene	1941	32,500	265	FRW	Earth	86	1,670
NEVADA										
Mathews Canyon	Colorado	Mathews Canyon	Caliente	1957	6,271	NPP	FX	Earth	71	800
Pine Canyon	Colorado	Pine Canyon	Caliente	1957	7,747	NPP	FX	Earth	92	884
NEW MEXICO										
Abiquiu	Rio Grande	Rio Charma	Abiquiu	1963	1,192,800	NPP	FXS	Earth	325	1,540
Cochiti	Rio Grande	Rio Grande	Pena Blanca	1975	582,019	1,200	FRWX	Earth	241	28,300
Conchas	Arkansas	Canadian River	Tucumcari	1939	513,900	2,694	FI	Con-crete & Earth	200	19,400
Galisteo	Rio Grrande	Galisteo Creek	Santa Fe	1970	89,468	NPP	FX	Earth	156	2,820
Jemez Canyon	Rio Grande	Jemez River	Bernailillo	1953	97,425	NPP	FX	Earth	146.6	780
Santa Rosa	Pecos	Pecos	Santa Rosa	1979	438,364	NPP	FIX	Earth	212	1,950
Two Rivers:										
Diamond "A" Dam	Pecos	Rio Hondo	Roswell	1963	163,775	NPP	FX	Earth	998	4,885

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							Project Functions	Type	Height (Feet)	Length (Feet)
Rocky Dam	Pecos	Rocky Arroyoo							118	2,940
NEW YORK										
Almond	Susquehanna	Canacadea Crk	Hornell	1949	14,005	162	FRW	Earth	90	1,260
Arkport	Susquehanna	Canisteo Crk	Arkport	1940	7,900	NPP	F	Earth	113	1,200
East Sidney	Susquehanna	Ouleout Crk	Franklin	1950	33,550	210	FRW	Con-crete & Earth	130	2,010
Mount Morris	Genesee	Genesee River	Mount Morris	1952	337,000	170	FR	Con-crete	210	1,028
Whitney Point	Susquehanna	Otselic River	Whitney Point	1942	86,440	1,200	FRW	Earth	95	4,900
NORTH CAROLINA										
B. Everett Jordan	Cape Fear	New Hope	Durham	1982	753,500	14,300	FQRSWX	Earth	112	1,330
Falls	Neuse	Neuse	Raleigh	1983	335,620	11,300	FQRSWX	Earth	92	1,915
W. Kerr Scott	Yadkin Pee Dee	Yadkin	Wilkesboro	1963	153,000	1,470	FARSX	Earth	148	1,740
NORTH DAKOTA										
Baldhill	Red River of the North	Sheyenne River	Valley City	1951	101,365	5,430	FARS	Earth	61	1,650
Bowman-Haley	Missouri	North Fork, Grand River	Haley	1967	91,482	1,732	FSRWK	Earth	79	5,730
Homme	Red River of the North	South Branch of Park River	Park River	1953	6,700	194	FARS	Earth	67	865
Pipestem	James River	Pipestem Creek	Jamestown	1974	142,107	840	FRWX	Earth	108	4,000
OHIO										
Alum Creek	Ohio	Alum Creek	Africa	1975	134,800	348	FRSW	Con-crete &	93	10,000

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Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Berlin	Ohio	Mahoning Creek	Deerfield	1943	91,200	240	FARSWQ	Earth Con-crete & Earth	96	5,750
Caesar Creek	Ohio	Caesar Creek	Wilmington	1978	242,200	13,300	FRSQW	Earth & Rock	165	2,750
Clarence J. Brown	Ohio	Buck Creek	Springfield	1974	63,700	1,010,	FQRW	Earth & Rock	72	6,620
Deer Creek	Ohio	Deer Creek	New Holland	1968	102,500	727	FRW	Earth	93	3,880
Delaware	Ohio	Olen Tangy River	Deleware	1961	273,000	1,325	FARW	Earth	118	1,400
Dillon	Ohio	Licking River	Zanesville	1961	273,000	1,325	FRW	Earth	118	1,400
Michael J. Kirwan	Ohio	West Branch, Mahoning River	Newton Falls	1966	78,700	580	FAQRSW	Earth	83	9,900
Mosquito Creek	Ohio	Mosquito Creek	Cortland	1944	104,100	700	FARSWQ	Earth	47	5,650
Muskingum River Reservoirs:										
Atwood	Ohio	Indian Fork	New Cumberland	1937	49,700	1,540	FRW	Earth	65	3,700
Beach City	Ohio	Sugar Creek	Beach City	1937	71,700	420	FRW	Earth	64	5,600
Bolivar	Ohio	Sandy Creek	Bolivar	1938	149,600	NPP	F	Earth	87	6,300
Charles Mill	Ohio	Black Fork	Mifflin	1936	88,000	1,350	FRW	Earth	48	1,390
Clendening	Ohio	Brushy Fork	Tippecanoe	1937	54,000	1,800	FRW	Earth	64	950
Dover	Ohio	Tuscarawas River	Dover	1938	203,000	350	F	Con-crete	83	824
Leesville	Ohio	McGuire Creek	Leesville	1937	37,400	1,000	FRW	Earth	74	1,694

APPENDIX A
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Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Mohawk	Ohio	Walhondoing Riv	Nellie	1937	285,000	NPP	F	Earth	111	2,330
Mohicanville	Ohio	Lake Fork	Mohicanville	1936	102,000	NPP	F	Earth	46	1,220
Piedmont	Ohio	Stillwater Creek	Piedmont	1937	65,000	2,270	FRW	Earth	56	1,750
Pleasant Hill	Ohio	Clear Fork	Perrysville	1938	87,700	850	FRW	Earth	113	775
Senecaville	Ohio	Seneca Fork	Senecaville	1937	88,500	3,550	FRWX	Earth	45	2,350
Tappan	Ohio	Little Stillwater Crk	Tappan	1936	61,60-0	2,350	FRW	Earth	52	1,550
Wills Creek	Ohio	Wills Creek	Conesville	1937	196,000	900	FRX	Earth	87	1,950
North Branch, Kokosing River Lake	Ohio	North Branch of Kokosing River	Fredericktown	1973	14,900	98	FRW	Earth	71	1,400
Paint Creek	Ohio	Paint Creek	New Petersburg	1972	145,000	710	FRSQW	Earth & Rock	118	700
Tom Jenkins	Ohio	East Branch, Sunday Creek	Gloucester	1951	26,900	394	FRS	Con-crete	84	944
West Fork Mill Creek	Ohio	Mill Creek	Mt Healthy	1952	11,380	200	FRX	Earth	100	1,100
William H. Harsha	Ohio	Little Miami River	Williamsburg	1978	284,500	18,760	FRSQW	Earth	200	1,450
OKLAHOMA										
Arcadia	Arkansas	Deep Fork River	Edmond	1986	92,010	1,820	FSR	Earth	102	5,250
Birch	Arkansas	Birch Creek	Barnsdall	1977	59,030	1,145	FSQRW	Earth	97	3,190
Canton	Arkansas	North Canadian	Canton	1948	383,800	3,800	FSIRW	Earth	68	15,140

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
		River								
Copan	Arkansas	Little Caney River	Copan	1983	227,700	4,850	FSQRWN	Earth	73	7,730
Fort Supply	Arkansas	Wolf Creek	Fort Supply	1942	100,700	1,820	FSX	Earth	85	11,865
Great Salt Plains	Arkansas	Salt Fork of the Arkansas River	Cherokee	1941	271,400	8,690	FRWX	Earth	68	6,010
Heyburn	Arkansas	Polecat Creek	Sapulpa	1950	55,395	880	FRWXS	Earth	89	2,920
Hugo	Red	Kiamichi River	Hugo	1974	955,200	13,140	FSQRW	Earth	101	10,200
Hulah	Arkansas	Caney River	Bartlesville	1951	289,000	3,570	FSQRNW	Earth	94	5,200
Kaw	Arkansas	Arkansas River	Ponca City	1976	1,327,160	16,750	FSQRWN	Earth	125	9,466
Oologah	Arkansas	Verdigris River	Oologah	1963	1,559,270	31,040	FSNRW	Earth	137	4,000
Optima	Arkansas	North Canadian River	Hardesty	1978	229,500	5,340	FSRW	Earth	120	15,200
Pine Creek	Red	Little River	Wright City	1969	465,780	3,750	FSQWR	Earth	124	7,712
Sardis	Red	Jackfork Creek	Clayton	1982	396,900	13,610	FSRW	Earth	101	14,138
Skiatook	Arkansas	Hominy Creek	Skiatook	1984	500,700	10,190	FSQRW	Earth	143	3,590
Waurika	Red	Beaver Creek	Waurika	1977	325,680	10,100	FISQWR	Earth	106	16,637
Wister	Arkansas	Poteau River	Wister	1949	427,480	7,386	FSAXWR	Earth	99	5,700
OREGON										
Applegate	Rogue	Applegate River	Medford	1981	75,000	988	AFIQRSW	Gravel Em-bank-ment	242	1,300
Blue River	Columbia	Blue River	Blue River	1968	85,000	975	FINR	Earth	319	1,329
Cottage Grove	Columbia	Coast Fork, Willamette River	Cottage Grv	1942	30,060	1,155	FINR	Con-crete & Earth	114	2,110

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Dorena	Columbia	Row River	Cottage Grv	1949	70,500	1,885	FINR	Con-crete & Earth	145	3,352
Fall Creek	Columbia	Middle Fork, Willamette River	Eugene	1965	115,000	1,865	FINR	Rock-fill & Con-crete	193	5,100
Fern Ridge	Columbia	Long Tom River	Eugene	1941	110,000	10,305	FINR	Rock-fill & Con-crete	49	6,624
Willow Creek	Columbia	Willow Creek	Heppner	1983	13,250	96	FRN	Roller Com-pacted Con-crete	160	1,780
PENNSYLVANIA										
Alvin R. Bush	Susquehanna	Kettle Creek	Renovo	1962	75,000	160	FRWQ	Earth & Rock	165	1,350
Aylesworth Creek	Susquehanna	Aylesworth Creek	Archbald	1970	1,700	64	FRQ	Earth & Rock	90	1,270
Beltzville	Delaware	Pohopoco Creek	Lehighton	1971	68,250	947	FQRSWA	Earth & Rock	170	4,560
Blue Marsh	Delaware	Tulpehocken	Reading	1978	50,010	960	FAQRSW	Earth	98	1,775

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
		Creek						&		
Conemaugh	Ohio	Conemaugh River	Saltsburg	1952	262,700	800	FW	Rock Con-crete	137	1,265
Cowanesque	Susquehanna	Cowanesque River	Lawrenceville	1980	89,000	1085	FRSQW	Earth & Earth	151	3,100
Crooked Creek	Ohio	Crooked Creek	Ford City	1940	93,900	350	FRW	Rock Earth	143	1,480
Curwensville	Susquehanna	West Branch, Susquehanna River	Curwensville	1965	124,200	790	FRS	Earth	131	2,850
East Branch, Clarion River	Ohio	East Branch, Clarion River	Wilcox	1952	84,300	90	FARQW	Earth	184	1,725
Foster Joseph Sayers	Susquehanna	Bald Eagle Creek	Blanchard	1969	99,000	1,730	FRWQ	Earth	100	6,835
Francis E. Walter (Bear Creek)	Delaware	Lehigh River	White Haven	1961	109,610	80	FRW	Earth & Rock	234	3,000
Gen. Edgar Jadwin	Delaware	Dyberry Creek	Honesdale	1960	24,500	NPP	F	Earth	109	1,255
Hammond Lake	Susquehanna	Crooked Creek	Tioga	1978	63,000	680	FRQW	Earth & Rock	122	6,450
Indian Rock	Susquehanna	Codorus Creek	York	1942	28,000	NPP	F	Earth & Rock	83	1,000
Kinzua	Ohio	Allegheny River	Warren	1965	1,180,000	1,900	PFAQRW	Con-crete & Earth	177	1,877

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Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Loyalhanna	Ohio	Loyalhanna Creek	Saltsburg	1942	95,300	210	FRW	Con-crete & Earth	114	960
Mahoning Creek	Ohio	Mahoning Crk	New Bethlehem	1941	74,200	170	FRW	Con-crete	162	926
Prompton	Delaware	West Branch, Lackawaxen River	Honesdale	1960	52,000	290	FRW	Earth	140	1,200
Raystown	Susquehanna	Raystown Branch, Juniata River	Huntingdon	1973	762,000	8,300	FRWPQ	Earth & Rock	225	1,700
Shenango	Ohio	Shenango River	Sharpsville	1966	191,400	1,910	FAQRW	Con-crete	68	720
Stillwater	Susquehanna	Lackawanna River	Uniondale	1960	12,000	85	FS	Earth	77	1,700
Tioga Lake	Susquehanna	Tioga River	Tioga	1978	62,000	470	FRQW	Earth & Rock	140	2,710
Tionesta	Ohio	Tionesta Creek	Tionesta	1940	133,400	480	FRW	Earth	154	1,050
Union City	Ohio	French Creek	Union City	1970	47,640	NPP	F	Earth	88	1,420
Woodcock Creek	Ohio	French Creek	Meadville	1973	20,000	118	FQRA	Earth	90	4,650
Youghiogheny River	Ohio	Youghiogheny River	Confluence	1943	254,000	450	FARWQ	Earth	184	1,610
PUERTO RICO										
Cerrillos	Cerrillos	Cerrillos River	Ponce	1992	47,900	5,635	FS	Earth & Rock	320	1,475
SOUTH DAKOTA										

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Cold Brook	Missouri	Cold Brook	Hot Springs	1953	7,200	36	FRWX	Earth	127	925
Cottonwood Springs	Missouri	Cottonwood Springs Creek	Hot Springs	1970	8,385	41	FRWX	Earth	123	1,190
Lake Traverse:										
Reservation Dam	Red River of the North	Bois de Sioux River	Wheaton	1941	177,000	10,925	FRX	Rolled Earth	14	9,100
White Rock	Red River of the North	Bois de Sioux River	Wheaton	1941	96,000	3,850	FRX	Rolled Earth	16	14,400
TEXAS										
Addicks	San Jacinto	South Mayde Crk	Addicks	1948	204,500	NPP	FX	Earth	49	61,166
Aquilla	Brazos	Aquilla Creek	Hillsboro	1983	146,000	3,280	FSX	Earth	104.5	11,890
Bardwell	Trinity	Waxahachie Cr	Ennis	1965	140,000	42,800	FSR	Earth	82	15,400
Barker	San Jacinto	Buffalo Bayou	Barker	1945	207,000	NPP	FX	Earth	27	72,844
Belton	Brazos	Leon River	Belton	1954	1,097,600	12,300	FIRSX	Earth	192	5,524
Benbrook	Trinity	Clear Fork, Trinity River	Fort Worth	1952	258,600	3,770	FNRXA	Earth	130	9,130
Canyon	Guadalupe	Guadalupe River	New Braunfels	1964	366,400	346,400	FRSX	Earth	224	4,410
Ferrells Bridge Dam-Lake O' the Pines	Red	Cypress Creek	Jefferson	1959	842,100	18,700	FRS	Earth	97	10,600
Granger Dam and Lake	Brazos	San Gabriel River	Granger	1980	244,200	4,400	FRSWX	Earth	115	16,320
Grapevine	Trinity	Denton Creek	Grapevine	1952	425,500	7,280	FNRSXA	Earth	137	12,850
Hords Creek	Colorado	Hords Creek	Coleman	1948	25,310	510	FARSX	Earth	91	6,800
Joe Pool	Trinity	Mountain	Grand Prairie	1994	304,000	7,470	FRSX	Earth	109	22,360

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
		Creek								
Jim Chapman Lake	Red	Sulphur River	Cooper	1994	441,200	19,305	FRSWX	Earth	79	28,070
Lavon	Trinity	East Fork, Trinity River	Dallas	1953	748,200	21,400	FRSW	Earth	81	19,483
Lewisville	Trinity	Elm Fork, Trinity River	Lewisville	1954	989,700	23,280	FRSX	Earth	125	32,888
Navarro Mills	Trinity	Richland Creek	Corsicana	1963	212,200	5,070	FRSX	Earth	82	6,700
North San Gabriel Dam, Lake Georgetown	Brazos	North Fork, San Gabriel River	Georgetown	1980	130,800	1,310	FRSWX	Rock	164	6,700
O.C. Fisher	Colorado	North Concho River	San Angelo	1952	396,400	5,440	FRSX	Earth	128	40,885
Pat Mayse	Red	Sanders Creek	Arthur City	1967	182,940	5,940	FRSW	Earth	96	7,080
Proctor	Brazos	Leon River	Comanche	1963	374,200	4,610	FRSX	Earth	86	13,460
Ray Roberts	Trinity	Elm Fork	Denton	1987	1,064,600	29,350	FRSX	Earth	109	14,965
Somerville	Brazos	Yegua Creek	Somerville	1967	507,500	11,460	FRSX	Earth	80	26,175
Stillhouse Hollow	Brazos	Lampasas River	Belton	1968	630,400	6,430	FRSX	Earth	200	15,624
Waco	Brazos	Bosque River	Waco	1965	726,400	7,270	FRSX	Con-crete & Earth	145	24,618
Wright Patman	Red	Sulphur River	Texarkana	1962	2,654,300	20,300	FRSX	Earth	100	18,500
UTAH										
Little Dell Lake	Jordan River	Dell Creek	Salt Lake City	1993	20,500	1,000	FS	Earth	224	1,700
VERMONT										
Ball Mountain	Connecticut	West River	Jamaica	1961	54,600	75	FRW	Con-crete & Earth	265	915

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
North Hartland	Connecticut	Ottauguechee River	North Hartland	1960	71,420	220	FRW	Con-crete & Earth	185	1,520
North Springfield	Connecticut	Black River	Springfield	1960	51,067	290	FRW	Con-crete & Earth	120	2,940
Townsend	Connecticut	West River	Townshend	1961	33,700	100	FRW	Con-crete & Earth	133	1,700
Union Village	Connecticut	Ompompa-noosuc River	Union Village	1950	38,000	NPP	FRW	Con-crete & Earth	170	1,100
VIRGINIA										
John W. Flannagan	Ohio	Pound River	Haysi	1963	145,700	310	FARWS	Con-crete & Earth	250	960
Gathright Dam & Lake Moomaw	James	Jackson	Alleghany	1979	123,739	2,532	FQR	Earth & Rock	257	1,172
North Fork of Pound River	Ohio	North Fork of Pound	Pound	1968	11,300	349	FRSW	Earth & Rock	122	600
WASHINGTON										

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
Howard A. Hanson	Green	Green River	Kanaskat	1961	106,000	1,600	FAS	Rock	235	500
Mill Creek	Columbia	Mill Creek	Walla Walla	1942	8,300	225	FR	Earth	125	3,200
Mud Mountain	Puyallup	White River	Enumclaw	1948	106,000	NPP	FR	Rock	427	810
WEST VIRGINIA										
Beech Fork	Ohio	Beech Fork	Lavalette	1977	37,540	450	FRW	Earth	86	1,080
Bluestone	Ohio	New River	Hinton	1952	631,000	1,800	FRWX	Con-crete	180	2,048
Burnsville	Ohio	Little Kanawha	Burnsville	1977	65,400	550	FQRW	Earth & Rock	89	1,400
East Lynn	Ohio	Twelvepole Creek	East Lynn	1970	82,500	823	FQRW	Earth & Rock	122	650
R. D. Bailey	Ohio	Guyandotte River	Justice	1979	203,700	440	FQRW	Earth & Rock	310	1,397
Stonewall Jackson Lake	Ohio	West Fork	Weston	1988	74,650	360	FAQAS	Con-crete	95	620
Summersville Lake	Ohio	Gauley River	Summersville	1965	413,800	407	FARW	Rock	390	2,280
Sutton	Ohio	Elk River	Sutton	1960	265,300	270	FARW	Con-crete	220	1,921
Tygart River	Ohio	Tygart River	Grafton	1938	287,700	620	FNAR	Con-crete	230	1,921

APPENDIX A
Flood Control Reservoirs Operable September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Characteristics of Dam			
							Project Functions	Type	Height (Feet)	Length (Feet)
WISCONISIN										
Eau Galle	Chippewa	Eau Galle	Spring Valley	1969	43,600	153	FR	Earth	122	1,800

KEY FOR PROJECT FUNCTIONS:

A - Low Flow Augmentation
D - Debris Control
F - Flood Control
I - Irrigation
N - Navigation
P - Power
Q - Water Quality Control
R - Public Recreation (Annual Attendance exceeding 5,000)
S - Water Supply
W - Fish and Wildlife (Federal or State)
X - Water Conservation and Sedimentation

APPENDIX A
Flood Control Reservoirs Constructed or Contributed to by Corps of Engineers But Operated by Others September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Project Functions	Type	Height (Feet)	Length (Feet)
CALIFORNIA										
Big Dry Creek	San Joaquin	Big Dry Creek	Fresno	1948	16,250	NPP	F	Earth	40	20,038
Camanche	San Joaquin	Mokelumne River	Clements	1963	431,500	NPP	FRS	Earth & Rock	171	2,450
Cherry Valley	Tuolumne	Cherry Creek	Sonora`	1956	268,000	475	FS	Earth & Rock	315	2,500
Del Valle	Alameda	Arroyo Del Valle	Livermore	1968	77,000	200	FRS	Earth	223	880
Eaton Wash	Rio Hondo	Eaton Wash	Pasadena	1937	960	NPP	F	Earth	82	1,795
New Bullards Bar	Sacramento	Yuba River	Marysville	1968	960,000	1,910	FIRPW	Concrete	645	2,323
New Don Pedro	San Joaquin	Tuolumne River	Modesto	1970	2,030,000	3,520	FISP	Earth & Rock	565	1,920
New Exchequer	San Joaquin	Merced River	Merced	1966	1,026,000	1,900	FIR	Rock	480	1,200
Oroville	Sacramento	Feather River	Oroville	1964	3,539,000	5,838	FIRSW	Earth	770	6,850
Tahchevah Creek	Whitewater	Tahchevah Creek	Palm Springs	1965	960	NPP	F	Earth	42	3,610
COLORADO										
Pinon Canyon	Colorado	Pinon Canyon Arroyo	Trinidad	1954	4,350	NPP	FW	Earth		
CONNECTICUT										
East Branch	Housatonic	East Branch, Naugatuck River	Torrington	1964	4,350	NPP	FR	Earth		
Hall Meadow Brook	Housatonic	Hall Meadow Brook	Torrington	1962	8,620	NPP	F	Earth & Rock		

APPENDIX A
Flood Control Reservoirs Constructed or Contributed to by Corps of Engineers But Operated by Others September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Project Functions	Type	Height (Feet)	Length (Feet)
Mad River	Connecticut	Mad River	Winchester	1963	9,700	10	FR	Earth		
Sucker Brook	Connecticut	Sucker Brook	Winchester	1970	1,480	NPP	F	Earth		
HAWAII										
Kaneohe-Kailua	Kaneohe	Kaneohe Stream	Kaneohe	1981	3,800	26	FR	Earth		
IDAHO										
Ririe	Upper Snake	Willow Creek	Idaho Falls	1975	100,500	364	FIR	Earth		
MARYLAND										
Savage River	Potomac	Savage	Westernport	1952	20,000	360	FRSW	Earth & Rock		
MISSOURI										
Bear Creek	Upper Mississippi	Bear Creek	Hannibal	1962	8,700	NPP	F	Earth		
NEW MEXICO										
Cuchillo Negro	Rio Grande	Cuchillo Creek	Truth or Con-sequence	1991	13,500	NPP	F	Roller Com-pacted Con-crete		
NEW YORK										
Onondaga	Oswego	Onondaga Creek	Syracuse	1949	18,200	NPP	F	Earth		

