

# 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

Anchorage 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.

**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.

**25. WICOMICO RIVER, MD**

**26. RECONNAISSANCE AND  
CONDITION SURVEYS**  
(See Table 4-H at end of chapter.)

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.

**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.

**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.

**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

**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 Geological 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 streambed 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.

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.

**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 87 acres 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.

**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 long and a flume 470 feet long 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-structural flood control, streambank protection, stormwater management and channel clearing and modification 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 by 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 (LEEVE 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 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 Mountoursville 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.	<b>Baltimore Harbor and Channels, MD and VA</b>	New Work					
		Approp.	1,714,000	4,900,000	129,000	8,000	151,613,712 <sup>1</sup>
		Cost	432,753	5,460,858	861,825	8,233	151,579,056 <sup>1</sup>
		Maint.					
		Approp.	22,016,323	17,325,481	10,730,464	7,759,690	265,700,627 <sup>2</sup>
		Cost	22,071,927	17,332,787	10,416,822	7,859,899	264,699,521 <sup>2</sup>
		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.	<b>Tolchester Channel, S-Turn, MD</b>	Maint.					
		Approp.	0	0	0	0	11,096,533
		Cost	0	0	0	0	11,096,530
2.	<b>Baltimore Harbor, Anchorage &amp; Channels, MD</b>	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.	<b>Baltimore Harbor, MD, Collection &amp; Removal of Drift</b>	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.	<b>Bonum Creek, VA</b>	Maint.					
		Approp.	--	--	--	13,800	13,800 <sup>3</sup>
		Cost	--	--	--	13,762	13,762 <sup>3</sup>
5.	<b>Coan River, VA</b>	New Work					
		Approp.	--	--	--	551,800	551,800 <sup>4</sup>
		Cost	--	--	--	284,096	284,096 <sup>4</sup>
6.	<b>Duck Point Cove, MD</b>	Maint.					
		Approp.	--	--	19,476	3,943	23,419 <sup>5</sup>
		Cost	--	--	19,308	4,110	23,418 <sup>5</sup>
7.	<b>Fishing Creek, MD</b>	Maint.					
		Approp.	--	--	50,735	314,000	364,735 <sup>6</sup>
		Cost	--	--	50,545	306,514	357,059 <sup>6</sup>
8.	<b>Honga River &amp; Tar Bay, MD</b>	New Work					
		Approp.	0	0	0	0	66,119 <sup>7</sup>
		Cost	0	0	0	0	66,119 <sup>7</sup>
		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.	<b>Knapps Narrows, MD</b>	New Work					
		Approp.	--	--	--	--	23,836
		Cost	--	--	--	--	23,836
		Maint.					
		Approp.	--	--	--	21,000	21,000 <sup>8</sup>
		Cost	--	--	--	21,010	21,010 <sup>8</sup>

**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 <sup>9</sup>
		Cost	--	--	--	14,000	14,000 <sup>9</sup>
11.	Muddy Hook & Tyler Cover	New Work					
		Approp.	--	--	--	--	64,001
		Cost	--	--	--	--	64,001
		Maint.					
		Approp.	--	--	22,788	164,000	186,788 <sup>10</sup>
		Cost	--	--	22,787	45,944	68,731 <sup>10</sup>
12.	Nanticoke River, MD	Maint.					
		Approp.	--	15,082	408,565	354,000	777,647 <sup>11</sup>
		Cost	--	14,917	406,101	355,735	776,753 <sup>11</sup>
13.	Occoquan River, VA <sup>12</sup>	Maint.					
		Approp.	0	19,850	327,457	135,000	482,307 <sup>13</sup>