APPENDIX A
Flood Control Reservoirs Constructed or Contributed to by Corps of Engineers But Operated by Others September 30, 2003

Name	River Basin	Stream	Community in Vicinity	Cal. Year Placed in Useful OP	Total Storage (Acre-Ft.)	Permanent Pool (Acreage) or No Pool (NPP)	Project Functions	Type	Height (Feet)	Length (Feet)
OKLAHOMA										
Altus	Red	North Fork of the Red River	Altus	1948	152,430	6,260	FIS	Con-crete	90	1,104
Grand Lake O' the Cherokees	Arkansas	Grand (Neosho) River	Disney	1941	2,197,000	46,500[6]	FRP	Con-crete	147	6,565
Lake Hudson	Arkansas	Grand (Neosho) River	Locust Grove	1964	444,600	10,900[6]	FRP	Con-crete & Earth	90	4,494
TEXAS										
Lake Kemp	Red	Wichita River	Wichita Falls	1972	502,900	15,590	FIS	Earth	115	8,890
UTAH										
Big Wash	Beaver	Big Wash	Milford	1961	1,200	NPP	F	Earth	34	2,814
VERMONT										
East Barre	Winooski	Jail Branch	East Barre	1938	12,050	NPP	F	Earth	65	1,460
Waterbury	Winooski	Waterbury	Waterbury	1938	64,700	890	FRP	Earth	158	1,800
Wrightsville	Winooski	North Branch	Wrights-ville	1938	20,300	570	FR	Earth	115	1,525
WASHINGTON										
Wynoochee	Chehalis	Wynoochee River	Montesano	1972	70,000	1,150	FSARI	Con-crete & Earth	177	1,700

APPENDIX B
Flood Control Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Aberdeen & Vicinity, SD (Sec 205)	1995		2005	Local Protection
Alamogordo, NM	2001		Undetermined	Local Protection
Alenaio Stream, Hawaii, HI	1995	1997	1997	Local Protection
Alii Drive, Hawaii, HI (Sec 14)	1999	2000	2000	Shoreline Protection
Aloha-Rigolette Area, LA	1996		1999	Interior Drainage
Allegheny River, First Street, Ford City, PA	2001		2003	Streambank Protection
Alton to Gale Levee System, Mississippi River, IL and MO	1983		Indefinite	Local Protection
American River, Common Features, CA	2000		Undetermined	Local Protection
American River, Folsom Modification, CA	2000		Undetermined	Local Protection
American River, Natomas, CA	2000		Undetermined	Local Protection
Aquashicola Creek (Borough of Palmerton)	1998	1999	1999	Local Protection
Antelope Creek	2001		2008	Local Protection
Arecibo River, PR	2000		2007	Local Protection
Arkansas River at Riverfront Park, North Little Rock, AR	1998	1998	1999	Streambank Protection
Arizona Flood Warning, AZ (Sec 205)	1998		2003	Local Protection
Ascalmore-Tippo Items, MS	1984		1987	Local Protection
Ashland Road Bridge, Four Mile Creek, NE (Sec 14)	1996		1996	Streambank Protection
Atchafalaya Basin, LA	1928	(2)	TBD	Floodway and Levees
Atchafalaya Basin Floodway System, LA	1985		TBD	Water Management Units, Recreation Elements & Real Estate Acquisition
B. Everett Jordan Dam and Lake, NC	1967	1982	2005	Reservoir
Badger Creek near Browning, Glacier County, MT (Sec 14)	1993	1994	1994	Streambank Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Batesville Sewage Lagoon	1990	1990	1990	Streambank Protection
Batesville Water Tower, Batesville, AR (Sec 14)	1998	1999	1999	Streambank Protection
Battle Mountain, NV (Sec 205)	1998		2003	Local Protection
Bayou Des Glaises, LA	1938	1939	1939	Interior Drainage
Beargrass Creek, KY	2002		2005	Local Protection
Beaver Creek at Slough Hollow Road, MO (Sec 14)	1998		2000	Streambank Protection
Beaver Tailwater Restoration	2001	2002	2002	Streambank Protection
Bethel Bank Stabilization, AK	1992		1997	Emergency Bank Stabilization
Big Sioux River & Skunk Creek, Sioux Falls, SD	2000		2007	Local Protection
Big Wood River, Deer Creek, Bridge, ID (Sec 14)	1998	2001	2001	Local Protection
Black River Floodway, Poplar Bluff, AR	2001	2002	2002	Local Protection
Blue River Basin, Kansas City, MO	2002		2007	Local Protection
Blue River Channel, Kansas City, MO	1984		2010	Local Protection
Brays Bayou (Houston), TX	1998		2013	Local Protection
Breckenridge, MN	2002		2006	Local Protection
Brush Creek, Jeanette, PA (Sec 14)	1994		2001	Streambank Protection
Buffalo Bayou and Tributaries, TX	1956		Indefinite	Local Protection
Buffalo Bayou (Lynchburg), TX (Sec 205)	2002		2004	Local Protection
Buffalo Creek, Freeport, PA (Sec 14)	1994		2001	Streambank Protection
Buford Trenton Irrigation District, ND	1998		2009	Local Protection
Cache Creek Settling Basin, CA	1990		1995	Local Protection
Cache La Poudre, CO (Sec 14)	2000		2002	Streambank Protection
Cape Girardeau-Jackson, MO	1992	2002	2004	Local Protection
Cato Spring, Fayetteville, AR (Sec 205)	1996	1996	1996	Local Protection
Cedar Falls, IA (Sec 205)	1998	2000	2000	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Cedar Point Seawall Extension, Bay St. Louis, MS	1998	2000	2003	Shoreline Protection
Center Treatment Plant, Elkhorn Run, PA	2001		2002	Streambank Protection
Chaska, MN	1988	1998	1998	Local Protection
Choctawhatchee/Pea Rivers, Alabama and Florida	1995		1996	Flood Warning
Choctawhatchee/Pea Rivers, Elba/ Levee, AL	1998		2004	Local Protection Levees
Choctawhatchee/Pea Rivers, Geneva Levee, AL	1998		2005	Local Protection Levees
Cibola County Rd 7, Cubero, NM (Sec 14)	2000		2001	Streambank Protection
City of Folsom Willow & Humbug Creeks, CA (Sec 205)	1999		Unscheduled	Local Protection
Clear Creek, TX	1988		2010	Local Protection
Clifton, AZ	1991		2002	Local Protection
Clinton Wastewater Treatment Plant, Clinton, NC (Sec 205)	1999	2000	2004	Local Protection
Coeur d' Alene River (South Fork), Wallace, ID (Sec 14)	2003		2004	Stream Protection
Colorado River at Grand Junction, CO (Sec 205)	1994	1997	1997	Local Protection
Comite River Diversion, LA	1999		2010	Local Protection
Cooper Creek, Cherry Valley, TN (Sec 14)	2000	2000	2000	Stream Protection
Cooper Creek, WA	1999		2004	Local Protection
Corte Madera Creek, CA	1966		Indefinite	Local Protection
Coulson Park, CO (Sec 14)	2000		2001	Streambank Protection
County Road 62, Santa Fe, NM (Sec 14)	1994	1995	1995	Streambank Protection
Coyote and Berressa Creeks, CA	1994		Unscheduled	Local Protection
Crooked Creek, Harrison, AR	1994	1994	1996	Local Protection, channel improvement
Crookston, MN	2000		2004	Local Protection
Cumberland MD, and Ridgeley, WV	2003		Indefinite	Local Protection (C&O Canal)
Dade County, FL	1975		2038	Shore Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Dallas Floodway Extension, TX	2001		2010	Local Protection
Dane Avenue, Waveland, MS (Sec 14)	2001		2002	Shoreline Protection
Dearborn River near Wolf Creek Lewis & Clark County, MT (Sec 14)	1994	1994	1994	Streambank Protection
Delaware River, Water Intake, Kickapoo Reservation, KS (Sec14)	1996		2005	Streambank Protection
Delaware River Vicinity of Port Jervis, NY	1995		1996	Local Protection (Ice Diversion)
Demonstration Erosion Control, MS	1985		Indefinite	Local Protection
Des Moines Recreational River and Greenbelt, IA	1989		Indefinite	Recreation
Dry Creek (Warm Springs) Lake & Channel, CA	1967	1983	1996	Reservoir
Dry Fork of Little Fork, Willard, KY (Sec 205)	2000	1999	2001	Local Protection
East Nishnabotna River, Page County Bridge, IA (Sec 14)	1992	1993	1994	Streambank Protection
East St. Louis and Vicinity, IL - Rehabilitation	1988		2007	Local Protection
El Paso, TX	1971	1973	Undetermined	Local Protection
Elk, Creek, Lancaster County, NE (Sec 14)	2000		2002	Streambank Protection
Elk Creek Lake, OR	1971		Indefinite	Reservoir
Emmonak Shoreline Erosion, AK (Sec 14)	1998	1999	1999	Shoreline Protection
Fairfield Vicinity Streams, CA	1985	1993	1993	Local Protection
Falls Lake, NC	1973	1983	2005	Reservoir
Fallon, NV (Sec 205)	1998		Unscheduled	Local Protection
Fort Wayne and Vicinity, IN	1994	2003	2002	Local Protection
Four Rivers Basin, FL	1966	1986	1996	Local Protection
Fourche Bayou, Vicinity of Little Rock, AR	1987	1996	2002	Local Protection
Francis Bland Floodway Ditch, AR	1986		2003	Local Protection
Gallatin River, (I-90), Gallatin County, MT	1991	1992	1992	Streambank Protection
Gallia Co, St. Rt 7, River Mile 275, OH	2001	2002	2002	Streambank Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Grank Forks, ND-East Grand Forks, MN	1999		2007	Local Protection
Grand Prairie Region and Bayou Meto Basin, AR	1999		2009[8]	Water Supply
Grand River, Chariton County, MO (Sec 14)	1998		2005	Streambank Protection
Gray's Creek, TN (Sec 14)	1998	1998	1998	Streambank Protection
Grand River, Route A Bridge, MO (Sec 14)	2001		2001	Streambank Protection
Grants Pass, Douglas County, OR	2001		2003	Streambank Protection
Great Bend,KS	1988		1994	Local Protection
Greenbrier River, WV, Flood Warning System	1998	1999	1999	Local Protection
Greenwood Bendway, Site 3, MS	1986		1988	Riverbank Protection
Greenwood Bendway, Site 4, MS	1987		1988	Riverbank Protection
Greenwood Bendway, Site 5, MS	1987		1988	Riverbank Protection
Guadalupe River, CA	1992		2006	Local Protection
Guntersville Lake, Guntersville, AL	1988		1989	Streambank Protection
Gulf of Mexico, Highway 193, Mobile Co., AL	2000	2000	2002	Shoreline Protection
Gulfside Seawall, Waveland, MS	2000	2001	2002	Shoreline Protection
Halstead,KS	1991		1995	Local Protection
Hamilton County Streambank Stabilization, TN	1999		2004	Streambank Protection
Hargus Creek, Circleville, OH (Sec 205)	1996	1997	1997	Local Protection
Harmon Canal, Savannah, GA (Sec 205)	2001	2002	2002	Local Protection
Hatchie River, Alcora & Tippah Co, MS	1997	1998	1999	Local Protection
Helena & Vicinity, AR	1997		2002	Local Protection
Henry's Fork, St. Anthony, ID	2002		2002	Local Protection
Highway 52, Bellevue, IA (Sec 14)	2001	2002	2002	Streambank Protection
Highway 119, Derry, LA (Sec 14)	1994	1994	1994	Streambank Protection; Complete
Highway 218, Grand Chenier, LA (Sec 14)	1995	1996	1996	Bank Stabilization

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Highway 495, Natchitoches,Parish, LA (Sec 14)	1994	1994	1994	Streambank Protection; Complete
Highway 69 at Black River, AR (Sec 14)	1999	1999	1999	Streambank Protection
Holes Creek, OH	1998		2005	Local Protection
Homme Lake and Dam, ND	1995		2004	Dam Safety Assurances
Horn Lake Creek, MS	1993	1999	1999	Local Protection
Houston, MN (Sec 205)	1995		2000	Local Protection
Hudson Branch, Howard County, MD (Sec 14)	2001		2001	Emergency Streambank Protection
Hunting Bayou,TX	2003		2012	Local Protection
Huntington Sewer Main, WV (Sec 14)	1999	1999	1999	Streambank Protection
Jackson Hole, WY	2003		2013	Local Protection
Jacksonport, White River, AR	1995	1996	1997	Local Protection
James R. Olin Flood Control Project, VA	1994		1998	Local Protection
James River Road (CR213), SD (Sec 14)	1999		2001	Emergency Streambank Protection
Jim Chapman Lake, TX	1958	1991	1994	Reservoir, channel improvement
Joe Pool Lake, TX	1975	1986	1994	Reservoir
Johnson Creek, Arlington, TX	2001		2007	Local Protection
Kahawainui Stream, Oahu, HI (Sec 205)	1989	1990	1990	Local Protection
Kahoma Stream, Maui, HI	1986	1990	1990	Local Protection
Kanawha Ave, So Charleston, WV (Sec 14)	1999	1999	1999	Streambank Protection
Kanawha River, So Charleston-Green Valley, WV	2000	2001	2001	Streambank Protection
Kanawha River, So. Charleston, Sewer Main, WV (Sec 14)	2000	2001	2001	Streambank Protection
Kansas River, Eudora Bend , KS (Sec 14)	2002		2004	Streambank Protection
Kawainui Marsh, Oahu HI (Sec 205)	1995	1997	1997	Local Protection
Kaweah River, CA	1999		Undetermined	Local Protection
Klamath River, Klamath Glen Levee, CA 1996	1996		1997	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Lackawanna River, Olyphant, PA	2002		2005	Local Protection
Lackawanna River at Scranton, PA	2001		2003	Local Protection
Lake Pontchartrain, LA	1967		2013	Local Protection
Lake Wichita, Holliday Creek, TX	1987		1995	Local Protection
Larose to Golden Meadow, LA	1972		2007	Local Protection
Las Cruces, NM	2000	2001	2002	Local Protection
Launiupoko, Maui, Hawaii	2002		2007	Shoreline Proection
Leeper Park Island Wall, South Bend, IN (Sec 14)	1999		2004	Streambank Protection
Levisa & Tug Forks of the Big Sandy River & Cumberland River, KY, WV & VA	1981		Indefinite	Local Protection
Licking River Flood Warning System	2002		2004	Local Protection
Little Calumet River, IN	1990		2010	Local Protection
Little Dell Lake, UT	1985	1993	1996	Reservoirs
Little Puerco River, Gallup, NM (Sec 205)	2002	1993	2003	Flood Control
Little Tijuana River, San Diego County, CA (Sec 205)	2001		2005	Flood Control
Logan Creek, Pender, NE (Sec 205)	1996		1999	Local Protection
Long Branch Lake, MO	1973	1980	Indefinite	Reservoir
Loosahatchie, Memphis, TN (Sec 14)	1998	1998	1999	Streambank Protection
Los Angeles County Drainage Area (LACDA), CA	1995		2002	Local Protection
Louisiana State Penitentiary Levee, LA	1999		2003	Flood Control
Loves Park, IL	1991	2004	2004	Local Protection
Lower Columbia River, Barlow Point	2000		2001	Streambank Protection
Lower Sacramento Area Levee Reconstruction, CA	1996		2002	Local Protection
Lower San Joaquin River, CA (Snagging and Clearing)	1985		Indefinite	Snagging and Clearing
Loyalsock Creek, Warrensville Rd., PA (Sec 14)	1999		2004	Emergency Streambank Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Lycoming County Flood Warning System, PA (Sec 205)	1999		2004	Local Protection
Madrid Fire Station, Madrid, MO (Sec 14)	1995	1996	1997	Streambank Protection
Magpie Creek & Don Julio, CA (Sec 205)	1997		2001	Local Protection
Magpie Creek City of Sacramento, CA (Sec 205)	1997		2006	Local Protection
Maple Creek E. Fork, Howells, NE (Sec 205)	1994	1996	1996	Local Protection
Marshall, MN	1996		2001	Local Protection
Marysville/Yuba City Levee Reconstruction, CA	1993		2002	Local Protection
Masefau Bay, Tutuila Island, American Samoa (Sec 14)	1989	1992	1992	Shoreline Protection
Mayfield Creek, KY (Sec 205)	1992	1993	1998	Local Protection
Mazon River Twp Road, IL	1994	1995	1996	Streambank Protection
McCook and Thronton Reservoirs, IL	1999		2014	Flood Control
Meramec River Basin (Valley Park Levee), MO	1991		2007	Local Protection
Merced County Streams, CA	1985	1994	Indefinite	Reservoirs
Metropolitan Louisville, Pond Creek, KY	2000		2006	Local Protection
Metropolitan Region of Cincinnati Duck Creek, OH	1999		2009	Local Protection
Middle Fork Grand US 169, MO (Sec 14)	2003		2005	Streambank Protection
Middle Rio Grande Flood Protection, Bernalillo to Belen, NM	1997		Undetermined	Local Protection
Mid-Valley Area Levee Reconstruction, CA	1993		2002	Local Protection
Milk River, Malta, MT (Sec 205)	1994	1997	1998	Local Protection
Mill Creek, Fort Smith, AR (Sec 205)	1990	1992	2003[5]	Local Protection
Mill Creek, OH	1970		Indefinite	Local Protection
Mill Creek, WA	2002		2003	Local Protection
Mingo Creek, OK	1988		1998	Local Protection
Mississippi River Channel Improvements	1928		2020	Channel Improvements

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
(IA, IL, KY, LA, MI, MO & TN)				
Mississippi River Levees	1928		2031	Main Line Levees
Missouri National Rec River, NE & SD	1985		2009	Local Protection
Missouri River Levee System, IA, NE, KS and MO	1948		Unscheduled	Local Protection
Molly Ann's Brook, NJ	1995		2005	Local Protection
Mon River, Sewage Treatment Plant, Point Marion, PA	1997		2001	Streambank Protection
Mon River, Water St. Point Marion, PA	1998		2001	Streambank Protection
Monroe County, OH	2002	2002	2002	Streambank Protection
Moon Treatment Plant, Elkhorn Run, PA	2001		2002	Streambank Protection
Moravian Creek, Wikesboro, NC (Sec 205)	2001	2002	2004	Local Protection
Mt. Morris Lake, NY	2003	1952	2003	Local Protection[9]
Mt. St. Helens Sediment Control, WA	1986	1990	To be determined	Local Protection
Muddy Creek Cascade, Vaughn, MT (Sec 14)	1992		1994	Streambank Protection
Muddy Creek, Grundy Co, MO	1997	1999	2000	Streambank Protection
Mudline to Pineville, MS	1984	1985	1985	Streambank Protection
Mud Mountain Dam, WA (Dam Safety Assurance)	1986	1995	2009	Modernization of Dam
Murrieta Creek, CA	2003		Indefinite	Local Protection
Muskingham River Lakes, OH	1976		1988	Major Rehabilitation
Muskingum River Lakes, OH (Dam Safety Assurance)	1982		Indefinite	Modernization of Dams
Napa River, CA	1999		Undetermined	Local Protection
Niagara River Bike Path, NY (Sec 14)	2002	2003	2003	Shoreline Protection
New Orleans to Venice, LA	1969		2017	Local Protection
Nickleplate Road, French Creek, Fairfield, PA	2000		2002	Streambank Protection
Nimrod Fisheries Restoration, Nimrod Lake, AR	2000	2000	2000	Environmental Restoration

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Nimrod Waterfowl Levee, Nimrod Lake, AR	1998	1999	1998	Environmental Restoration
Nishnabotna River, Hamburg, IA (Sec 205)	1996	1999	2001	Local Protection
Nogales Wash, AZ	1994		Indefinite	Flood Warning System
Nonconnanh Creek, TN & MS	1990		Indefinite[3]	Local Protection
Norco Bluffs, Santa Ana River, CA	1998		2008	Local Protection
North Branch Chicago River, IL	1970		Indefinite	Snagging and Clearing
North Ellenville, NY	1995		1997	Local Protection
North Fork, KY Rivers, Jackson, KY (Sec 205)	1997		2004	Local Protection
Oates Creek, GA	1990	1993	1992	Local Protection
Ocean City-Isle of Wight Bay, MD (Sec 14)	2001		2001	Emergency Streambank Protection
O'Hare Reservoir, IL	1990	2001	2001	Reservoir
Ohio River Flood Protection, IN	1999		Indefinite	Local Protection
Ohio River, Gallia Co, St. Rt 7, River Mile 275, OH	2001		2002	Streambank Protection
Ohio River, Perry County, IN (Sec 14)	2001		2004	Local Protection
Otter Creek, Shannon Hills, AR (Sec 205)	1984	1984	1986	Local Protection
Ouachita River Levees, LA	1990		Indefinite[7]	Local Protection
Pajaro River, CA	1987	1989	1989	Local Protection
Panola-Quitman Item C, MS	1984		1993	Local Protection
Papillion Creek and Tributaries Lake, NE	1972	1974	1995	Reservoirs
Passaic River Preservation of Natural Storage Areas, NJ	1997		2006	Local Protection
Pelucia Creek, Item 1, MS	1985	1986	1987	Local Protection
Pelucia Creek, Item 1A, MS	1987	1987	1987	Local Protection
Pelucia Creek, Item 2, MS	1990	1993	1993	Local Protection
Pelucia Creek, Item 3, MS	1990	1993	1994	Local Protection
Pelucia Creek, Item 4, MS	1993	1993	1994	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Peninsula Drainage District #1, OR (Sec 205)	1997	1999	2000	Local Protection
Perry County L & D Nos. 1, 2, 3, MO	1977	1985	1985	Local Protection
Perry Creek, IA	1995		2007	Local Protection
Petaluma River, CA	1997		2005	Local Protection
Piedmont Lake, Lick Run Reclamation, OH	2001	2001	2003	Environmental Protection
Pine River Dam, MN	1995		2003	Dam Safety
Plum Borough, Allegheny Co, PA	2001		2003	Streambank Protection
Portage, WI	1997		1999	Local Protection
Portugues and Bucana Rivers, PR	1975		2007	Local Protection
Pt. Leflore, MS	1985	1986	1986	Streambank Protection
Racitan River Basin, Greenbrook Sub-Basin, NJ	1998		2011	Local Protection
Ramapo and Mahwah Rivers, Mahwah, NJ and Suffern, NY	1990		2008	Local Protection
Ramapo at Oakland, NJ	1995		2005	Local Protection
Ray Roberts Lake, TX	1975	1987	1999	Reservoir
Redbank & Fancher Creeks, CA	1987	1993	1994	Reservoir
Red River Basin Chloride Control (Area X) OK and TX	1991		Indefinite	Chloride Control
Red River Below Denison Dam	1948		1995	Levee & Streambank Protection
Reno Flood Warning System, NV (Sec 205)	1998		2002	Local Protection
Rillito River, AZ	1994		Indefinite	Local Protection
Rio De Flag, Flagstaff, AZ	2003		Indefinite	Local Protection
Rio de LaPlata, PR	1995		2009	Local Protection
Rio Grande De Manati, PR	2001		2003	Local Protection
Rio Puerto Neuvo, PR	1994		2014	Local Protection
Rolling Fork River, Lebanon Junction, KY (205)	2003		2004	Local Protection
Roanoke River, Upper Basin, VA	1990		2010	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Rouge River, Southfield, MI (Sec 14)	2000	2002	2002	Streambank Protection
Roughan's Point, Revere, MA	1997	1999	2003	Local Protection
Running Slough Ditch	1990	1990	1990	Streambank Protection
Sacramento River Bank Protection, CA	1963		Indefinite	Local Protection
Sacramento River, Chico Landing to Red Bluff, CA	1963		Indefinite	Local Protection
Sacramento River Flood Control, CA	1918		Indefinite	Local Protection
Sacramento River Flood Control – GCID, CA	1998		Undetermined	Bank Stabilization
Sacramento Urban Area Levee Reconstruction, CA	1990	1997	1997	Local Protection
Salinas River, San Ardo, CA	1993		1993	Streambank Protection
San Antonio Channel Improvement, TX	1957		2007	Local Protection
San Isidro Rd, Santa Fe, NM (Sec 14)	2000		2002	Streambank Protection
San Luis Rey River, CA	1988		Indefinite	Local Protection
San Lorenzo River, CA	1999		Undetermined	Streambank Protection
San Pedro Creek, Pacifica, CA (Sec 205)	1998		2004	Local Protection
Santa Ana River Mainstem, CA	1990		Indefinite	Local Protection
Santa Paula Creek, CA	1973		2002	Local Protection
Sardis, Monroe Co, OH (Sec 14)	2000	2000	2000	Streambank Protection
Saw Mill Run, PA	1996		2003	Flood Control
Savan Gut, VI (Sec 205)	1987	1989	2001	Local Protection
Saylorville Lake, IA	1965	1977	1996	Reservoir
Sheyenne River, ND	1990		2004	Local Protection
Sicily Island, LA, Levee	1983		2003	Local Protection
Sidney, NE (Sec 205)	1993	1994	1995	Local Protection
Sims Bayou, TX	1990		2009	Local Protection
Skyrocket Creek, Quray, Co (Sec 14)	1998		1999	Streambank Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Sodus Point Lighthouse, NY (Sec 14)	2000		2001	Streambank Protection
Souris River Basin, ND	1985		1998	Reservoir
South Fork, New River, Boone, NC	2001	2002	2002	Aquatic Ecosystem Restoration
Southeast Louisiana	1997		2007	Urban Flood Control
South Sacramento County Streams, CA	2002		2010	Local Protection
Springbrook Creek, PA	1989	1990	1990	Streambank Protection
State Route A, Scotland Co., MO	2001	2002	2002	Streambank Protection
Steele Bayou, MS	1966		2003	Local Protection
Ste. Genevieve, MO	1995	2002	2009	Local Protection
St. Francis Basin	1938		2007	Tributary Levees & Channels
St. Maries, ID (Sec 205)	2003		2004	Local Protection
St. Johns Bayou- New Madrid Floodway, MO	1997		2007	Rural Urban Flood Control
Stockton Metropolitan Area, 211 Reimbursement, CA	1986		1999	Local Protection
Swan Creek, Taney County, MO (Sec 14)	1984	1986	1986	Streambank Protection
Ted Rhodes Golf Course, Nashville, TN	1995	1995	1995	Local Protection
Tehama, CA (Sec 205)	1999		2004	Local Protection
Ten Mile Creek, Washington Co, Public Marina, PA	2001		2002	Streambank Protection
Tensas Cocodrie Pumping Plant, LA	1983	1987	1996	Local Protection
Tensas Cocodrie, LA, Levee ([5])	1974		Indefinite[4]	Local Protection; Complete
Teton River near Choteau, Teton County, MT (Sec 14)	1992	1993	1993	Streambank Protection
Texas Flat Road, Kiln, MS	2000	2000	2001	Shoreline Protection
Thurman to Hamburg, IA	1996	1997	1997	Local Protection
Tombigbee River Tributaries, AL and MS	1965	1990	2003	Local Protection
Tongue River, State Park, Ranchester, WY (Sec 14)	1993	1994	1994	Streambank Protection
Town Brook, Quincy, MA	1992	2002	2003	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Tropicana and Flamingo Washes, NV	1995		2005	Local Protection
Tucson Drainage Area, AZ	2003		Indefinite	Local Protection
Tule River, CA	2002		2008	Local Protection
Tulsa and West Tulsa, OK	1943	1945	1993	Rehabilitation of Levee System
Turtle Creek, PA	1995		1997	Local Protection
Tygart Lake, WV	1996		2001	Dam Safety Assurance
Upper Gordon Creek, Hattiesburg, MS	1993	1995	2002	Channel Improvement
Upper Jordan River, UT	1994		Indefinite	Local Protection
Upper Sacramento Area Levee Reconstruction, CA	1997		2003	Local Protection
Upper Scioto River, Marion County, OH (Sec 205)	1986		1987	Local Protection
Upper Yazoo Projects, MS	1976		2012	Local Protection
Van Bibber Creek, CO (Sec 205)	1995		2006	Local Protection
Village Creek, AL	1989	1996	2005	Local Protection
Wabash River, New Harmony, IN	2001		2003	Local Protection
Wahpeton, ND	2002		2005	Local Protection
Walnut Canyon, CA (Sec 14)	1994	1995	1998	Local Protection
Walnut Creek, CA	1964		1997	Local Protection
Westbank and Vicinity, New Orleans, LA	1991		2014	Local Protection
West Columbus, OH	1993		2005	Local Protection
West Creek, Topeka (Sec 14)	1997		2001	Streambank Protection
West Fork, Grand River, Rte H (Sec 14)	1997		2000	Streambank Protection
West Fork, Grand River, Rte W (Sec 14)	1998		2000	Streambank Protection
West Hill Dam, MA	2001	2003	2003	Major Rehabilitation
West Ray, Marshall, PA (Sec 14)	1990	1990	1990	Streambank Protection
West Sacramento, CA	1996		2002	Local Protection

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Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
West Tennessee Tributaries	1960		Indefinite[1]	Drainage and Flood Control
Wheeler Creek, Gainesville, TX (Sec 205)	1983	1994	1984	Local Protection
White River, Batesville, AR (Sec 205)	1005	1996	1999	Local Protection
White River, Jacksonport, AR (Sec 205)	1996	1996	1998	Local Protection
White River, Indianapolis Central, Waterfront, IN	1995		2004	Local Protection
White River, Indianapolis North, IN	2001		2007	Local Protection
Whiteman's Creek, AR	1994	1999	1999	Local Protection
Wildcat and San Pablo Creeks, CA	1980		1996	Local Protection
Williamsport, PA (Hagerman's Run)	2001		2004	Local Protection
Wills Creek, Linton Mine Road, OH	2002	2002	2002	Environmental Protection
Wood River, NE	1996		2004	Local Protection
WV & PA Flood Control, Sec 581	1999		2010	Flood Damage Reduction
Wyoming Valley Levee Raising	1996		2006	Local Protection
Yalobusha River Mile 7.5, MS	1993	1993	1993	Streambank Protection
Yellowstone River, Livingston, MT (Sec 14)	1992	1993	1993	Streambank Protection
Yonkers (Nepera Park), NY	1994		1995	Local Protection
Yuba River, CA	2003		Undetermined	Local Protection

APPENDIX B
Flood Control Projects Under Construction
During Fiscal Year 2003

[1] Construction of further channel improvement was halted in 1987 due to the denial of water quality certification.

[2] Project was in useful operation before Corps started working on it. Work consists primarily of improvements to existing channels, levees, pumping stations and other flood control structures.

[3] Environmental and Recreational separable elements unprogrammed.

[4] Levee enlargement remains to be accomplished for 0.8 miles.

[5] Awaiting financial completion. Requires a correction in the financial management system.

[6] Completion of project depended upon the receipt of adequate funding.

[7] Landscaping remains to be accomplished.

[8] This completion schedule is for the Grand Prairie Region separable element only.

[9] O & M Funded.

APPENDIX B
Beach Erosion Control Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion
Assateague Island, MD	2001	2003	2028
Atlantic Coast of Maryland	1990	1994	2044
Brevard County, FL	2000		2044
Brigantine Inlet to Great Egg Harbor Inlet (Absecon Island, NJ)	2000		2056
Brigantine Inlet to Great Egg Harbor Inlet (Brigantime Island NJ)	2003		TBD
Broward County, FL	1965		2031
Brunswick County Beaches, Ocean Isle Beach Portion, NC	2000	2001	2051
Delaware Bay Coastline, Reeds Beach to Pierces Point, DE & NJ	2003		2010
Delaware Bay Coastline, Port Mahon, DE & NJ	2003		2056
Delaware Coast Protection, DE	1989	1990	2021
Cape May Inlet to Lower Twp, NJ	1990	1991	2041
Carlsbab Seawall, CA (Sec 103)	1996	1997	1997
Carolina Beach and Vicinity, NC – Area South	1995	1998	2047
Carolina Beach and Vicinity, NC – Carolina Beach Portion	1965	1982	2015
Chicago Shoreline, IL	1997		2007
Dade County, FL	1975		2038
Dare County Beaches, NC (Bodie Inland Portion)	2003		2057
Delaware Bay Coastline, Roosevelt Inlet/Lewes Beach, DE	2002		2055
Delaware Coast from Cape Henlopen to Fenwick Island, DE (Dewey/Rehoboth Beach, DE)	2000		TBD
Delaware Coast from Cape Henlopen to Fenwick Island, DE (Fenwick, Island, DE)	2003		TBD
Duval County, FL	1976		2028
East Rockaway to Rockaway Inlet and Jamaica Bay, NY	1974		2005
Emeryville, Alameda, CA (Sec 103)	1993	1993	1993

APPENDIX B
Beach Erosion Control Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion
Fire Island to Jones Inlet, NY	1970		2039
Fire Island to Montauk Point, NY	1963		2027
Fort Pierce Beach, FL	1998		2020
Graveline Bayou East, Jackson Co., MS	2001		2002
Great Egg Harbor Inlet & Peck Beach, NJ	1991	1992	2042
Hunting Island Water Line, SC (Sec 103)	2003	2003	2003
Indiana Shoreline, IN	1990		Indefinite
Lower Cape May Meadows, NJ	2002		TBD
Manatee County, FL	1992		2042
Martin County, FL	1994		2046
Morehead City Harbor, NC (Section 933)	2004	2004	2005
Palm Beach County, FL	1962		2048
Panama City Beaches, FL	1997		2000
Pinellas County, FL (Long Key)	1969		2043
Point Beach, Milford, CT (Sec 103)	2001		2004
Presque Isle Peninsula, PA (Permanent)	1990	1993	2042 [3]
Raritan Bay and Sandy Hook Bay, NJ	1973		2018
Rockaway Inlet to Norton Point (Coney Island), NY	1992	1995	2045
Sandy Hook to Barnegat Inlet, Sec I	1985	Incremental	2044
Sandy Hook to Barnegat Inlet, Sec II	1985	Incremental	2049
Sarasota County, FL	1994		2046
Shoalwater Bay, Tokeland, WA (Sec 545)	2002		Indefinite
Silver Strand Shoreline, Imperial Beach, CA	1998		Indefinite
St. Johns County, FL	1986		2046
Surfside-Sunset and Newport Beach (Orange County), CA	2000		2003
Townsend Inlet to Cape May Inlet, NJ	2001		TBD

APPENDIX B
Beach Erosion Control Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion
Tybee Island, GA	1975	1976	2024
Virginia Beach, VA (Reimbursement)	1962	1962	2012[2]
Virginia Beach, VA	1996		2051
West Onslow Beach and New River Inlet, NC	2001		2060[4]
Wrightsville Beach, NC	1965	1966	Indefinite

APPENDIX B
Beach Erosion Control Projects Under Construction
During Fiscal Year 2003

[1] Emergency Repairs due to Hurricane Andrew as per FY 92 Dire Emergency Act authorization.
Original authorized project completed in 1991.

[2] IAW Section 355 of WRDA 1996, the project will be extended until the earlier part of year 2012 or completion of the beach erosion control and hurricane Protection project at Virginia Beach, Virginia.

[3] Fiscal year 2003 was the 11th year of 50 years of nourishment.

[4] GRR Only. New Construction start FY2001. WOB & NRI.

APPENDIX B
Environmental Restoration Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Amazon Creek Wetlands Restoration, OR (Sec 1135)	1999		2004	Environmental Restoration
Anacostia River & Tributaries, MD & DC	1999		2006	Environmental Restoration
Ballona Wetland Restoration, CA (Sec 1135)	2002		2004	Environmental Restoration
Barataria Bay Marsh Creation, LA (CWPPRA)	1996	1996	2000	Environmental Restoration
Black Fox, Murfree, and Oakland Springs, TN	2001		2005	Ecosystem Restoration
Boone, NC	2001		2002	Aquatic Ecosystem Restoration
Central and Southern, FL	1950		Indefinite	Environmental Restoration
Central West Virginia Environmental Restoration Program	2001		Indefinite	Environmental Restoration
Cherry Creek, ID (Sec 206)	2002		2004	Aquatic Ecosystem Restoration
Chesapeake Bay Environmental Program (Sec 510)	1998		Indefinite	Environmental Restoration
Chesapeake Bay Oyster Recovery, MD	1997		2007	Environmental Restoration
Chief Joseph Dam Dissolved Gas Abatement, WA	2003		2009	Environmental Mitigation, Restoration and Protection
Codiga Farms, Tukwila, WA (Sec 1135)	2003		2004	Environmental Restoration
Columbia River Fish Mitigation, OR & WA	1988		Undetermined	Environmental Restoration
Dead Lake, AL	1998		1998	Environmental Restoration
Deep Run/Tiber Hudson, MD (Sec 206)	1999		2005	Aquatic Ecosystem Restoration
Dents Run, PA	1999	2003	2005	Aquatic Ecosystem Restoration
Everglades & South Florida Ecosystem	1998		2005	Environmental Restoration
Fern Ridge Lake Marsh Restoration, OR (Sec 1135)	1999		2004	Environmental Restoration
Florida Keys Water Quality Improvements, FL	2002		Undetermined	Environmental Restoration
Fort Peck Fish Hatchery, MT	2001		2005	Environmental Restoration
Fox Creek, OR (Sec 1135)	2001		2004	Environmental Restoration
Goldsborough Creek, WA (Sec 206)	2000		2002	Aquatic Ecosystem Restoration
Green River Headwater	2002		2005	Environmental Restoration
Gunderson Pond Restoration, CA (Sec 1135)	2000		2005	Environmental Restoration

APPENDIX B
Environmental Restoration Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Hamilton Airfield Wetland Restoration, CA	2001		2008	Environmental Restoration
Hart-Miller Island, MD (Sec 1135)	1997		2004	Environmental Restoration
Hidden Lake Restoration, NE	1996		2002	Environmental Restoration
Howard A. Hanson Dam, WA (Sec 1135)	2001		2002	Environmental Restoration
Howard A. Hanson Dam, WA (Sec 101(b)(15))	2002		2016	Environmental Mitigation, Restoration and Protection
Isle of Wight Bay, MD (Sec 206)	1999		2004	Aquatic Ecosystem Restoration
Kissimmee River, FL	1989		2010	Environmental Restoration
Ladd Marsh, OR	2002		2003	Environmental Restoration
Lake Seminole Habitat, FL	1998		1999	Environmental Restoration
Lake Nemaha Wetlands, KS (Sec 206)	2002		2003	Aquatic Ecosystem Restoration
Lebanon, NH	2002		2015	Environmental Infrastructure
Little Falls Fish Passage #2 (Sec 1135)	1995	2000	2004	Aquatic Ecosystem Restoration
Lonsdale Drive-In, Lincoln, RI (Sec 206)	2003		2004	Environmental Restoration
Loomis Lake, WA (Sec 206)	2002		2002	Aquatic Ecosystem Restoration
Lower Columbia River Ecosystem Restoration, WA	2003		2011	Environmental Restoration
Lower Columbia River Slough, WA (Sec 1135)	2002		2005	Environmental Restoration
Lower Savannah River Basin, GA & SC	2002	2002	2002	Environmental Restoration
Lower Snake Fish & Wildlife Comp	1979		Undetermined	Environmental Restoration
Milford Lake Habitat Restoration, KS (Sec 1135)	2002		2004	Environmental Restoration
Millcreek-Milan Bottoms (Sec 1135)	1999		2003	Environmental Restoration
Missouri River Bank Stabilization & Navigation Project, NE	1992	1995	2000	Environmental Restoration
Missouri River Fish & Wildlife Mitigation	1992		2042	Environmental Mitigation, Restoration & Protection
Morgan Point Bendway Closure Structure, AR (Sec 1135)	1995	1999	1999	Environmental Restoration
MRGO Back Dike Marsh Protection, LA (CWPPRA)	1999	1999	1999	Environmental Restoration
Murphy's Slough, CA (Sec 1135)	1998		2001	Environmental Restoration

APPENDIX B
Environmental Restoration Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Nathan's Lake/Mud Lake Deer Creek, NE (Sec 206)	2000		2003	Aquatic Ecosystem Restoration
Nimrod Fisheries Restoration, AR (Sec 1135)	1999	1999	1999	Environmental Restoration
Northeast Pennsylvania, PA (Sec 219)	2003		Indefinite	Environmental Restoration
North Fork Feather River, Chester, CA (Sec 1135)	1994	1995	2001	Environmental Restoration
Numana Dam, CA (Sec 1135)	1998		Unscheduled	Environmental Restoration
Ocean Pines, MD (Sec 206)	1999	2003	2003	Environmental Restoration
Ohio Environmental Restoration Program	2001		Indefinite	Environmental Restoration
Oquawka Refuge (Sec 1135)	1998		2003	Environmental Restoration
Piedmont Lake Reclamation Project, OH (Sec 1135)	2001		2002	Environmental Restoration
Pine Flat Bypass, CA (Sec 1135)	1998		2002	Environmental Restoration
Poplar Island, MD	1998		2014	Environmental Restoration
Presumpscot River, Smelt Hill Dam, ME (Sec 206)	2002	2003	2003	Environmental Restoration
Puget Sound and Adjacent Waters Program, WA	2003		2013	Environmental Mitigation, Restoration and Protection
Putah Creek, South Fork, CA	1999		2005	Environmental Restoration
Rio Saldo Phoenix & Tempe Reaches, AZ	2001		2006	Environmental Restoration
Roanoke Island Festival Park, Dare County, NC (Section 206)	2002	2002	2003	Aquatic Ecosystem Restoration
Rooster Island Restoration, MD (Sec 1135)	1994	1999	2004	Environmental Restoration
Rural Montana, MT	2001		2009	Environmental Restoration
Sagamore Marsh, Cape Cod Canal, MA (Sec 1135)	2000	2001	2003	Environmental Restoration
Sea Turtle Habitat Restoration, Oak Island, NC (Sec 1135)	2000	2001	2005	Environmental Restoration
Simmons Fieldcontrol Structure, AR (Sec 1135)	1998		1999	Environmental Restoration
So. & Eastern KY (Allen, KY) Sewer Construction	1998	1999	1999	Environmental Restoration
So. & Eastern KY (Sally Stevens, KY) Sewer Collection System	1999	2000	2000	Environmental Restoration
So. WV (Gilbert, WV) Sewage Treatment Plant	1998	1999	1999	Environmental Restoration
So. WV (Mercer Co) Water Distribution System	1998	2000	2000	Environmental Restoration
South Central Pennsylvania Environmental Improvement Program	1996		Indefinite	Environmental Restoration

APPENDIX B
Environmental Restoration Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
(Sec 313)				
Southeastern Pennsylvania, PA	1998		2004	Environmental Restoration
Southern & Eastern Kentucky Environmental Restoration Program	1998		Indefinite	Environmental Restoration
Southern West Virginia Environmental Restoration Program	1994		Indefinite	Environmental Restoration
South Fork, Putah Creek, CA (Sec 1135)	1998		2001	Environmental Restoration
Straightwater Marsh, Wetland Habitat (Sec 206)	2002		2004	Aquatic Ecosystem Restoration
Sweeney Creek, WA (Sec 206)	2002		2003	Aquatic Ecosystem Restoration
Tucson (Ajo) Detention Basin Wetlands, AZ (Sec 1135)	2000		2004	Environmental Restoration
Union Slough, WA (Sec 1135)	2003		2005	Environmental Restoration
Upper Central Platte Valley, Colfax Reach, NE (Sec 1135)	2000		2003	Environmental Restoration
Vic Fazio Yolo Wildlife Area, CA (Sec 1135)	1992	1999	2002	Environmental Restoration
Walla Walla River, OR	1994		2001	Environmental Restoration
Wanchese Marsh Creation and Protection, Dare County, NC (Sec 204)	2003		2008	Environmental Restoration
Wehrspann Lake Aquatic Habitat Control, NE	1999		2004	Environmental Restoration
Willamette River Temperature Control (Cougar Project), OR	2000		2006	Environmental Restoration

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
AIWW between Norfolk, VA & St. Johns River, FL											
Great Bridge	Albemarle & Chesapeake Canal	12.2	Chesapeake, VA	72	530	3	16	16	Miter	NA	1932
Deep Creek	Dismal Swamp Canal	10.6	Chesapeake, VA	52	300	12	12	12	Miter	NA	1940
South Mills	Dismal Swamp Canal	33.2	South Mills, NC	52	300	12	12	12	Miter	NA	1941
Alabama-Coosa Rivers											
Claiborne	Alabama	117.5	Claiborne, AL	84	600	30	16	13	Moveable	1603.0	1969
Millers Ferry	Alabama	178.0	Camden, AL	84	600	45	16	13	Moveable	9900.0	1969
Robert F. Henry	Alabama	281.2	Benton, AL	84	600	45	16	13	Moveable	1496.0	1972
Allegheny											
2	Allegheny	6.7	Aspinwall, PA	56	360	11	11	12	Miter	1393.0	1934
3	Allegheny	14.5	Cheswick, PA	56	360	14	12	11	Miter	1436.0	1934
4	Allegheny	24.2	Natrona, PA	56	360	11	9	10	Miter	876.0	1927
5	Allegheny	30.4	Freeport, PA	56	360	12	10	11	Miter	780.0	1927
6	Allegheny	36.3	Clinton, PA	56	360	12	11	11	Miter	1140.0	1928
7	Allegheny	45.7	Kittanning, PA	56	360	13	11	10	Miter	916.0	1930
8	Allegheny	52.6	Templeton, PA	56	360	18	14	10	Miter	984.0	1931
9	Allegheny	62.2	Rimer, PA	56	360	22	11	11	Miter	950.0	1938
Apalachicola, Chattahoochee, & Flint Rivers											
Jim Woodruff	Apalachicola	106.3	Chattahoochee, FL	82	450	33	14	14	Moveable	6359.0	1954
George W. Andrews	Chattahoochee	46.7	Gordon, GA	82	450	25	19	13	Moveable	750.0	1962
Walter F. George	Chattahoochee	75.1	Fort Gaines, GA	82	450	88	18	13	Moveable	1325.0	1963

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Bayou Teche, LA											
Keystone	Bayou Teche	72.0	New Iberia, LA	36	160	8	9	8	Miter	175.0	1913
Bayou Teche, LA (FCMR&T)											
Berwick	Atchafalaya	1.5	Berwick, LA	45	300	14	9	9	Sector	NA	1950
East & West Calumet	Bayou Teche	4.0	Berwick, LA	45	90	0	0	0	Sector	NA	1950
Charenton	Grand Lake	35.7	Charenton, LA	45	0	0	0	0	Sector	NA	1949
Black Rock Channel & Tonawanda Harbor											
Black Rock	Black Rock Canal	4.0	Buffalo, NY	70	625	5	22	22	Fixed	NA	1914
Black Warrior & Tombigbee Rivers, AL											
Armistead I. Seldon	Black Warrior	262.0	Eutaw, AL	110	600	22	13	13	Moveable	1832.0	1957
William Bacon Oliver	Black Warrior	337.6	Tuscaloosa, WA	110	600	28	18	18	Moveable	800.0	1991
Holt	Black Warrior	347.0	Holt, AL	110	600	64	19	13	Moveable	1138.0	1966
John Hollis Bankhead	Black Warrior	366.0	Adger, AL	110	600	68	13	13	Moveable	1170.0	1975
Coffeeville	Tombigbee	116.6	Coffeeville, AL	110	600	34	13	13	Moveable	1185.0	1960
Demopolis	Tombigbee	213.2	Demopolis, AL	110	600	40	13	13	Moveable	1485.0	1954
Calcasieu River And Pass, LA											
Calcasieu Barrier	Calcasieu River	38.9	West Lake, LA	56	575	0	0	0	Sector	450.0	1968
Canaveral Harbor											
Canaveral	Canaveral Barge Canal	3.0	Cape Canaveral, FL	90	600	3	13	13	Sector	NA	1965

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Cape Fear River											
1	Cape Fear	39.0	Kings Bluff, NC	40	200	11	9	9	Miter	275.0	1915
2	Cape Fear	71.0	Browns Landing, NC	40	200	9	12	12	Miter	229.0	1917
William O. Huske	Cape Fear	95.0	Tolars Landing, NC	40	300	9	9	9	Miter	220.0	1935
Chicago Harbor											
Chicago	Chicago River	327.2	Chicago, IL	80	600	4	27	23	Sector	NA	1939
Colorado River											
Colorado River East	GIWW Texas	441.1	Matagorda, TX	75	1180	12	15	15	Sector	520.0	1944
Colorado River West	GIWW Texas	441.8	Matagorda, TX	75	1180	12	15	15	Fixed	520.0	1944
Columbia River											
Bonneville	Columbia	145.3	Cascade Locks, OR	86	650	65	19	24	Miter	2680.0	1993
The Dalles	Columbia	191.7	The Dalles, OR	86	650	88	15	15	Vertical	8735.0	1957
John Day	Columbia	216.5	Rufus, OR	86	650	110	15	15	Vertical	5900.0	1968
McNary	Columbia	292.0	Plymouth, WA	86	650	103	15	21	Miter	7365.0	1953
Cumberland River, TN & KY											
Barkley	Cumberland	30.6	Grand Rivers, KY	110	800	57	24	13	Miter	9959.0	1964
Cheatham	Cumberland	148.7	Ashland City, TN	110	798	26	14	12	Miter	801.0	1952
Old Hickory	Cumberland	216.2	Old Hickory, TN	84	397	60	14	13	Miter	3605.0	1954
Cordell Hull	Cumberland	313.5	Carthage, TN	84	400	59	14	13	Miter	1138.0	1973

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Fox River											
Depere	Fox	7.0	Depere, WI	36	146	9	10	12	Tainter	986.1	1856
Little Kaukauna	Fox	14.0	Depere, WI	36	146	7	8	10	Tainter	607.7	1938
Rapide Croche	Fox	19.2	Wrightstown, WI	36	146	8	9	10	Tainter	356.3	1934
Kaukauna 5	Fox	22.8	Kaukauna, WI	36	144	9	7	9	Leaf	NA	1856
Kaukauna 4	Fox	23.1	Kaukauna, WI	37	144	10	7	6	Leaf	NA	1856
Kaukauna 3	Fox	23.3	Kaukauna, WI	35	144	10	7	6	Leaf	NA	1856
Kaukauna 2	Fox	23.4	Kaukauna, WI	35	144	10	6	6	Leaf	NA	1856
Kaukauna 1	Fox	23.6	Kaukauna, WI	35	144	11	7	6	Leaf	NA	1856
Kaukauna Guard	Fox	24.0	Kaukauna, WI	40	0	9	0	0	Tainter	603.0	1891
Little Chute Lower	Fox	25.4	Little Chute, WI	35	147	11	6	9	Leaf	NA	1856
Little Chute Upper	Fox	25.4	Little Chute, WI	36	144	11	8	6	Leaf	NA	1856
Little Chute 2	Fox	26.4	Little Chute, WI	35	144	14	8	6	Leaf	NA	1881
Little Chute 1 Guard	Fox	26.5	Little Chute, WI	35	0	7	0	0	Leaf	561.6	1904
Cedars	Fox	27.3	Little Chute, WI	35	144	10	7	7	Leaf	654.3	1856
Appleton 4	Fox	30.7	Appleton, WI	35	144	8	8	8	Leaf	NA	1856
Appleton 3	Fox	31.3	Appleton, WI	35	144	9	6	9	Leaf	NA	1856
Appleton 2	Fox	31.6	Appleton, WI	35	145	10	7	6	Leaf	425.0	1856
Appleton 1	Fox	31.9	Appleton, WI	35	145	10	7	6	Leaf	691.0	1884
Menasha	Fox	38.0	Menasha, WI	34	144	9	7	8	Leaf	400.5	1856
Freshwater Bayou, LA											
Freshwater Bayou	Freshwater Bayou	1.2	Intracoastal City, LA	84	590	4	16	16	Sector	401.0	1968

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
GIWW between Apalachee Bay, FL & Mexican Border											
Bayou Boeuf	GIWW	93.3	Morgan City, LA	75	1148	11	13	13	Sector	NA	1954
Leland Bowman	GIWW	162.7	Abbeville, LA	110	1190	5	11	11	Sector	NA	1985
Calcasieu	GIWW	238.5	Lake Charles, LA	75	1194	4	13	13	Sector	NA	1950
Harvey	GIWW West	0.0	Harvey, LA	75	415	20	12	12	Miter	NA	1935
Algiers	GIWW Algiers Canal	0.0	Algiers, LA	75	760	18	13	13	Sector	NA	1956
Inner Harbor Navigation Canal	GIWW East	7.0	New Orleans, LA	75	626	17	31	31	Miter	NA	1923
Bayou Sorrel	GIWW Port Allen-Morgan Cty Alt. Rte	37.5	Plaquemine, LA	56	790	21	14	14	Sector	NA	1952
Port Allen	GIWW Port Allen-Morgan Cty Alt. Rte	64.1	Port Allen, LA	84	1188	45	13	14	Miter	NA	1961
Brazos East	GIWW Texas	400.8	Freeport, TX	75	750	0	15	15	Sector	520.0	1943
Brazos West	GIWW Texas	401.1	Freeport, TX	75	750	0	15	15	Sector	520.0	1943
Green & Barren Rivers,KY											
1	Green	9.1	Spottsville, KY	84	600	8	12	15	Miter	760.0	1956
2	Green	63.1	Calhoun, KY	84	600	14	12	12	Miter	512.0	1956
3	Green	108.5	Rochester, KY	36	138	17	0	0	Miter	NA	1836
4	Green	149.0	Woodbury, KY	36	138	16	0	0	Fixed	NA	1836
Hudson River											
Troy	Hudson	153.8	Troy, NY	45	493	17	16	13	Fixed	1495.0	1916

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Illinois Waterway											
Lagrange	Illinois	80.2	Beardstown, IL	110	600	10	16	13	Miter	1066.0	1939
Peoria	Illinois	157.7	Creve Coeur, IL	110	600	11	15	12	Miter	3446.0	1938
Starved Rock	Illinois	231.0	Utica, IL	110	600	19	17	14	Miter	1280.0	1933
Marseilles	Illinois	244.6	Marseilles, IL	110	600	24	19	14	Miter	778.5	1933
Dresden Island	Illinois	271.5	Morris, IL	110	600	22	17	12	Miter	1615.5	1933
Brandon Road	Illinois	286.0	Joliet, IL	110	600	34	18	14	Miter	2373.0	1933
Lockport	Illinois	291.1	Lockport, IL	110	600	39	20	15	Miter	500.0	1933
Thomas J. O'Brien	Calumet	326.5	Chicago, IL	110	1000	4	18	18	Sector	256.75	1960
Kanawha Lock & Dam, Washington											
Winfield	Kanawha	31.1	Winfield, WV	56	360	28	18	12	Miter	700.0	1937
	Kanawha	31.1	Winfield, WV	56	360	28	18	12	Miter	700.0	1937
	Kanawha	31.1	Winfield, WV	110	800	28	18	18	Miter	700.0	1997
Marmet	Kanawha	67.7	Marmet, WV	56	360	24	18	12	Miter	557.0	1934
	Kanawha	67.7	Marmet, WV	56	360	24	18	12	Miter	557.0	1934
London	Kanawha	82.8	London, WV	56	360	24	18	12	Miter	557.0	1933
	Kanawha	82.8	London, WV	56	360	24	18	12	Miter	557.0	1934
Kaskaskia River											
Kaskaskia	Kaskaskia	0.8	Modoc, IL	84	600	29	19	11	Miter	120.0	1973

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Kentucky River, KY											
1	Kentucky	4.0	Carrollton, KY	38	145	8	8	15	Miter	424.0	1839
2	Kentucky	31.0	Lockport, KY	38	145	14	8	6	Fixed	400.0	1839
3	Kentucky	42.0	Gest, KY	38	145	13	9	6	Miter	465.0	1844
4	Kentucky	65.0	Frankfort, KY	38	145	13	6	7	Fixed	534.0	1844
5	Kentucky	82.2	Tyrone, KY	38	145	15	10	6	Fixed	556.0	1844
6	Kentucky	96.2	High Bridge, KY	52	147	14	9	6	Fixed	413.0	1891
7	Kentucky	117.0	High Bridge, KY	52	147	15	9	7	Fixed	350.0	1897
8	Kentucky	139.9	Camp Nelson, KY	52	146	19	11	6	Fixed	257.0	1900
9	Kentucky	157.5	Valley View, KY	52	148	17	11	7	Fixed	362.0	1907
10	Kentucky	176.4	Ford, KY	52	148	17	9	6	Fixed	472.0	1907
12	Kentucky	220.9	Ravenna, KY	52	148	17	10	6	Fixed	240.0	1973
13	Kentucky	239.9	Willow, KY	52	148	18	10	6	Fixed	248.0	1915
14	Kentucky	249.0	Heidelberg, KY	52	148	17	9	6	Fixed	248.0	1917
Lake Washington Ship Canal											
Hiram M. Chittenden	Lake Washington Ship Canal	0.0	Seattle, WA	28	123	26	16	16	Miter	235.0	1916
	Lake Washington Ship Canal	0.0	Seattle, WA	80	760	26	36	29	Miter	235.0	1916

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Mcclellan-Kerr Arkansas River Navigation System											
Norrell	Arkansas	10.3	Arkansas Post, AR	110	600	30	16	15	Fixed	277.0	1967
2	Arkansas	13.3	Arkansas Post, AR	110	600	20	18	14	Tainter	1120.0	1967
Joe Hardin	Arkansas	50.2	Grady, AR	110	600	20	18	14	Tainter	1260.0	1968
Emmett Sanders	Arkansas	66.0	Pine Bluff, AR	110	600	14	18	14	Tainter	1190.0	1968
5	Arkansas	86.3	Redfield, AR	110	600	17	18	14	Tainter	1050.0	1968
David D. Terry	Arkansas	108.1	Little Rock, AR	110	600	18	18	14	Tainter	1190.0	1968
Murray	Arkansas	125.4	Little Rock, AR	110	600	18	18	14	Tainter	980.0	1969
Toad Suck Ferry	Arkansas	155.9	Conway, AR	110	600	16	18	14	Tainter	1200.0	1969
Arthur V. Ormond	Arkansas	176.9	Morrilton, AR	110	600	19	18	14	Tainter	1797.0	1969
Dardanelle	Arkansas	205.5	Russellville, AR	110	600	55	18	14	Tainter	1210.0	1969
Ozark - Jeta Taylor	Arkansas	256.8	Ozark, AR	110	600	34	18	15	Tainter	900.0	1969
James W. Trimble	Arkansas	292.8	Fort Smith, AR	110	600	20	18	14	Tainter	1050.0	1969
W.D. Mayo	Arkansas	319.6	Spiro, OK	110	600	21	14	14	Moveable	840.0	1970
Robert S. Kerr	Arkansas	336.2	Salisaw, OK	110	600	48	16	14	Moveable	1090.0	1970
Webbers Falls	Arkansas	366.6	Webber Falls, OK	110	600	30	16	14	Moveable	720.0	1970
Chouteau	Verdigris	5.0	Muskogee, OK	110	600	21	15	14	Moveable	210.0	1970
Newt Graham Lock	Verdigris	26.0	Inola, OK	110	600	21	15	14	Moveable	210.0	1970
Mermentau River, LA											
Schooner Bayou	Inland Ww, Franklin-Mermentau	3.4	Abbeville, LA	75	525	0	0	0	Sector	NA	1950
Catfish Point	Mermentau	25.0	Creole, LA	56	500	0	0	0	Sector	NA	1951

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Mississippi R between Missouri R & Minneapolis, MN											
Melvin Price	Mississippi	200.8	East Alton, IL	110	600	24	42	18	Miter	990.0	1994
	Mississippi	200.8	East Alton, IL	110	1200	24	23	18	Vertical	990.0	1990
27	Mississippi	185.5	Granite City, IL	110	1200	21	15	15	Vertical	3000.0	1953
	Mississippi	185.5	Granite City, IL	110	600	21	15	15	Miter	3000.0	1953
25	Mississippi	241.4	Winfield, MO	110	600	15	19	12	Miter	1140.0	1939
24	Mississippi	273.4	Clarksville, MO	110	600	15	19	12	Miter	1200.0	1940
22	Mississippi	301.2	Saverton, MO	110	600	10	18	14	Miter	3084.0	1938
21	Mississippi	324.9	Quincy, IL	110	600	10	17	12	Miter	2955.0	1938
20	Mississippi	343.2	Canton, MO	110	600	10	15	12	Miter	2144.0	1936
19	Mississippi	364.3	Keokuk, IA	110	1200	38	15	13	Vertical	8809.0	1957
18	Mississippi	410.5	Gladstone, IL	110	600	10	17	14	Miter	6960.0	1937
17	Mississippi	437.1	New Boston, IL	110	600	8	16	13	Miter	3196.0	1939
16	Mississippi	457.2	Muscatine, IL	110	600	9	17	12	Miter	3555.0	1937
15	Mississippi	482.9	Rock Island, IL	110	600	16	27	11	Miter	1203.0	1934
	Mississippi	482.9	Rock Island, IL	110	360	16	27	11	Miter	1203.0	1934
14	Mississippi	493.0	Leclaire, IA	110	600	11	20	13	Miter	2703.0	1922
	Mississippi	493.0	Leclaire, IA	80	320	11	21	14	Miter	2703.0	1939
13	Mississippi	522.5	Clinton, IL	110	600	11	19	13	Miter	1407.0	1938
12	Mississippi	556.7	Bellevue, IA	110	600	9	17	13	Miter	8369.0	1939
11	Mississippi	583.0	Dubuque, IA	110	600	12	19	13	Miter	4784.0	1937
10	Mississippi	615.1	Guttenburg, IA	110	600	8	15	12	Miter	763.0	1936
9	Mississippi	647.9	Lynxville, WI	110	600	9	16	13	Miter	811.0	1938
8	Mississippi	679.2	Genoa, WI	110	600	11	22	14	Miter	935.0	1937
7	Mississippi	702.5	Dresbach, MN	110	600	8	18	12	Miter	940.0	1937
6	Mississippi	714.3	Trempealeau, WI	110	600	6	17	13	Miter	893.0	1936

* NA (Not Applicable) No Dam at Lock

APPENDIX C
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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
5A	Mississippi	728.5	Winona,Mn, MN	110	600	5	18	13	Miter	682.0	1936
5	Mississippi	738.1	Minneiska, MN	110	600	9	18	12	Miter	1619.0	1935
4	Mississippi	752.8	Alma, WI	110	600	7	17	13	Miter	1367.0	1935
3	Mississippi	796.9	Red Wing, MN	110	600	8	17	14	Miter	365.0	1938
2	Mississippi	815.2	Hastings, MN	110	500	12	22	13	Miter	822.0	1930
1	Mississippi	847.6	Minn. St. Paul, MN	56	400	38	13	10	Miter	574.0	1932
	Mississippi	847.6	Minn. St. Paul, MN	56	400	38	13	8	Miter	574.0	1930
Lower Saint Anthony Falls	Mississippi	853.3	Minneapolis, MN	56	400	25	14	10	Miter	188.0	1959
Upper Saint Anthony Falls	Mississippi	853.9	Minneapolis, MN	56	400	49	16	14	Miter	NA	1963

* NA (Not Applicable) No Dam at Lock

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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Monongahela River											
2	Monongahela	11.2	Braddock, PA	110	720	9	15	16	Miter	748.0	1905
	Monongahela	11.2	Braddock, PA	56	360	9	15	16	Miter	748.0	1905
3	Monongahela	23.8	Elizabeth, PA	56	720	8	11	11	Miter	670.0	1907
	Monongahela	23.8	Elizabeth, PA	56	360	8	11	11	Miter	670.0	1907
4	Monongahela	41.5	Monessen, PA	56	360	17	20	10	Miter	535.0	1932
	Monongahela	41.5	Monessen, PA	56	720	17	20	10	Miter	535.0	1932
Maxwell	Monongahela	61.2	Maxwell, PA	84	720	20	20	14	Miter	460.0	1963
	Monongahela	61.2	Maxwell, PA	84	720	20	20	14	Miter	460.0	1963
Grays Landing	Monongahela	82.0	Grays Landing, PA	84	720	15	27	18	Miter	576.0	1993
Point Marion	Monongahela	90.8	Point Marion, PA	84	720	19	16	35	Miter	682.0	1994
Morgantown	Monongahela	102.0	Morgantown, WV	84	600	17	17	14	Miter	410.0	1950
Hildebrand	Monongahela	108.0	Morgantown, WV	84	600	21	14	15	Miter	530.0	1959
Opekiska	Monongahela	115.4	Opekiska, WV	84	600	22	18	14	Miter	366.0	1964

* NA (Not Applicable) No Dam at Lock

APPENDIX C
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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Ohio River											
Emsworth	Ohio	6.2	Emsworth, PA	110	600	18	17	13	Miter	1717.0	1921
	Ohio	6.2	Emsworth, PA	56	360	18	16	13	Miter	1717.0	1921
Dashields	Ohio	13.3	Glenwillard, PA	56	360	10	13	18	Miter	1585.0	1929
	Ohio	13.3	Glenwillard, PA	110	600	10	13	18	Miter	1585.0	1929
Montgomery	Ohio	31.7	Monaca, PA	56	360	18	16	15	Miter	1379.0	1936
	Ohio	31.7	Monaca, PA	110	600	18	16	15	Miter	1379.0	1936
New Cumberland	Ohio	54.4	Stratton, OH	110	1200	21	17	15	Miter	1315.0	1959
	Ohio	54.4	Stratton, OH	110	600	21	17	15	Miter	1315.0	1959
Pike Island	Ohio	84.2	Warwood, WV	110	600	18	17	18	Miter	1315.0	1965
	Ohio	84.2	Warwood, WV	110	1200	18	17	18	Miter	1315.0	1965
Hannibal	Ohio	126.4	Hannibal, OH	110	1200	21	38	17	Miter	1098.0	1973
	Ohio	126.4	Hannibal, OH	110	600	21	38	17	Miter	1098.0	1973
Willow Island	Ohio	161.7	Newport, OH	110	1200	20	35	15	Miter	1128.0	1972
	Ohio	161.7	Newport, OH	110	600	20	35	15	Miter	1128.0	1972
Belleville	Ohio	203.9	Reedsville, OH	110	600	22	37	15	Miter	1206.0	1969
	Ohio	203.9	Reedsville, OH	110	1200	22	37	15	Miter	1206.0	1969
Racine	Ohio	237.5	Letart, WV	110	1200	22	37	15	Miter	1173.0	1969
	Ohio	237.5	Letart, WV	110	600	22	37	15	Miter	1173.0	1969
Robert C. Byrd	Ohio	279.2	Hogsett, WV	110	600	23	41	18	Miter	1132.0	1993
	Ohio	279.2	Hogsett, WV	110	1200	23	41	18	Miter	1132.0	1993
Greenup	Ohio	341.0	Greenup, KY	110	600	30	45	15	Miter	1287.0	1959
	Ohio	341.0	Greenup, KY	110	1200	30	45	15	Miter	1287.0	1959

* NA (Not Applicable) No Dam at Lock

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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Captain Anthony Meldahl	Ohio	436.2	Chilo, OH	110	600	30	45	15	Miter	1756.0	1962
	Ohio	436.2	Chilo, OH	110	1200	30	45	15	Miter	1756.0	1962
Markland	Ohio	531.5	Markland, KY	110	600	35	50	15	Miter	1395.0	1959
	Ohio	531.5	Warsaw, KY	110	1200	35	50	15	Miter	1395.0	1959
Mcalpine	Ohio	606.8	Louisville, KY	110	600	37	19	11	Miter	8725.0	1961
	Ohio	606.8	Louisville, KY	110	1200	37	49	12	Miter	8725.0	1961
Cannelton	Ohio	720.7	Cannelton, IN	110	1200	25	40	15	Miter	2054.0	1971
	Ohio	720.7	Cannelton, IN	110	600	25	40	15	Miter	2054.0	1971
Newburgh	Ohio	776.1	Newburgh, IN	110	600	16	31	15	Miter	2275.6	1975
	Ohio	776.1	Newburgh, IN	110	1200	16	31	15	Miter	2275.6	1975
John T. Myers	Ohio	846.0	Mount Vernon, IN	110	600	18	34	16	Miter	3504.0	1975
	Ohio	846.0	Mount Vernon, IN	110	1200	18	34	16	Miter	3504.0	1975
Smithland	Ohio	918.5	Hamletsburg, IL	110	1200	22	34	12	Miter	2962.0	1980
	Ohio	918.5	Hamletsburg, IL	110	1200	22	34	12	Miter	2962.0	1980
52	Ohio	938.9	Brookport, IL	110	1200	12	15	11	Miter	2998.0	1969
	Ohio	938.9	Brookport, IL	110	600	12	15	11	Miter	2978.0	1928
53	Ohio	962.6	Mound City, IL	110	600	12	15	10	Miter	3560.0	1929
	Ohio	962.6	Mound City, IL	110	1200	12	15	10	Miter	3560.0	1980

* NA (Not Applicable) No Dam at Lock

APPENDIX C
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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Okeechobee Waterway, FL											
Moore Haven	Caloosahatchee	78.0	Moore Haven, FL	50	250	2	10	11	Sector	89.8	1953
W. P. Franklin	Caloosahatchee	122.0	Fort Myers, FL	56	400	3	13	13	Sector	1150.0	1965
Ortona	Okeechobee	93.6	Labelle, FL	50	225	11	12	15	Sector	104.0	1937
St. Lucie	St. Lucie Canal	15.3	Stuart, FL	50	225	13	15	13	Sector	170.0	1941
Port Mayaca	St. Lucie Canal	38.5	Port Mayaca, FL	56	400	2	17	17	Sector	116.0	1977
Old River, LA (MR&T)											
Old River	Old River	1.0	Simmesport, LA	75	1190	35	11	11	Miter	1100.0	1963
Ouachita & Black Rivers below Camden, AR											
Jonesville	Black	25.0	Jonesville, LA	84	600	30	18	15	Miter	450.0	1972
Columbia	Ouachita	117.2	Columbia, LA	84	600	18	18	18	Miter	400.0	1972
Felsenthal	Ouachita	226.8	Felsenthal, AR	84	600	18	18	13	Miter	350.0	1984
H. K. Thatcher	Ouachita	281.7	Calion, LA	84	600	12	18	13	Miter	350.0	1984
Pearl River Lateral Canal											
1	West Pearl	29.7	Pearl River, LA	65	274	27	10	10	Miter	NA	1949
2	West Pearl	40.8	Bush, LA	65	274	15	10	10	Miter	NA	1950
3	West Pearl	43.9	Sun, LA	65	274	11	10	10	Miter	NA	1950

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Red River WW-Mississippi R to Shreveport, LA											
Lindy Claiborne Boggs	Red	44.0	Larto, LA	84	685	36	22	13	Miter	630.0	1984
John H.Overton	Red	74.0	Ruby, LA	84	685	24	23	23	Miter	348.0	1987
3	Red	116.4	Colfax, LA	84	685	31	25	18	Miter	432.0	1992
Russell B. Long	Red	169.0	Coushatta, LA	84	685	25	25	18	Miter	690.0	1994
Joe D. Waggonner	Red	200.0	Caspiana, LA	84	685	25	22	23	Miter	663.0	1994
Sacramento River											
Sacramento Barge Canal Lock	Sacramento	43.0	West Sacramento, CA	86	640	4	13	13	Fixed	NA	1961
Savannah River											
New Savannah Bluff	Savannah	187.2	Augusta, SC	56	360	15	14	12	Miter	360.0	1937
Snake River											
Ice Harbor	Snake	9.7	Pasco, WA	86	650	103	15	14	Vertical	2790.0	1962
Lower Monumental	Snake	41.6	Kahlotus, WA	86	650	103	15	15	Vertical	3800.0	1969
Little Goose	Snake	70.3	Starbuck, WA	86	650	101	15	15	Miter	2655.0	1970
Lower Granite	Snake	107.5	Pomeroy, WA	86	650	105	15	15	Miter	3200.0	1975
St. Marys River, MI											
St. Marys	St. Marys	47.0	Sault Ste. Marie, MI	80	1320	22	24	23	Leaf	1300.0	1919
	St. Marys	47.0	Sault Ste. Marie, MI	80	1320	22	24	23	Leaf	1300.0	1914
	St. Marys	47.0	Sault Ste. Marie, MI	110	1200	22	32	32	Leaf	1300.0	1963
	St. Marys	47.0	Sault Ste. Marie, MI	80	780	22	31	31	Leaf	1300.0	1943

* NA (Not Applicable) No Dam at Lock

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Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Tennessee River, TN, AL, & KY											
Melton Hill	Clinch	23.1	Kingston, TN	75	400	58	13	13	Miter	1072.0	1963
Kentucky	Tennessee	22.4	Grand Rivers, KY	110	600	57	24	13	Miter	7976.0	1942
Pickwick Landing	Tennessee	206.7	Pickwick Dam, TN	110	1000	55	19	17	Miter	7385.0	1984
	Tennessee	206.7	Pickwick Dam, TN	110	600	55	16	17	Miter	7385.0	1937
Wilson	Tennessee	259.4	Florence, AL	60	300	49	13	13	Miter	3728.0	1927
	Tennessee	259.4	Florence, AL	110	600	94	11	11	Miter	3728.0	1959
	Tennessee	259.4	Florence, AL	60	300	45	11	11	Miter	3728.0	1927
General Joseph Wheeler	Tennessee	274.9	Rogersville, AL	110	600	48	15	13	Miter	5738.0	1963
	Tennessee	274.9	Rogersville, AL	60	400	48	15	13	Miter	5738.0	1934
Guntersville	Tennessee	349.0	Guntersville, AL	110	600	39	17	18	Miter	3837.0	1965
	Tennessee	349.0	Guntersville, AL	60	360	39	17	18	Miter	3837.0	1937
Nickajack	Tennessee	424.7	Jasper, TN	110	600	39	13	11	Miter	3763.0	1967
Chickamauga	Tennessee	471.0	Chattanooga, TN	60	360	49	10	14	Miter	5654.0	1937
Watts Bar	Tennessee	529.9	Breendenton, TN	60	360	58	12	12	Miter	2646.0	1941
Fort Loudon	Tennessee	602.3	Lenoir City, TN	60	360	72	12	12	Miter	3687.0	1943

* NA (Not Applicable) No Dam at Lock

APPENDIX C
Navigation Locks and Dams Owned or Operated September 30, 2003

Waterway/ Lock	River	River Mile	Community	Chamber Unit in Feet Width	Length	Lift	Depth over Sills Unit in Feet Upper	Lower	Lock Gate Type	Dam Unit in Feet Length *	Year Open
Tennessee-Tombigbee Waterway AL, MS											
Howell Heflin	Tenn-Tombigbee	266.1	Gainesville, AL	110	600	36	15	15	Moveable	817.0	1978
Tom Bevill	Tenn-Tombigbee	306.8	Aliceville, AL	110	600	27	15	15	Moveable	647.0	1979
John C. Stennis	Tenn-Tombigbee	334.7	Columbus, MS	110	600	27	15	15	Moveable	573.0	1980
Aberdeen	Tenn-Tombigbee	357.5	Aberdeen, MS	110	600	27	15	15	Moveable	641.0	1985
Amory	Tenn-Tombigbee	371.1	Amory, MS	110	600	30	15	15	Moveable	284.0	1985
Glover Wilkins	Tenn-Tombigbee	376.3	Smithville, AL	110	600	25	18	18	Moveable	779.0	1985
Fulton	Tenn-Tombigbee	391.0	Fulton, MS	110	600	25	18	18	Moveable	396.0	1985
John E. Rankin	Tenn-Tombigbee	398.4	Fulton, MS	110	600	30	18	18	Moveable	282.0	1985
G.V. "Sonny" Montgomery	Tenn-Tombigbee	406.7	Belmont, MS	110	600	30	18	18	Moveable	449.0	1985
Jamie Whitten	Tenn-Tombigbee	411.9	Tupelo, MS	110	600	84	18	18	Moveable	2750.0	1985
The Inland Route, Mi											
Alanson	Crooked	30.0	Alanson, MI	18	66	3	7	8	Tainter	83.0	1967
Willamette River At Willamette Falls											
Willamette Falls	Willamette	26.0	West Linn, OR	40	198	10	6	8	Leaf	NA	1873
	Willamette	26.0	West Linn, OR	40	198	20	6	8	Leaf	NA	1873
	Willamette	26.0	West Linn, OR	40	198	10	6	8	Leaf	NA	1873
	Willamette	26.0	West Linn, OR	40	198	10	6	8	Leaf	NA	1873
	Willamette	26.0	West Linn, OR	40	198	10	6	8	Leaf	NA	1873

* NA (Not Applicable) No Dam at Lock

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Agat Small Boat Harbor, Guam (Sec 107)	1987	1989	1989	Dredging and breakwater
AIWW Replacement of Federal Hwy Bridges in NC	1974	1986[1]	2004	Replacement of existing bridges
Aquadilla Harbor, PR (Sec 107)	1993		1995	Breakwater
Arthur Kill Channel, Howland Hook, Terminal, NY & NJ	2001			Deep draft channel-widening and deepening to 41ft.
Ashtabula Harbor, OH	2003		2003[6]	Dredging
Baltimore Harbor Anchorages and Channels, MD	2002	2003	2003	Deepen and Widen Anchorages
Black Rock Channel, NY	2003		2004[6]	Rehabilitate Upper West Wing Wall
Brunswick Harbor, GA	2002		2004	Deepen to 36 feet.
Buffalo Harbor, NY	2003		2004[6]	Dredging
Burns Harbor, IN	1995		1999	Breakwater Rehabilitation
Calabash Creek, SC (Sec 107)	2000	2001	2001	Channel Deepening
Chain of Rocks Canal, IL	1999	1953	2009	Deficiency Correction
Canaveral Harbor Deepening, FL	1993		1994	Navigation Channels
Canaveral Harbor, FL	1994		2044	Jetty extension and sand tightening
Cape Cod Canal, MA	2000	2003	2004	Major Rehabilitation of Railroad Bridge
Chain of Rocks Canal, IL	1999	1953	2007	Deficiency Correction
Channel to Newport News, VA (1965 Mod.)	1967	1968	Indefinite	Deferred anchorage construction
Channel to Newport News, VA (1986 Mod.)	1987	1989	Indefinite	Dredge 50 ft. Channel. Deepen to 55 feet
Channel to Victoria, TX	1993	2002	2006	Enlarging and deepening channel to 12 foot depth
Charleston Harbor (Deeping/Widening), SC	1998	2001	2008	Deepen Entrance Channel to 47 feet and inner channels to 45 feet depth.
Chicago Harbor (Lock), IL	1995		1997	Lock Bulkhead Fabrication
Chicago Harbor (Lock), IL	1996		1997	Construct Slots to Dewater Lock Gate Bays
Cleveland Harbor, OH	2003		2004[6]	Dredge Cuyahoga River

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Coan River, VA	1993		2004	Channel Dredging /Jetty Construction
Cook Inlet Navigation Improvement, AK	1998		2001	Channel Dredging
Crescent City Harbor, CA	1998		2000	Deepen Channel
Delaware River Main Channel & Deepening, NJ, PA, & DE	1999		2010	Deepen Channel
Dunkirk Harbor, NY	2003		2003[6]	Dredging
Erie Harbor, NY	2003		2003[6]	North Pier Safety Ladders
Fairport Harbor, OH	2003		2003[6]	Dredging
Fort Pierce Harbor, FL	1995		1996	Enlarge entrance channel
Freeport Harbor, TX	1987	1991	1998	Dredging, jetty construction, and recreation
Grays Landing Lock & Dam (Lock & Dam 7) Monongahela River, PA	1986	1996	2005	Construct new lock & dam to replace existing lock & dam 7
Gulfport Harbor, MS	1991	1994	2006	Deepen Channel
Helena Harbor, Phillips County, AR	1989	1995	1995	New Slackwater Harbor
Hempstead Harbor, NY	1992		1995	Removal of derelect barges
Houston-Galveston Navigation Channels, TX	1998		2009	Deepen and Widen Houston Ship Channel and Galveston Harbor and Channel; 45' depth in Houston Ship Channel completion-2005
Humboldt Harbor and Bay Deepening, CA	1997		2000	Deepening and Widen channel
Huron Harbor, OH	2003		2003[6]	Dredging
Illinois Waterway Four Locks	1993		1996	Major rehabilitation of locks and dams
Inner Harbor Navigation Canal Lock	1999		2012	Lock Replacement
Jacksonville Harbor, FL	1999		2003	Dredging material disposal facilities
Kake Harbor, AK	1997		2000	Breakwater and Navigation Channel
Kawaihae Small Boat Harbor, Hawaii, HI	1996	1998	1998	Breakwater
Kentucky Lock Addition, KY	1998		2012	Lock Addition (1200 feet)
Kill Van Kull-Newark Bay, NJ and NY (Stage I)	1986		1995	Deep draft channel-widening and deepening to 40 ft.

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Kill Van Kull-Newark Bay, NJ and NY (Stage II)	1999		2006	Deep draft channel-widening and deepening to 45 ft.
Laupahoehoe Harbor, Hawaii, HI	1988	1988	1988	Breakwater
Lock and Dams 2, 3 and 4, Monongahela, PA and WV	1992		2019	Major rehabilitation of locks and dams, removal of Lock and Dam 3
Lock and Dam 3, MN	1998		2008	Major rehabilitation/embankments
Lock and Dams 3, 5A, 6,7,8 and 9, MN, WI and IA	1989		2004	Major rehabilitation of electrical/mechanical systems
Lock and Dam 14, IL	1996	2001	2002	Major rehabilitation of lock and dam
Lock and Dam 24, MO	1996	1940	2008	Major rehabilitation of lock and dam
Lock and Dam 25, MO	1994	1939	2002	Major rehabilitation of lock and dam
London Locks and Dam, Kanawha River, WV	1999		2003	Major rehabilitation of lock and dam
Lorain Harbor, OH	2001		2004[6]	East Breakwater Repair
Lorain Harbor, OH	2003		2005[6]	West Breakwater Repair
Los Angeles Harbor, CA	1996		2001	Channel Deepening
McAlpine Lock and Dam	1996		2008	Lock Replacement (1200 feet)
McClellan-Kerr Arkansas River Navigation System, AR	1963	1970	2012	Locks and dams
Manatee Harbor, FL	1995		2004	Enlarge turning basin, construct wideners, mitigation
Marmet Locks & Dam, Kanawha River, WV	1998		2010	Construction of new lock
Melvin Price Lock and Dam, IL and MO	1974	1990	2008	Replacement
Miami Harbor Channel, FL	1993		2004	Navigation Channels & Turning Basin
Mississippi River between Ohio and Missouri Rivers IL and MO	1910		2014	Regulating Works
Mississippi River, Ship Channel, Gulf to Mt. Morris Lake, NY	2002		2003[6]	Road Repair
Baton Rouge, LA	1987	1987 [2]	Indefinite [3]	Dredging 55-foot channel

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Montgomery Point Lock and Dam, AR	1997		2006	Lock and Dam
Mouth of Colorado River, TX (Gulf Intracoastal Waterway)	1984	1994	1995	Breakwaters, dredging, and recreation
Mt. Morris Lake, NY	2002		2003[6]	Road Repair
Nawiliwili Harbor, Kauai, HI	1985	1987	1987	Breakwater repair
Neches River Saltwater Barrier	2000		2005	Construction of a tainter-gated saltwater barrier structure, sector-gated navigation bypass channel, access road and levee
New Madrid County Harbor	2000	2000	2000	Slackwater Harbor Expansion
New York Harbor and adjacent channels, Port Jersey Channel, NJ	1998		2006	Deep draft channel to 45 ft. providing a turning basin and bulkhead portions of the turning basin.
New York and New Jersey Harbors, NY and NJ	2002		Indefinite	Deep draft channel to 52 ft.
New York Harbor Collection and Removal of drift, NY & NJ	1976	Incremental	Indefinite	Removal of drift sources.
Norfolk Harbor Channel, VA (1965 Mod.)	1966	Incremental	Indefinite	Removal of drift sources
Norfolk Harbor Channel, VA (1986 Mod)	1987	1989	Indefinite	Dredge channel to 50 feet
North Pass-Pass Manchac, LA (107)	1995	1995	1996	9ft.x 130ft. barge channel
Oakland Harbor, CA	1987		2010	Channel deepening and widening turning basin
Olmsted Locks and Dam, IL & KY	1992		2014	Navigation
Ouachita and Black River, AR and LA	1964	1984	Indefinite	Replacement of six locks and dams, channel deepening to 9 feet and realignment
Palm Valley Bridge, FL	1998		2002	Bridge Replacement
Pascagoula Harbor, MS	1994		2004	Channel dredging and construction of a new turning basin
Point Marion, Lock & Dam 8, Monongahela River, PA	1986	1994	2002	Replaces existing 56x360' lock chamber with new 84'x720' chamber

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Port of Florence, AL	1994	1995	1995	Channel Dredging
Port of Los Angeles Main Channel Deepening, CA	2002		2005	Channel Deepening
Port of Long Beach (Deepening), CA	1998		Indefinite	Channel Deepening
Red River WW, Mississippi River to Shreveport, LA	1974	1984[4]	Indefinite[5]	Lock and dam construction. Channel improvement and realignment
Richmond Harbor, CA	1985		2000	Channel deepening and turning basin
Robert C. Byrd Locks and Dam, Ohio River	1985	1992	2005	Replacement of existing locks and major rehabilitation of the dam
Rudee Inlet, VA	1990	1991	1991	Dredge 7 foot channel
Sacramento River Deep Water Ship Channel, CA	1986		Being Determined	Deep draft channel, widening and deepening
Salem River, NJ	1995	1996	1996	Channel deepening
San Francisco Bay to Stockton, CA (John F. Baldwin and Stockton Ship Channels)	1971		Being Determined	Deep draft channel, widening, deepening and dredging
San Juan Harbor, PR	1998		2003	Deepening & widening for channel
Santa Barbara Harbor, CA	1991		Indefinite	Acquire Dredge
Santa Monica Breakwater, CA	1998		Indefinite	Repair Breakwater
Sonoma Baylands Wetlands Demonstration Project, CA	1993		1997	Restoration of Tidal Wetlands on a 348 acre site
Savannah Harbor Deepening, GA	1993		1994	Channel deepening
Shallow Creek Spur Channel, MD	1999	2000	2003	Spur Channel
Shinnecock Inlet, NY	1990		1995	Dredging and repair of Jetties
St. George Channel Extension, AK	1994		1996	Dredging
St. Lucie Inlet, FL	2001		2002	Impoundment basin and jetty elements
St. Paul Harbor Improvements, AK	1999		2004	Breakwater Improvements and Dredging
Taconite Harbor, MN	2000	2002	2002	Harbor of refuge construction
Tampa Harbor, FL (Main Channel)	1976		1987	Dredging
Tampa Harbor (Port Sutton), FL	1991		2005	Deepen Channel

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

Project	Fiscal Year Started	Placed in Useful Operation	Fiscal Year Completed or Scheduled for Completion	Nature of Project
Tampa Harbor (Ybor Channel), FL	1999		2001	Enlarge turning basin
Taylor Point Cut, LA (107)	1999	1999	1999	Navigation cut from Charenton LK to Grand Isle
Tenn River, Port of Florence	1994		1995	Channel Improvements
Toledo Harbor, OH	2003		2003[6]	Dredge Maumee River and Maumee Bay
Wallisville Lake, TX	1967	1999	2003	Multipurpose lake (navigation, salinity control, water supply, fish & wildlife, & recreational)
Wilmington Harbor, NC	1999	2004	2008	Dredging to Deepen
Winfield Locks and Dam, Kanawha River, WV	1990	1997	2005	Construction of new lock

APPENDIX D
Navigation Projects Under Construction During Fiscal Year 2003

[1] Walter B. Jones, Joseph P. Knapp, Core Creek, and Gene A. Potter Memorial Bridge and Fairfield Bridge are operational. Fairfield bridge is being closed out.

[2] Phase I, forty-five foot channel to New Orleans, LA. Forty-five foot channel to Mile 181 (Donaldsonville, LA) placed in useful operation in 1988. Phase II, forty-five foot channel from mile 181 to Baton Rouge placed in useful operation in 1994.

[3] Awaiting further PCA's to go deeper than 45 feet.

[4] Lock and Dam No. 1 placed in useful operation in 1984. Lock and Dam No. 2 in 1987. Lock and Dam No. 3 in 1992. Lock and Dam No. 4 and 5 in 1994.

[5] Schedule for completion of entire project is indefinite. However, the project opened to 9-foot navigation on 31 December 1994.

[6] O&M funded.

APPENDIX E
Multiple-Purpose Projects Including Power
Operable September 30, 2003

Project	River	Community in Vicinity	Total Storage Capability (acre-feet)[1]	Flood Control and/or Nav. Feature Placed in Useful Operation CY	Initial Power in FY	Existing Installation (KW)	Ultimate Installation (KW)	Project Functions	Type[2]	Height (feet)	Length (feet)
Albeni Falls, ID	Pend Oreille	Newport,WA	1,153,000	1952	1955	42,600	42,600	NFPR	C	90	1,055
Allatoona Lake, GA	Etowah	Cartersville,GA	670,000	1950	1950	74,000	74,000	FPRW	C	190	1,250
Barkley Dam & Lake Barkley, KY & TN	Cumberland	Frand Rivers, KY	2,082,000	1964	1966	130,000	130,000	NPFR	CE	157	9,959
Beaver Lake, AR	White	Eureka Springs,	1,952,000	1963	1965	112,000	112,000	FPSR	CE	228	2,575
Big Bend Dam (Lake Sharpe), SD	Missouri	Chamberlain,SD	1,859,000	1964	1964	494,320	494,320	FPRIW	E	95	10,570
Blakely Mountain Dam-Lake Ouachita	Ouachita	Mt. Pine, AR	2,768,000	1953	1956	75,000	75,000	FPRW	E	235	1,100
Bonneville L&D Lake Bonneville, OR & WA	Columbia	Bonneville,OR	537,000	1938	1938	1,145,700	1,145,700	NPR	C	122	2,690
Broken Bow Lake, OK	Mountain Fork	Broken Bow, OK	1,368,230	1968	1970	100,000	100,000	FPWSR	E	225	2,750
Buford Dam, Lanier, GA	Chattahoochee	Buford, GA	2,554,000	1956	1957	86,000	86,000	NFPW	E	192	5,400
Bull Shoals Lake AR & MO	White	Mountain Home	5,408,000	1952	1953	340,000	340,000	FPR	C	258	2,256
Clarence Cannon Dam	Salt	Perry, MO	1,428,000	1983	1985	58,000	58,000	FNPRSW	CE	138	1,700
Carters Dam, GA	Coosawatte	Carters, GA	472,756	1975	1975	500,000	500,000	FPRW	ER	450	1,950
Center Hill Lake, TN	Caney Fork	Lancaster,TN	2,092,000	1948	1951	135,000	135,000	FPR	CE	250	2,160
Cleatham L&D, TN	Cumberland	Ashland City, TN	104,000	1952	1958	36,000	36,000	NPR	C	75	801
Chief Joseph Dam, (Rufus Woods Lake), WA	Columbia	Bridgeport, WA	593,000	1955	1956	2,457,384	2,457,384	PIR	C	230	5,998
Cooper River, Charleston Harbor, SC	Santee	St. Stephen, SC	2,560,000	N/A	1985	84,000	84,000	NPW	CE	86	876
Cordell Hull L&D, TN	Cumberland	Carthage, TN	310,900	1973	1974	100,000	100,000	NPR	CE	93	1,306

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Multiple-Purpose Projects Including Power
Operable September 30, 2003

Project	River	Community in Vicinity	Total Storage Capability (acre-feet)[1]	Flood Control and/or Nav. Feature Placed in Useful Operation CY	Initial Power in FY	Existing Installation (KW)	Ultimate Installation (KW)	Project Functions	Type[2]	Height (feet)	Length (feet)
Cougar Lake, OR	S.Fork McKenzie	Blue River, OR	219,000	1963	1964	25,000	64,600	NFPRI	ER	445	1,738
Dale Hollow Lake, TN & KY	Obey	Celina, TN	1,706,000	1943	1949	54,000	54,000	FPR	C	200	1,717
Dardanelle L&D, AR	Arkansas	Dardanelle, AR	486,200	1969	1965	160,000	160,000	NPR	C	68	2,683
DeGray Lake, AR	Caddo	Arkadelphia, AR	831,900	1969	1972	68,000	108,000	FNPRS	E	243	3,400
Denison Dam (Lake Texoma), TX & OK	Red	Denison, TX	5,194,163	1944	1945	70,000	199,000	FPRSNW	E	165	17,200
Detroit Lake, OR, including Big Cliff Lake, OR	North Santiam	Mill City, OR	461,000	1953	1954	118,000	118,000	NFPRI	C	382	1,528
Dworshak Dam & Reservoir, ID	N. Fork, Clearwater	Orofino, ID	3,468,000	1972	1973	400,000	1,060,000 [7]	PNFR	CG	717	3,287
Eufaula Lake, OK	Canadian	Eufaula, OK	3,825,400	1964	1964	90,000	90,000	FNPSRWX	E	114	3,200
Fort Gibson Lake, OK	Grand (Neosho)	Ft. Gibson, OK	1,284,400	1949	1953	45,000	67,500	FPNW	E	110	2,990
Fort Peck Lake, MT	Missouri	Glasglow, MT	18,688,000	1940	1943	185,250	185,250	NFPRIW	E	251	21,026
Fort Randal Dam Lake Francis (Case), SD	Missouri	Lake Andes, SD	5,418,000	1953	1954	320,000	320,000	NFPRIW	E	165	10,700
Garrison Dam (Lake Sakakawea), ND	Missouri	Riverdale, ND	23,821,000	1955	1956	517,750	573,250	NFPRIW	E	210	11,300
Gavins Point Dam (Lewis & Clark Lake), SD & NE	Missouri	Yankton, SD	470,000	1955	1956	132,300	132,300	NFPRIW	E	74	8,700
Green Peter Lake,OR, including Foster Lake, OR	Middle Santiam	Sweet Home, OR	491,000	1967	1967	100,000	100,000	PFNIR	C	340	1,380
Greers Ferry Lake, AR	Little Red	Heber Spings	2,844,000	1962	1964	96,000	96,000	FPRS	C	243	1,704
Harry S. Truman Dam & Res.	Osage	Warsaw, MO	5,202,000	1979[3]	1982	160,000	160,000	FPRWS	CE	96	5,000

APPENDIX E
Multiple-Purpose Projects Including Power
Operable September 30, 2003

Project	River	Community in Vicinity	Total Storage Capability (acre-feet)[1]	Flood Control and/or Nav. Feature Placed in Useful Operation CY	Initial Power in FY	Existing Installation (KW)	Ultimate Installation (KW)	Project Functions	Type[2]	Height (feet)	Length (feet)
Hartwell Dam & Lake, GA & SC	Savannah	Hartwell, GA	2,842,700	1961	1962	422,000	422,000	FPRSW	CE	204	17,880
Hills Creek Lake, OR	Middle Fork Wilamette	Oakridge, OR	356,000	1961	1962	30,000	30,000	NFPRI	GE	338	2,150
Ice Harbor L&D (Lake Sacajawea), WA	Snake	Pasco, WA	417,000	1961	1961	603,000	603,000	NPRI	CG	130	2,822
J. Percy Priest Dam & Reservoir, TN	Stones	Nashville, TN	652,000	1967	1970	28,000	28,000	FPRW	CE	147	2,716
J. Strom Thurmond Dam & Lake GA & SC[6]	Savannah	Augusta, GA	2,900,000	1952	1953	282,000	282,000	FPRSW	CE	200	5,680
Jim Woodruff Dam (Lake Seminole), FL, GA & AL	Appalachicola	Chattahoochee, FL	367,300	1957	1957	30,000	30,000	NPRW	CE	67	6,150
John Day L&D (Lake Umatilla), OR & WA	Columbia	Rufus, OR	2,500,000	1968	1969	2,160,000	2,700,000	NPRFI	CE	161	5,900
John H. Kerr Dam & Reservoir, NC& VA	Roanoke	Boydton, VA	2,750,300	1952	1953	204,000	204,000	FPRW	CE	144	22,285
Keystone Lake, OK	Arkansas	Tulsa, OK	1,672,613	1964	1968	70,000	70,000	FNPWSR	E	121	4,600
Lake Greeson, AR	Little Missouri	Murfreesboro, AR	407,900	1950	1950	25,500	25,500	FPRW	C	183.5	941
Laurel River, KY	Laurel	London, KY	435,600	1973	1978	61,000	61,000	FPRW	R	282	1,420
Libby Dam, Lake Koocanusa, MT	Kootenai	Libby, MT	5,809,000	1972	1975	525,000	840,000	FPR	C	420	3,055
Little Goose L&D (Lake Bryan), WA	Snake	Starbuck, WA	565,200	1970	1970	810,000	810,000	NPRI	CG	165	2,655
Lookout Point Lake including Dexter Lake, OR	Middle Fork	Lowell, OR	483,000	1954	1955	135,000	135,000	NFPRI	CE	258	3,381
Lost Creek Lake, OR	Rogue	Trail, OR	465,000	1977	1977	49,000	49,000	DFPISWR	CE	327	3,750
Lower Granite L&D, WA	Snake	Pomeroy, WA	483,800	1975	1975	810,000	810,000	NPRIF	CG	146	3,200

APPENDIX E
Multiple-Purpose Projects Including Power
Operable September 30, 2003

Project	River	Community in Vicinity	Total Storage Capability (acre-feet)[1]	Flood Control and/or Nav. Feature Placed in Useful Operation CY	Initial Power in FY	Existing Installation (KW)	Ultimate Installation (KW)	Project Functions	Type[2]	Height (feet)	Length (feet)
Lower Monumental L&D (Lake Herbert G. West), WA	Snake	Kahlotus, WA	376,000	1969	1969	810,000	810,000	NPRI	CG	135	3,791
McNary L&D OR & WA	Columbia	Umatilla, OR	1,350,000	1953	1954	980,000	980,000	NPRI	CG	183	7,365
Millers Ferry L&D, AL	Alabama	Camden, AL	331,8090	1969	1979	75,000	75,000	NPRW	CE	90	11,380
Mississippi Delta Region, LA (Caernarvon Freshwater Diversion)	Mississippi	Braithwaite, LA		1991				W	CE	38.5	371
Nanpil River Hydropower, Pohnpei, FSM	Nanpil River	Pohnpei, FSM		1987	1988	2,000	2,000	P	C	17	70
New Melones Lake, CA[4]	Stanislaus	Oakdale, CA	2,400,000	1978	1979	300,000	300,000	FIPRW	ER	625	1,560
Norfork Lake, AR & MO	North Fork	Norfolk, AR	1,983,000	1943	1944	80,550	163,000	FPRS	C	216	2,624
Oahe Dam (Lake Oahe), SD & ND	Missouri	Pierre, SD	23,137,000	1962	1962	786,030	786,030	NFPRIW	E	245	9,300
Old Hickory L&D, TN	Cumberland	Hendersonville, TN	545,000	1954	1957	100,000	100,000	NPR	CE	98	3,605
Ozark-Jeta Taylor L&D, AR	Arkansas	Ozark, AR	148,400	1969	1973	100,000	100,000	NPR	C	58	2,480
Philpott Lake, VA	Roanoke	Bassett, VA	318,500	1951	1954	14,000	14,000	FPR	C	220	892
Richard B. Russell Dam & Lake, GA & SC	Savannah	Augusta, GA	1,026,244	1984	1984	300,000	600,000	PRFSW	CE	200	5,616
Robert F. Henry L&D, AL	Alabama	Benton, AL	234,200	1972	1975	68,000	68,000	NPRW	CE	101	14,962
Robert S. Kerr L&D and Reservoir, OK	Arkansas	Sallisaw, OK	525,700	1970	1971	110,000	110,000	NPRW	E	75	7,230

APPENDIX E
Multiple-Purpose Projects Including Power
Operable September 30, 2003

Project	River	Community in Vicinity	Total Storage Capability (acre-feet)[1]	Flood Control and/or Nav. Feature Placed in Useful Operation CY	Initial Power in FY	Existing Installation (KW)	Ultimate Installation (KW)	Project Functions	Type[2]	Height (feet)	Length (feet)
Sam Rayburn Dam & Reservoir, TX	Angelina	Jasper, TX	3,997,600	1965	1966	52,000	52,000	FPWR	CE	120	19,430
St. Mary's Riv, MI	Great Lakes	Sault Ste. Marie	---	1855	1952	18,400	18,400	NPR		Control Gate	
Snettisham, AK[5]	Speel	Juneau, AK	352,400		1973	73,700	73,700	P	C[6]	18	338
Stockton Lake, MO	Sac	Stockton, MO	1,674,000	1969	1973	45,200	45,200	FPRWSQ	CEG	128	5,100
Table Rock Lake, AR & MO	White	Branson, MO	3,462,000	1958	1959	200,000	200,000	FPR	CE	252	6,423
Tenkiller Lake, OK	Illinois	Gore, OK	1,230,800	1952	1953	39,100	39,100	FPSWRN	E	197	3,000
The Dalles L&D (Lake Celilo), WA & OR	Columbia	The Dalles, OR	53,000	1957	1957	1,806,800	1,806,800	NPR	CR	300	8,700
Walter F. George L&D, GA & FL	Chattahooche	Fort Gaines, GA	934,000	1963	1963	130,000	130,000	NPRW	CE	114	13,585
Webbers Falls L&D, OK	Arkansas	Wevbbers Falls, OK	170,100	1970	1973	60,000	60,000	NPRW	E	84	4,370
West Point Lake, AL & GA	Chattahooche	West Point, GA	604,500	1975	1975	73,375	108,375	FPRW	CE	97	7,250
Whitney Lake, TX	Brazos	Whitney, TX	1,999,500	1953	1954	30,000	30,000	FPR	CE	159	17,695
Wolf Creek Dam (Lake Cumberland), KY	Cumberland	Jamestown, KY	6,089,000	1950	1952	270,000	270,000	FPR	CE	258	5,736

APPENDIX E
Multiple-Purpose Projects Including Power
Operable September 30, 2003

NOMENCLATURE FOR PROJECT FUNCTIONS

D - Debris Control
F - Flood Control
I - Irrigation
N - Navigation
P - Power
R - Public Recreation Annual Attendance exceeding 5,000
S - Water Supply
W - Fish & Wildlife (Federal Or State)

[1] Total of all storage functions, including inactive and dead storage to normal full pool
[2] G: gravel; R: rock; C: concrete; E: earth
[3] All six units have successfully generated power; however, repairs and modifications have been required on all units. Units 2, 3, 4, 5 and 6 fully repaired and operational. Repairs to remaining unit No. 1 will be completed in FY 99.
[4] Being operated for the Department of Interior by the Bureau of Reclamation
[5] Being operated by the Alaska Power Administration
[6] Formerly Clarks Hill Lake
[7] Units 5 and 6 were deauthorized in 1990.

APPENDIX F
Multiple-Purpose Projects Including Power Under Construction September 30, 2003

Project	Fiscal Year Started	Scheduled For Operation	Scheduled For Completion	Nameplate Capacity		
				Scheduled Functions	Ultimate Installation	Installation
Columbia River Treaty Fishing Sites, OR	1994		2006	W	N/A	N/A
Garrison Dam & Powerplant, ND (Maj Rehab)	1997	2007	2007	P/F/N/I	573,250	517,750
Mississippi Delta Region, LA (Davis Pond Freshwater Diversion)	1996	2002	2005	W	N/A	N/A
New Melones Lake, CA [1]	1966	1979	Indefinite	DFIPRW	300,000	300,000
Pierre, SD	1999	2006	2006	F	N/A	N/A
Richard B. Russell Dam and Lake, Savannah River, GA and SC	1975	1985	2004	FRPW	600,000	600,000

KEY

D	- Redevelopment	F	- Flood Control	I	- Irrigation	N	- Navigation
P	- Power	R	- Recreation	S	- Water Supply	W	- Fish & Wildlife

APPENDIX F
Multiple-Purpose Projects Including Power
Under Construction September 30, 2003

[1] New Melones Lake was turned over to the Bureau of Reclamation for operation on November 20, 1979. Corps retains responsibility for facilities along the lower Stanisalaus River. Remaining construction consists of unscheduled recreation facilities and minor feature closeouts.

Appendix G

ANNUAL FLOOD DAMAGE REDUCTION REPORT
Provided by CECW-CE (Hydrology &Hydraulics Community of Practice)

- FIGURES

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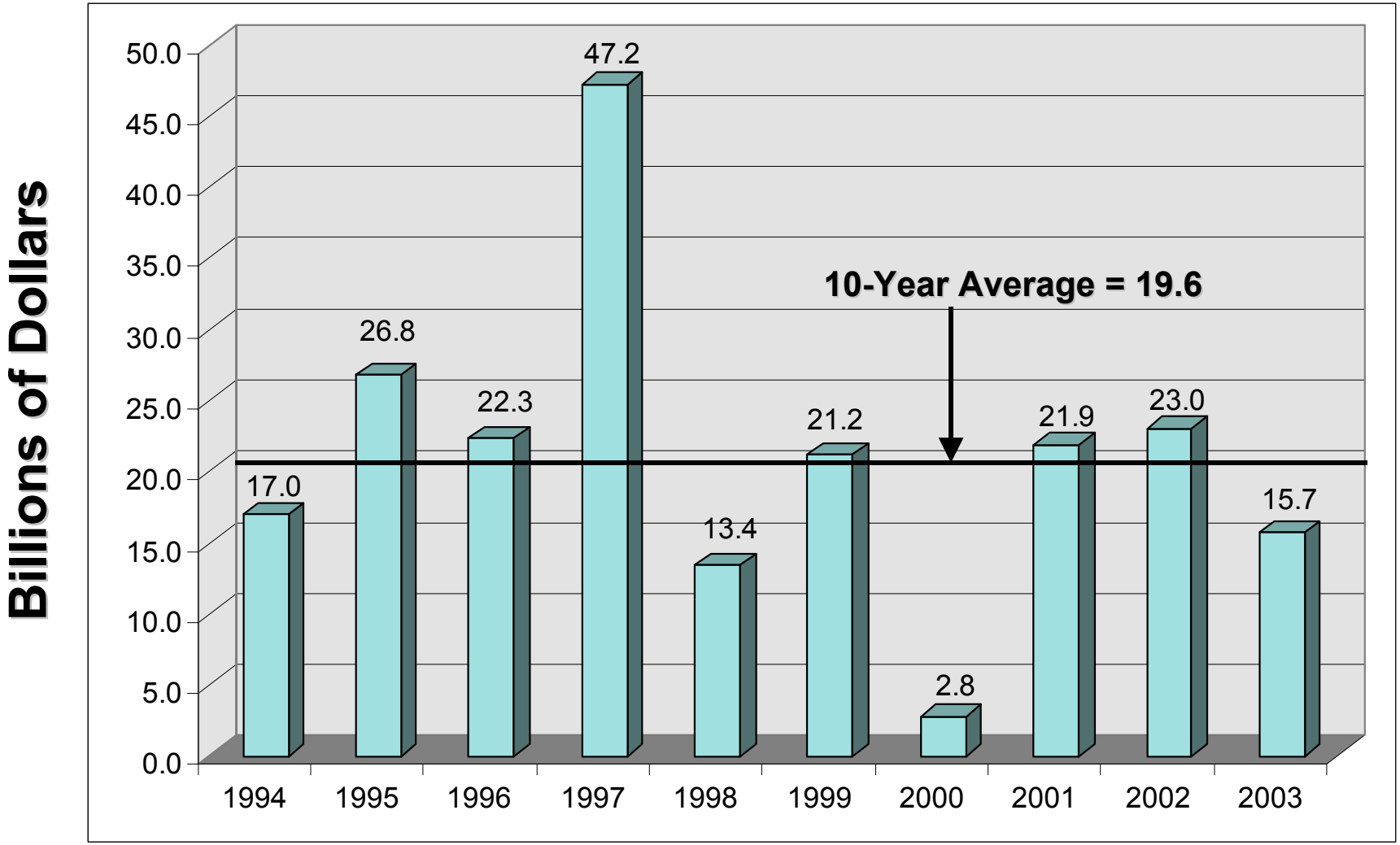
FIGURES

Figure 1
Flood Damage Reduction



Flood Damages Prevented in the U.S.A. by the U.S. Army Corps of Engineers

Figure 2
Potential Flood Damages

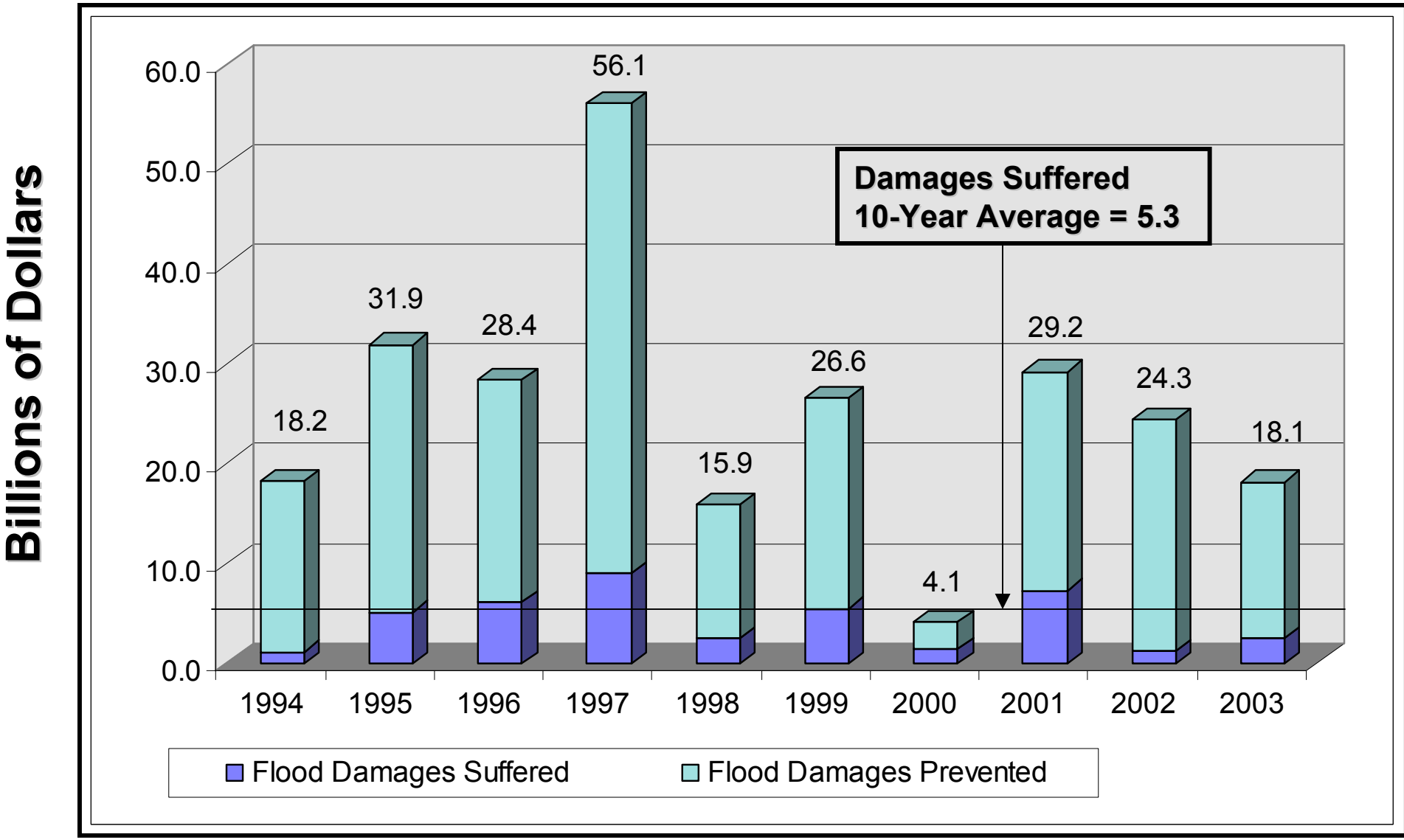


Figure 3
Flood Related Lives Lost

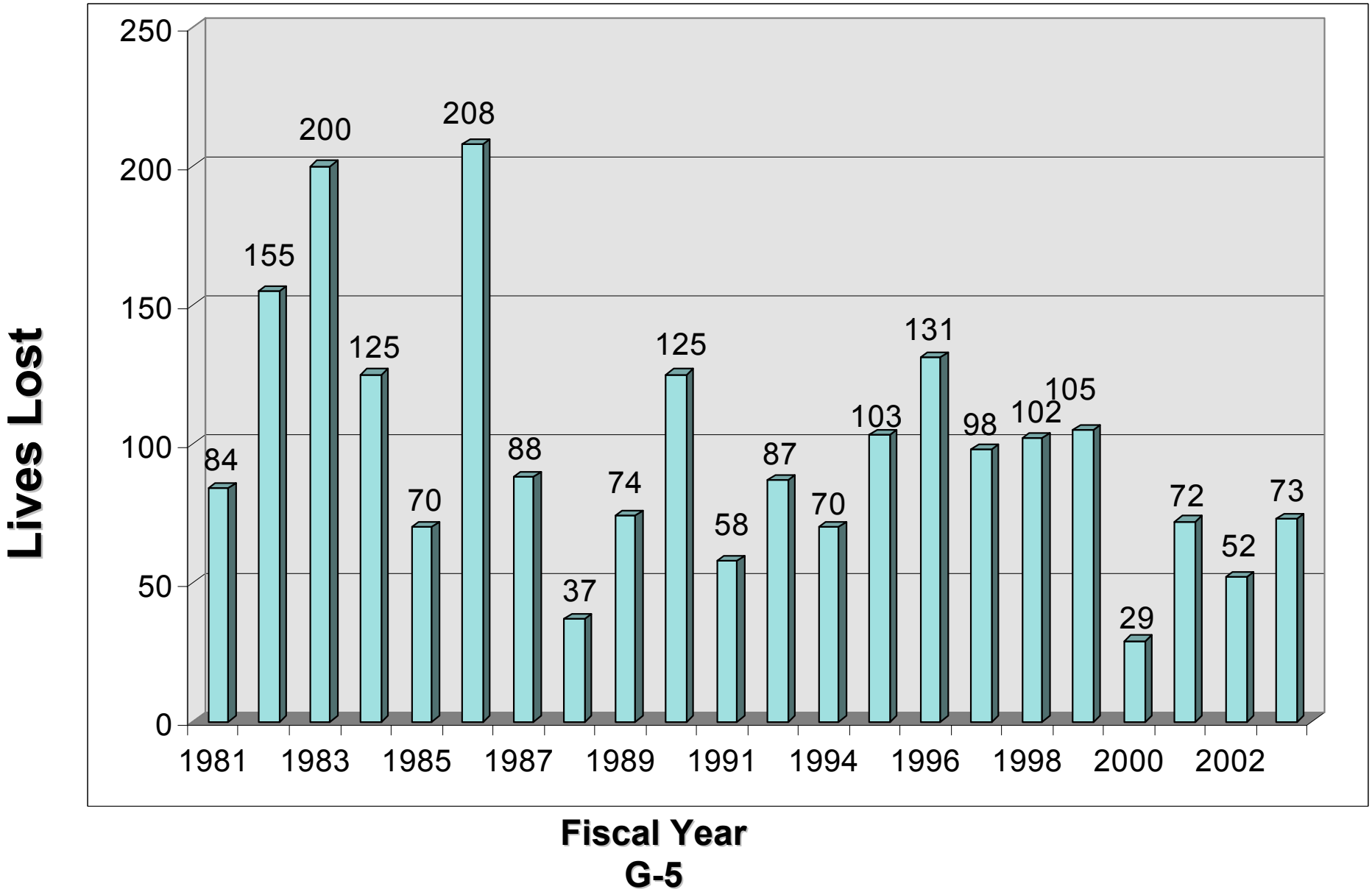
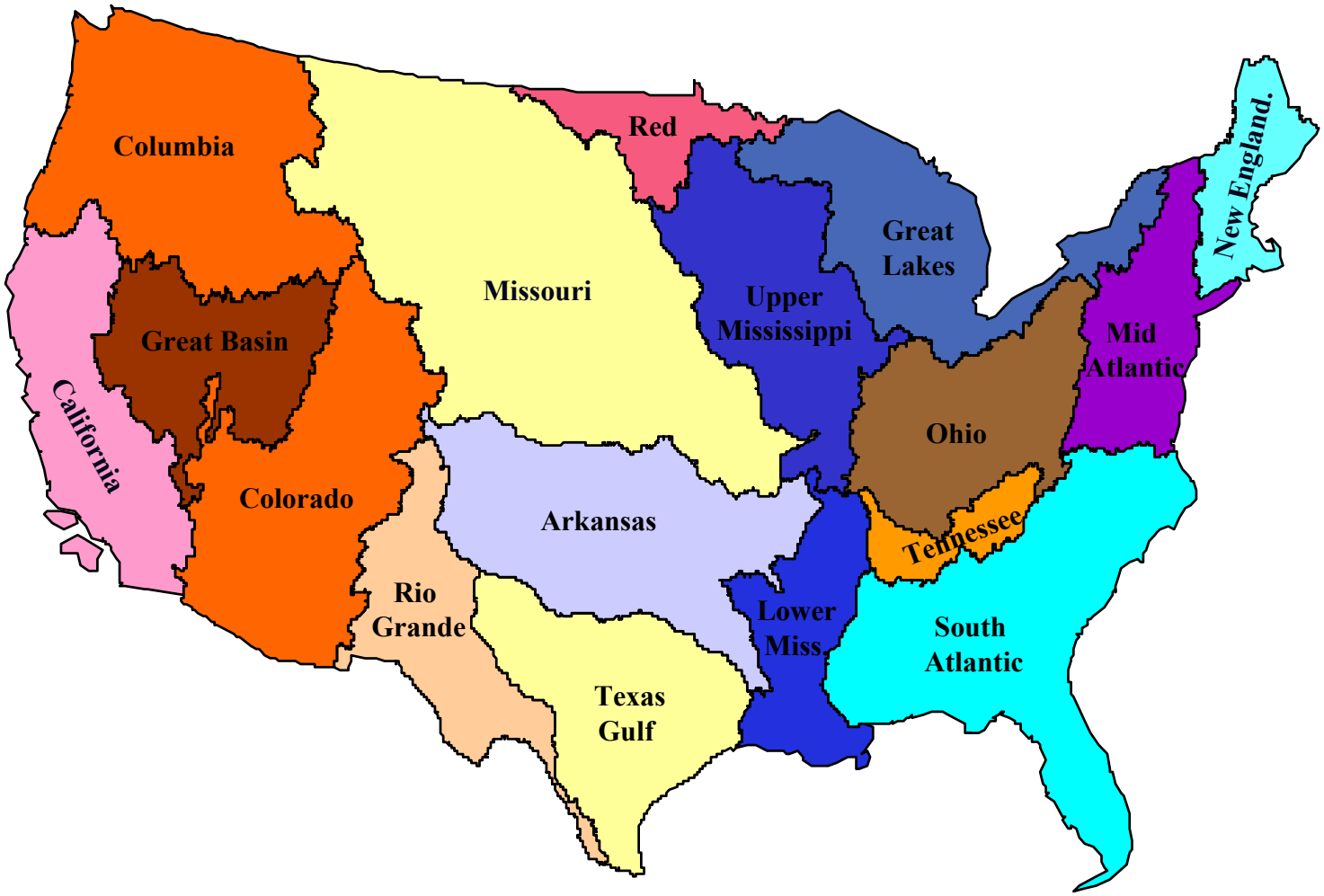


Figure 4
Continental U.S. River Basins



For Use with Table 6

Figure 5

Benefits of Federal Projects (Damages Prevented)
Accumulative Corps Expenditures (Principle plus O&M)

Adjusted to 2000 using Construction Cost Index EM 1110-2-1304

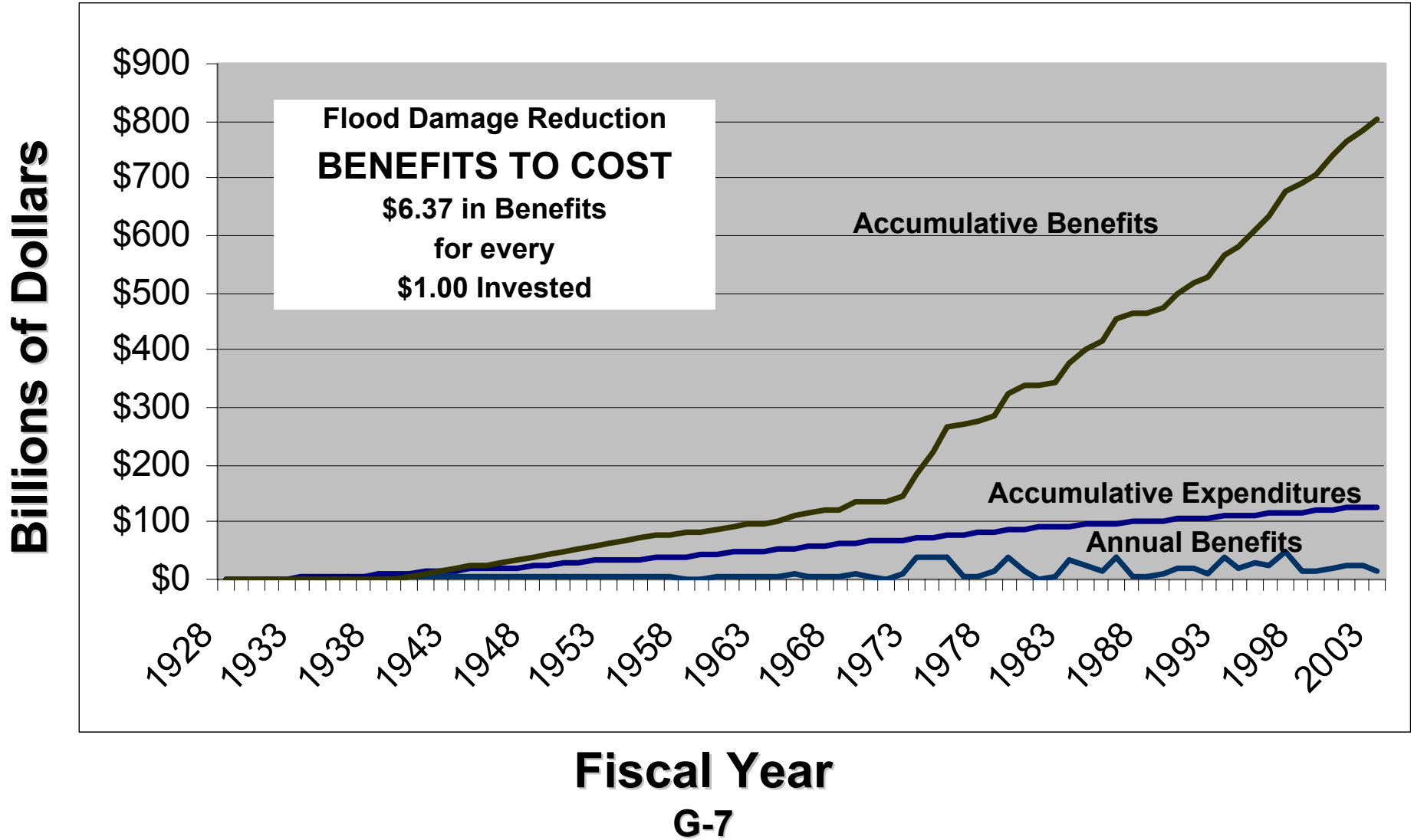
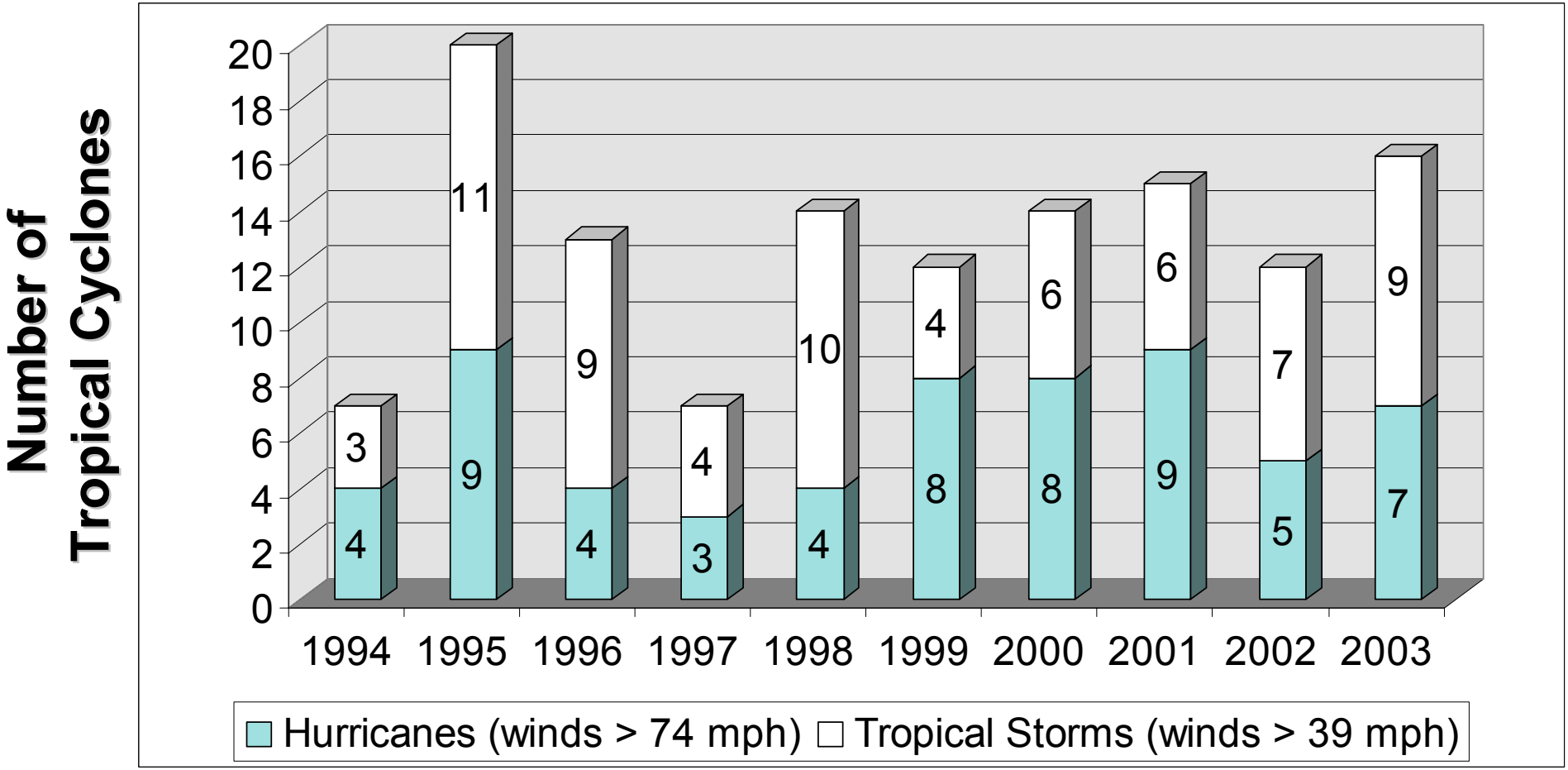


Figure 6
Atlantic Tropical Cyclones



Fiscal Year

TABLES

TABLE - 1

FLOOD DAMAGE REDUCTION

BY STATE (THOUSANDS OF DOLLARS) During Fiscal Year 2003

Location	Reduction by Corps Supported Reservoirs	Reduction by Corps Levees	Damages Prevented by Corps Supported Emergency Operations	Total Flood Damages Reduction by the Corps of Engineers	Average Damage Reduction FY 1994-2003	*Comparision of 2003 to the Ten-Year Avg FY 1994-2003
ALABAMA	0	0	0	0	0	Low
ALASKA	11,000	0	0	11,000	2,880	High
ARIZONA	3,764	0	0	3,764	17,366	Low
ARKANSAS	10,110	830,111	0	840,221	1,306,811	Medium
CALIFORNIA	911,438	134,840	0	1,046,278	997,163	Medium
COLORADO	0	0	0	0	5,127	Low
CONNECTICUT	4,110	20,158	0	24,268	25,735	Medium
DELAWARE	0	0	0	0	0	Low
FLORIDA	0	44,686	0	44,686	52,138	Medium
GEORGIA	62,969	0	0	62,969	19,015	High
GUAM & Am. Samoa	0	0	0	0	16	Low
HAWAII	0	546	0	546	3,615	Low
IDAHO	161,261	1,150	0	162,411	102,530	Medium
ILLONOIS	12,617	50,086	0	62,703	544,998	Low
INDIANA	147,398	108,473	0	255,871	133,459	Medium
IOWA	13,406	17,826	0	31,232	158,882	Low
KANSAS	15,457	0	5	15,462	181,297	Low
KENTUCKY	356,882	43,686	0	400,568	184,294	High
LOUISIANA	1,455	7,546,672	0	7,548,127	8,613,030	Medium
MAINE	0	0	0	0	7	Low
MARYLAND & DC	21,552	1,878	0	23,430	24,010	Medium
MASSACHUSETTS	7,415	12,528	0	19,943	24,121	Medium
MICHIGAN	0	0	0	0	5,913	Low
MINNISOTA	1,584	24,235	0	25,819	54,145	Low
MISSISSIPPI	15,500	1,405,832	0	1,421,332	874,151	Medium
MISSOURI	10,214	171,565	0	181,779	2,252,427	Low
MONTANA	10,749	47	0	10,796	21,922	Medium

TABLE - 1

FLOOD DAMAGE REDUCTION
BY STATE (THOUSANDS OF DOLLARS) During Fiscal Year 2003

Location	Reduction by Corps Supported Reservoirs	Reduction by Corps Levees	Damages Prevented by Corps Supported Emergency Operations	Total Flood Damages Reduction by the Corps of Engineers	Average Damage Reduction FY 1994-2003	*Comparision of 2003 to the Ten-Year Avg FY 1994-2003
NEBRASKA	17,633	2,318	0	19,951	99,087	Low
NEVADA	2,835	0	0	2,835	94,827	Low
NEW HAMPSHIRE	200	0	0	200	443	Low
NEW JERSEY	0	16,288	0	16,288	14,466	Medium
NEW MEXICO	10	55	0	65	42,252	Low
NEW YORK	97,024	76,874	0	173,898	147,726	Medium
N. CAROLINA	101,643	1,208	0	102,851	109,060	Medium
N. DAKOTA	23,797	3,432	0	27,229	82,618	Low
OHIO	226,126	8,230	0	234,356	244,228	Medium
OKLAHOMA	65,074	0	0	65,074	86,136	Medium
OREGON	15,603	212,891	0	228,493	955,836	Low
PENNSYLVANIA	14,260	12,622	0	26,882	390,209	Low
PUERTO RICO & VI	0	0	0	0	48,310	Low
RHODE ISLAND	0	0	0	0	1,333	Low
S. CAROLINA	8,526	0	0	8,526	1,358	Very High
S. DAKOTA	116	469	0	585	7,838	Low
TENNESSEE	95,092	8,025	0	103,117	49,864	High
TEXAS	1,312,461	19,458	0	1,331,919	2,480,586	Medium
UTAH	7,440	0	0	7,440	3,805	High
VERMONT	2,708	352	0	3,060	3,838	Medium
VIRGINIA	249,983	114,683	0	364,666	58,680	Very High
WASHINGTON	14,463	324,989	0	339,452	345,003	Medium
W. VIRGINA	438,185	13,128	0	451,313	253,421	Medium
WISCONSON	0	992	0	992	1,639	Medium
WYOMING	13,631	2,482	0	16,112	11,367	Medium
TOTALS	4,485,688	11,232,814	5	15,718,508	21,138,980	Medium

FY 2003 Damages Prevented in the U.S. = 74% of the 10-year (1994-2003) Average

*** LEGEND:** LOW = Less than 1/2 average. MED= 1/2 to twice average. HIGH = Twice to five times average. VERY HIGH = More than five times average.

TABLE - 2

TOTAL DAMAGES SUFFERED IN FY 2003, BY STATE (THOUSANDS OF DOLLARS)

LOCATION	Damages Suffered FY 2003	Damage Reduction FY 2003	Potential Damages FY 2003	Percent Damages Reduced FY 2003	Average Damages Suffered 1994-2003	Lives Lost FY 2003	Lives Lost FY 1994-2003
ALABAMA	1,016,936	0	1,016,936	0.0	151,819	1	15
ALASKA	23760	11000	34,760	0.0	12,129	0	0
ARIZONA	1054	3764	4,818	78.1	3,685	2	33
ARKANSAS	3780	840221	844,001	99.6	16,193	0	1
CALIFORNIA	6763	1046278	1,053,041	99.4	425,455	7	45
COLORADO	3604	0	3,604	0.0	44,223	0	10
CONNECTICUT	70	24268	24,338	99.7	1,093	0	0
DELAWARE	33850	0	33,850	0.0	3,599	0	0
FLORIDA	22810	44686	67,496	66.2	244,794	0	6
GEORGIA	32286	62969	95,255	66.1	52,606	1	33
GUAM	10	0	10	0.0	559	0	0
HAWAII	168	546	714	0.0	7,902	3	1
IDAHO	85	162411	162,496	99.9	18,024	0	1
ILLONOIS	46094	62703	108,797	57.6	28,129	1	12
INDIANA	269380	255871	525,251	48.7	45,097	4	15
IOWA	10,882	31,232	42,114	74.2	53,039	0	5
KANSAS	12,399	15,462	27,861	55.5	10,620	6	13
KENTUCKY	32,995	400,568	433,563	92.4	63,659	5	26
LOUISIANA	9,500	7,548,127	7,557,627	99.9	316,698	1	9
MAINE	300	0	300	0.0	4,584	0	1
MARYLAND & DC	640	23,430	24,070	97.3	11,393	0	3
MASSACHUSETT	511	19,943	20,454	97.5	10,221	0	0
MICHIGAN	16,006	0	16,006	0.0	12,341	0	7
MINNISOTA	8,000	25,819	33,819	76.3	131,730	0	6
MISSISSIPPI	272,701	1,421,332	1,694,033	83.9	32,481	3	1
MISSOURI	842	181,779	182,621	99.5	25,017	3	47
MONTANA	1,190	10,796	11,986	90.1	1,390	0	4

TABLE - 2

TOTAL DAMAGES SUFFERED IN FY 2003, BY STATE (THOUSANDS OF DOLLARS)

LOCATION	Damages Suffered FY 2003	Damage Reduction FY 2003	Potential Damages FY 2003	Percent Damages Reduced FY 2003	Average Damages Suffered 1994-2003	Lives Lost FY 2003	Lives Lost FY 1994-2003
NEBRASKA	16,374	19,951	36,325	54.9	11,537.4	0	0
NEVADA	2,255	2,835	5,090	55.7	68,240.7	1	6
NEW HAMPSHIRE	3,500	200	3,700	0.0	2,078	0	1
NEW JERSEY	250	16,288	16,538	98.5	105,904	0	9
NEW MEXICO	50	65	115	56.6	1,409	0	5
NEW YORK	45,672	173,898	219,570	79.2	43,585	5	23
N. CAROLINA	18,062	102,851	120,913	85.1	326,258	8	45
N. DAKOTA	300	27,229	27,529	98.9	387,187	0	7
OHIO	319,713	234,356	554,069	42.3	68,460	1	31
OKLAHOMA	318	65,074	65,392	99.5	3,554	0	13
OREGON	7	228,493	228,500	100.0	339,688	0	9
PENNSYLVANIA	58,221	26,882	85,103	31.6	71,318	2	34
PUERTO RICO &	25,485	0	25,485	0.0	30,425	3	30
RHODE ISLAND	10	0	10	0.0	302	0	0
S. CAROLINA	3,255	8,526	11,781	72.4	4,656	0	7
S. DAKOTA	100	585	685	85.4	14,841	0	0
TENNESSEE	29,095	103,117	132,212	78.0	16,921	6	23
TEXAS	28,270	1,331,919	1,360,189	97.9	695,487	3	140
UTAH	1,896	7,440	9,336	79.7	2,077	0	2
VERMONT	471	3,060	3,531	86.7	4,090	0	4
VIRGINIA	16,744	364,666	381,410	95.6	56,775	4	15
WASHINGTON	165	339,452	339,617	100.0	43,347	0	3
W. VIRGINA	34,236	451,313	485,549	92.9	64,161	3	35
WISCONSON	55	992	1,047	94.7	60,939	0	5
WYOMING	60	16,112	16,172	99.6	203	0	1
TOTALS	$2,431,180	$15,718,508	$18,149,688	86.6	$4,151,922	73	742
AVERAGE				64.8			

TABLE - 3

FLOOD DAMAGE REDUCTION

FISCAL YEARS 1994 - 2003 (IN THOUSANDS OF DOLLARS)

LOCATION	FY94	FY 95	FY96	FY97	FY98	FY99	FY2000	FY2001	FY2002	FY 2003
ALABAMA	0	0	0	0	0	0	0.0	0	0	0
ALASKA	8,750	8,750	0	0	0	0	200.0	0	100	11,000
ARIZONA	0	140,456	5,202	13,219	4,180	5,018	0.0	1,820	0	3,764
ARKANSAS	861,023	1,350,558	1,066,854	5,733,106	712,907	680,519	33,729.0	690,579	1,098,615	840,221
CALIFORNIA	138	1,484,202	389,649	3,042,730	2,623,156	87,235	339,137.0	814,454	144,655	1,046,278
COLORADO	509	3,071	0	2,782	0	44,904	0.0	0	0	0
CONNECTICUT	25,746	305	74,414	11,518	55,971	27,303	375.0	37,364	83	24,268
DELAWARE	0	0	0	0	0	0	0.0	0	0	0
FLORIDA	5,342	104,072	66,655	13,486	103,780	65,873	52,102.0	58,849	6,535	44,686
GEORGIA	3,771	3,889	50,305	6,952	31,263	30,979	0.0	0	25	62,969
GUAM	0	0	44	45	68	0	0.0	0	0	0
HAWAII	6,728	5,126	4,608	2,349	0	0	0.0	14,197	2,598	546
IDAHO	9,844	54,948	190,618	272,955	77,578	98,136	33,716.0	16,797	108,293	162,411
ILLONOIS	94,914	2,664,865	553,925	557,829	361,233	42,836	32,631.0	690,197	388,843	62,703
INDIANA	128,040	24,661	152,440	273,661	180,836	130,000	21,697.0	30,700	136,684	255,871
IOWA	41,110	75,133	97,882	653,984	144,879	110,252	5,479.5	413,414	15,454	31,232
KANSAS	32,293	849,044	65,443	87,605	16,614	511,726	18,947.0	205,117	10,715	15,462
KENTUCKY	178,350	79,609	216,292	675,177	62,976	13,938	14,538.0	18,287	183,202	400,568
LOUISIANA	7,903,263	9,683,360	5,311,449	12,264,278	5,271,162	11,219,104	1,292.0	12,149,905	14,778,361	7,548,127
MAINE	0	70	0	0	0	0	0.0	0	0	0
MARYLAND & DC	0	2	214,782	220	14	3	1,584.0	26	39	23,430
MASSACHUSETTS	26,276	135	57,870	19,238	55,218	2,043	5,746.0	50,709	4,031	19,943
MICHIGAN	0	867	344	23,345	20,690	2,419	2,160.0	8,913	391	0
MINNISOTA	10,980	8,978	19,949	167,250	3,208	6,248	9,057.6	278,971	10,991	25,819
MISSISSIPPI	121,003	1,059,468	628,384	1,380,714	843,968	779,525	4,420.0	1,050,918	1,451,781	1,421,332
MISSOURI	769,333	5,740,837	2,240,713	7,903,399	227,701	4,768,711	11,620.0	318,302	361,877	181,779
MONTANA	6,542	13,004	49,674	101,164	11,947	10,552	2,329.0	948	12,267	10,796

TABLE - 3

FLOOD DAMAGE REDUCTION

FISCAL YEARS 1994 - 2003 (IN THOUSANDS OF DOLLARS)

LOCATION	FY94	FY 95	FY96	FY97	FY98	FY99	FY2000	FY2001	FY2002	FY 2003
NEBRASKA	36,715	80,795	96,985	635,868	16,050	80,088	2,869.0	19,466	2,087	19,951
NEVADA	0	63,611	19,974	852,687	3,149	3,780	1,400.0	830	0	2,835
NEW HAMPSHIRE	250	0	1,250	943	916	171	0.0	703	0	200
NEW JERSEY	8,355	13,017	10,008	27,172	6,097	46,248	2,720	11,166	3,591	16,288
NEW MEXICO	164,439	29,195	116,598	52,598	453	7,799	50,076	983	311	65
NEW YORK	56,334	31,201	568,026	234,297	62,932	181,293	71,549	55,930	41,803	173,898
N. CAROLINA	54,536	26,823	558,461	65,769	114,667	158,248	556	8,689	2	102,851
N. DAKOTA	35,802	32,848	76,344	342,323	47,222	97,009	12,139	147,576	7,689	27,229
OHIO	312,590	47,934	828,586	397,145	318,700	96,744	93,672	61,978	50,572	234,356
OKLAHOMA	87,545	196,801	12,739	65,815	76,439	160,575	72,130	58,356	65,888	65,074
OREGON	83,039	1,342	2,755,876	4,203,503	419,550	666,153	945,434	44,139	210,830	228,493
PENNSYLVANIA	46,304	3,954	3,497,659	141,559	66,007	53,213	50,716	6,885	8,912	26,882
PUERTO RICO & VI	0	12,242	107,500	0	340,356	0	0	23,000	0	0
RHODE ISLAND	0	0	0	114	9,672	0	0	3,539	0	0
S. CAROLINA	2,268	943	955	149	735	0	0	0	0	8,526
S. DAKOTA	651	7,992	1,152	62,073	915	3,248	457	852	457	585
TENNESSEE	35,528	39,500	31,000	193,158	5,876	18,067	0	2,080	70,315	103,117
TEXAS	5,707,236	2,672,764	4,736	5,113,947	646,713	626,444	557,632	4,478,517	3,665,951	1,331,919
UTAH	4,553	0	0	8,120	0	10,361	0	7,573	0	7,440
VERMONT	3,006	3,304	4,200	3,355	3,752	1,760	9,917	2,523	3,502	3,060
VIRGINIA	3,621	5,736	135,894	5,598	41,446	16,956	7,836	132	4,912	364,666
WASHINGTON	65,935	6,228	732,293	1,120,921	353,805	281,780	212,441	72,022	265,150	339,452
W. VIRGINA	103,464	129,065	1,272,486	395,426	62,851	5,491	79,348	20,823	13,943	451,313
WISCONSON	65	31	473	2,296	210	103	17	4,017	8,187	992
WYOMING	3,750	19,548	23,480	29,217	9,020	8,805	569	1,587	1,585	16,112
TOTALS	17,049,941	26,780,284	22,314,171	47,161,059	13,416,882	21,161,659	2,762,239	21,883,833	23,141,227	15,718,508

TABLE 4

TOTAL FLOOD DAMAGES SUFFERED, BY STATE
FISCAL YEARS 1994-2003 (IN THOUSANDS OF DOLLARS)

LOCATION	FY 94	FY 95	FY 96	FY 97	FY 98	FY 99	FY 2000	FY 2001	FY 2002	FY 2003	10 Yr. Avg.
ALABAMA	112,696	0	1,649	1,354	368,938	4,663	3,087	1,645	7,220	1,016,936	151,819
ALASKA	74,000	10,025	0	1,271	314	0	110	702	11,110	23,760	12,129
ARIZONA	1,616	6,618	701	85	66	12796	90	13,659	163	1,054	3,685
ARKANSAS	2,024	0	205	12,874	2045	1777	2773	689	135,762	3,780	16,193
CALIFORNIA	1,792	1,495,960	13,205	2,086,125	621588	14176	9238	5,055	646	6,763	425,455
COLORADO	1,242	18,240	4,058	358,890	2550	50675	297	1,242	1,436	3,604	44,223
CONNECTICUT	1,316	0	2,092	52	40	1112	6010	237		70	1,093
DELAWARE	741	0	300	0	0	0		1,100		33,850	3,599
FLORIDA	182,605	18,536	158,001	49,707	431311	60080	499080	1,023,900	1,910	22,810	244,794
GEORGIA	300,000	8,845	2,581	464	166291	8520	2101	3,431	1,545	32,286	52,606
GUAM	0	0	0	0	3725	400	650	250	555	10	559
HAWAII	3,700	0	1,935	0	0	0	400	70,000	2,820	168	7,902
IDAHO	0	2,096	49,400	125,060	1005	1297	85	0	1,215	85	18,024
ILLINOIS	32,606	27,240	107,585	4,295	2380	3666	3113	44,040	10,271	46,094	28,129
INDIANA	2,852	6,789	21,575	68,598	19611	50124	819	110	11,114	269,380	45,097
IOWA	9,124	3,498	165,265	3,680	168,101	111,221	14,877	33,250	10,490	10,882	53,039
KANSAS	10,437	8,874	3,969	102	4,888	60,030	250	2,635	2,620	12,399	10,620
KENTUCKY	2,544	17,673	21,323	470,915	16,639	506	17,631	17,986	38,376	32,995	63,659
LOUISIANA	675	3,097,250	121	4,359	17,845	5,979	153	30,219	878	9,500	316,698
MAINE	9,323	0	4,916	26,845	0	1,580	2,814	66		300	4,584
MARYLAND & DC	4,524	1,620	90,481	198	334	9,715	2,452	3,460	505	640	11,393
MASSACHUSETTS	0	0	2,663	75,024	13,510	250	206	10,048	2	511	10,221
MICHIGAN	6,236	2,900	26,690	325	18,190	325	25,430	8,394	18,917	16,006	12,341
MINNISOTA	1,867	3,750	460	743,218	2,529	466	43,112	243,706	270,190	8,000	131,730
MISSISSIPPI	1,352	1,092	200	32,774	3,498	1,769	408	7,211	3,809	272,701	32,481
MISSOURI	37,864	25,415	871	692	10,227	36,862	109,760	1,842	25,796	842	25,017
MONTANA	3,392	510	2,243	2,874	3,001	184	30	80	396	1,190	1,390

Damage values of less than $50 thousand dollars are shown as zeroes.

TABLE 4

TOTAL FLOOD DAMAGES SUFFERED, BY STATE
FISCAL YEARS 1994-2003 (IN THOUSANDS OF DOLLARS)

LOCATION	FY 94	FY 95	FY 96	FY 97	FY 98	FY 99	FY 2000	FY 2001	FY 2002	FY 2003	10 Yr. Avg.
NEBRASKA	2,710	5,129	31,233	10,273	1,483	22,765	23,456	391	1,560	16,374	11,537
NEVADA	160	11,970	370	640,110	1,300	25,009	221	12	1,000	2,255	68,241
NEW HAMPSHIRE	0	110	4,000	10,952	700	1,002	515	0		3,500	2,078
NEW JERSEY	3,520	0	36,720	38,700	750	800,000	179,100	0		250	105,904
NEW MEXICO	2,000	954	1,285	380	713	3,980	160	4,260	305	50	1,409
NEW YORK	25,707	1,485	220,011	55,909	38,627	18,715	18,498	7,290	3,939	45,672	43,585
N. CAROLINA	2,032	26,596	42,119	17,994	16,135	3,117,160	7,605	11,780	3,097	18,062	326,258
N. DAKOTA	58,552	44,366	220	3,408,298	2,583	100,355	191,177	65,209	812	300	387,187
OHIO	39,913	28,511	22,721	66,666	181,409	963	8,839	13,647	2,214	319,713	68,460
OKLAHOMA	166	3,275	0	155	262	9,578	11,691	9,847	245	318	3,554
OREGON	0	11,320	3,203,500	173,200	10	2,100	5,734	5	1,001	7	339,688
PENNSYLVANIA	16,194	10,385	494,862	3,136	1,103	27,642	27,476	63,506	10,650	58,221	71,318
PUERTO RICO & VI	160	115	131	157	28,190	4,488	1,341	150,358	93,825	25,485	30,425
RHODE ISLAND	0	0	0	0		0		3,005		10	302
S. CAROLINA	6,228	28,169	668	1,105	4,044	75	2,885	75	52	3,255	4,656
S. DAKOTA	20,399	12,270	360	100,541	50	619		13,567	500	100	14,841
TENNESSEE	51,039	1,264	2,740	23,479	25,427	554	230	2,153	33,226	29,095	16,921
TEXAS	1,721	85,050	407,066	136,472	163,407	612,634	25,130	5,178,895	316,227	28,270	695,487
UTAH	0	1,500	312	10,100	4,485	1,314	679	184	300	1,896	2,077
VERMONT	1,502	5,150	5,123	170	23,805	1,036	1,845	1,459	338	471	4,090
VIRGINIA	16,169	66,759	153,516	898	2,381	255,062	1,368	19,484	35,368	16,744	56,775
WASHINGTON	160	250	370,060	54,675	3,120	2,371	488	1,790	392	165	43,347
W. VIRGINA	5,397	8,595	224,172	18,391	35,506	363	11,003	211,688	92,256	34,236	64,161
WISCONSON	62,052	675	218,025	93,346	82,825	9,305	74,298	24,928	43,884	55	60,939
WYOMING	0	0	181	192	22	0	20	818	734	60	203
TOTALS	1,120,309	5,110,829	6,121,884	8,935,080	2,496,963	5,455,263	1,338,735	$7,309,308	$1,199,671	$2,431,180	4,151,922

Damage values of less than $50 thousand dollars are shown as zeroes.

TABLE - 5

TOTAL LIVES LOST, BY STATE FISCAL YEARS 1994-2003											
LOCATION	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY2000	FY2001	FY2002	FY 2003	**10-Yr Total**
ALABAMA	2	0	2	0	9	1	0	0	0	1	15
ALASKA	0	0	0	0	0	0	0	0	0	0	0
ARIZONA	0	1	0	12	4	0	0	14	0	2	33
ARKANSAS	0	0	0	0	1	0	0	0	4	0	1
CALIFORNIA	2	8	2	7	16	3	0	0	0	7	45
COLORADO	0	0	3	6	0	0	1	0	0	0	10
CONNECTICUT	0	0	0	0	0	0	0	0	0	0	0
DELAWARE	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	2	0	0	0	2	2	1	0	6
GEORGIA	29	0	0	0	1	0	0	2	0	1	33
GUAM	0	0	0	0	0	0	0	0	0	0	0
HAWAII	1	0	0	0	0	0	0	0	3	3	1
IDAHO	0	0	1	0	0	0	0	0	0	0	1
ILLINOIS	2	1	2	1	1	0	4	1	2	1	12
INDIANA	1	3	2	1	2	4	1	1	2	4	15
IOWA	0	0	0	1	0	1	3	0	0	0	5
KANSAS	1	0	2	0	0	3	0	1	0	6	13
KENTUCKY	0	2	2	16	2	2	1	1	1	5	26
LOUISIANA	0	6	0	1	1	0	0	0	0	1	9
MAINE	0	0	0	1	0	0	0	0	0	0	1
MARYLAND & DC	0	0	3	0	0	0	0	0	0	0	3
MASSACHUSETTS	0	0	0	0	0	0	0	0	0	0	0
MICHIGAN	0	0	2	0	0	2	0	3	0	0	7
MINNISOTA	0	0	0	0	2	0	1	3	0	0	6
MISSISSIPPI	1	0	0	0	0	0	0	0	1	3	1
MISSOURI	11	3	7	4	4	14	0	4	5	3	47
MONTANA	0	0	4	0	0	0	0	0	0	0	4
NEBRASKA	0	0	0	0	0	0	0	0	1	0	0
NEVADA	0	1	0	3	0	1	0	0	0	1	6

TABLE - 5

TOTAL LIVES LOST, BY STATE FISCAL YEARS 1994-2003											
LOCATION	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY2000	FY2001	FY2002	FY 2003	**10-Yr Total**
NEW HAMPSHIRE	0	0	0	0	1	0	0	0	0	0	1
NEW JERSEY	2	0	1	0	0	5	1	0	0	0	9
NEW MEXICO	0	0	4	1	0	0	0	0	0	0	5
NEW YORK	3	0	10	0	3	1	0	1	0	5	23
N. CAROLINA	0	9	1	3	0	32	0	0	1	8	45
N. DAKOTA	0	0	0	2	2	1	2	0	0	0	7
OHIO	1	5	3	5	8	2	4	3	1	1	31
OKLAHOMA	0	4	0	3	4	2	0	0	0	0	13
OREGON	0	0	6	1	2	0	0	0	0	0	9
PENNSYLVANIA	1	4	25	0	0	0	0	2	0	2	34
PUERTO RICO & VI	0	1	19	0	1	3	0	3	0	3	30
RHODE ISLAND	0	0	0	0	0	0	0	0	0	0	0
S. CAROLINA	0	3	1	0	2	0	0	1	0	0	7
S. DAKOTA	0	0	0	0	0	0	0	0	0	0	0
TENNESSEE	3	0	3	4	13	0	0	0	8	6	23
TEXAS	0	48	0	19	19	28	4	22	21	3	140
UTAH	0	0	0	0	1	0	0	1	0	0	2
VERMONT	1	1	2	0	0	0	0	0	0	0	4
VIRGINIA	2	2	9	0	0	0	1	1	1	4	15
WASHINGTON	0	0	1	1	0	0	0	1	0	0	3
W. VIRGINA	5	0	12	5	2	0	3	5	0	3	35
WISCONSON	2	0	0	1	1	0	1	0	0	0	5
WYOMING	0	1	0	0	0	0	0	0	0	0	1
TOTALS	70	103	131	98	102	105	29	72	52	73	762

TABLE - 6

REGIONAL DISTRIBUTION
FLOOD DAMAGES PREVENTED BY THE U.S. ARMY CORPS OF ENGINEERS
FISCAL YEARS 1980-2003 (IN THOUSANDS OF DOLLARS)

REGION	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	
NEW ENGLAND	75,911	53,661	239,970	9,496	839,029	625	665	463,321	0	250	6
MID-ADLANTIC	16,740	24,171	10,419	25,703	2,486,292	18,823	357,665	30,340	26,450	24,802	1
GULF & S. ATLANTIC	28,086	2,499	24,398	49,384	27,756	21,301	41,774	219,938	11,438	30,014	5
OHIO	289,655	231,431	188,802	207,363	556,603	268,796	633,658	172,866	63,538	285,510	24
TENNESSEE	0	0	0	0	0	45	570	4,376	0	16,176	
GREAT LAKES	9,594	9,842	27,836	5,856	24,953	30,107	28,071	51,245	9,587	24,982	1
UPPER MISSISSIPPI	0	11,622	96,150	251,594	66,209	57,941	113,777	430,592	1,576	6,761	51
SOURIS-RED-RAINY	0	0	0	2,700	1,314	1,721	18,966	52,015	411	68,814	
MISSOURI	2,243	89,862	370,993	435,296	1,077,828	32,555	860,513	1,504,538	2,669	176,066	25
ARKANSAS-RED-WHITE	108,025	11,617	55,960	161,010	88,788	168,558	174,737	996,615	161,923	186,727	45
LOWER MISSISSIPPI	4,087,675	3,067	552,850	20,386,036	10,294,428	9,820,704	9,336,140	666,758	1,453,371	5,970,206	10,82
RIO GRANDE	46,260	889	2,526	29,918	98,419	127,698	87,139	113,621	21,528	2,755	4
TEXAS AND GULF	14,910	83,436	441,874	17,537	8,513	28,840	208,168	190,914	6,026	535,689	4,10
COLORADO	117,761	0	0	13,000	90,630	14,300	0	0	0	0	
GREAT BASIN	0	0	8,000	15,015	18,600	2,200	16,300	0	0	500	
CALIFORNIA	1,981,428	680	307,013	1,075,869	102,360	72,800	13,910,920	154,858	98	4,770	
COLUMBIA N PACIFIC	514,257	633,016	1,939,909	547,510	979,308	94,350	1,521,659	125,995	296,159	918,874	96
ALASKA	2,117	4,473	4,741	4,885	5,055	6,846	6,828	17,000	0	8,000	
HAWAII & GUAM	4,254	220	800	624	0	0	220	220	8,540	82	
TOTALS	7,298,916	1,160,486	4,272,241	23,238,796	16,766,085	10,768,210	27,317,770	5,195,212	2,063,314	8,260,978	17,57

TABLE - 6

REGIONAL DISTRIBUTION
FLOOD DAMAGES PREVENTED BY THE U.S. ARMY CORPS OF ENGINEERS
FISCAL YEARS 1980-2003 (IN THOUSANDS OF DOLLARS)

REGION	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY2000	FY2001	FY2002	FY 2003	1994-20
NEW ENGLAND	95,580	51,906	375	132,805	31,243	121,825	29,147	680	89,058	195	41,848	
MID-ADLANTIC	277,641	34,455	33,530	1,881,703	224,560	79,819	250,493	97,647	61,760	29,960	258,907	
GULF & S. ATLANTIC	70,326	68,517	149,705	830,955	88,877	598,430	257,000	52,668	91,978	6,584	377,973	
OHIO	369,414	714,206	248,096	4,809,346	1,706,408	726,721	281,676	253,742	128,756	280,287	1,280,124	1,
TENNESSEE	13,304	52,909	12,480	2,305	131,135	8,326	5,017	0	4,280	175,824	255,688	
GREAT LAKES	124,935	50,981	24,810	141,824	112,230	25,977	19,190	13,979	28,643	39,729	104,179	
UPPER MISSISSIPPI	1,303,564	14,979	7,147	22,160	570,094	390,463	99,151	45,675	1,320,098	402,904	98,203	
SOURIS-RED-RAINY	91,473	6,875	28,686	67,053	154,001	36,316	76,877	8,153	217,695	11,059	8,150	
MISSOURI	11,573,040	206,912	4,466,330	2,199,478	7,207,086	177,769	5,111,491	21,228	521,933	39,721	93,262	2,
ARKANSAS-RED-WHITE	949,112	206,387	469,242	60,386	187,332	183,987	688,697	122,313	98,473	153,942	90,824	
LOWER MISSISSIPPI	13,538,946	9,589,003	16,904,365	7,925,144	22,033,170	6,933,597	12,507,805	6,217	13,869,161	17,592,228	9,965,990	11,
RIO GRANDE	109,486	164,439	29,195	116,598	52,598	453	52,570	50,076	983	311	65	
TEXAS AND GULF	2,621,230	5,705,933	2,632,986	4,425	5,113,613	646,241	626,317	557,532	4,478,069	3,662,754	1,331,318	2,
COLORADO	147,326	0	204,067	25,176	31,616	7,329	8,931	1,400	2,650	0	6,599	
GREAT BASIN	0	4,553	0	0	842,730	0	10,361	0	7,573	0	7,440	
CALIFORNIA	750,435	138	1,484,202	389,649	3,042,730	2,623,156	87,235	339,137	814,454	144,655	1,046,278	
COLUMBIA N PACIFIC	248,997	162,270	71,192	3,700,512	5,629,242	856,406	1,049,702	1,191,591	134,072	590,375	740,114	1,
ALASKA	0	8,750	8,750	0	0	0	0	200	0	100	11,000	
HAWAII & GUAM	10	6,728	5,126	4,652	2,394	68	0	0	0	2,598	546	
TOTALS	32,284,819	17,049,941	26,780,284	22,314,171	47,161,059	13,416,883	21,161,659	2,762,239	21,869,636	23,133,226	15,718,508	21,

TABLE 7

2003 ATLANTIC OCEAN TROPICAL CYCLONES AND THEIR EFFECTS

NAME	CLASS	Category	DATES	Max Wind (Kt.)	Min Pressure (MB)	Damages In U.S.A. ($ Million)	Lives Lost in U.S.A.	State Most Effected
Ana	Tropical Storm	--	20 - 24 Apr	50	994	0	0	off shore
Bill	Tropical Storm	--	29 Jun - 2 Jul	50	997	50	4	Louisiana
Claudette	Hurricane	1	8 - 17 Jul	80	979	180	1	Texas
Danny	Hurricane	1	16 - 21 Jul	65	1000	0	0	off shore
Erika	Hurricane	1	14 - 17 Jul	65	986	minor	0	Texas
Fabian	Hurricane	4	27 Aug - 8 Sep	115	939	0	0	off shore
Grace	Tropical Storm	--	30 Aug - 2 Sep	35	1007	minor	0	Texas
Henri	Tropical Storm	--	3 - 8 Sep	50	997	minor	0	Florida
Isabel	Hurricane	5	6 - 19 Sep	145	915	3,370	16	Virginia
Juan	Hurricane	2	17 - 19 Sep	90	969	0	0	Canada
Kate	Hurricane	3	25 Sep - 7 Oct	110	952	0	0	off shore
Larry	Tropical Storm	--	1 - 6 Oct	55	993	0	0	Mexico
Mindy	Tropical Storm	--	10 - 14 Oct	40	1002	minor	0	Puerto Rico
Nicholas	Tropical Storm	--	13 - 23 Oct	60	990	0	0	off shore
Odett	Tropical Storm	--	4 - 7 Dec	50	993	0	0	Dom. Rep.
Peter	Tropical Storm	--	7 - 11 Dec	60	990	0	0	off shore
TOTAL						$3,600	21	

Saffin-Simpson Scale for Wind Speed

Tropical Storm: 34-63 kt (39-73mph)
Huricane Cat 1: 64-83 kt (74-95 mph)
Huricane Cat 2: 84-96 kt (96-110 mph)
Huricane Cat 3: 97-113 kt (111-130 mph)
Huricane Cat 4: 114-135 kt (131-155 mph)
Huricane Cat 5: Greater than 135kt (155 mph)

Detailed information available at
http://www.nhc.noaa.gov/2003atlan.shtml

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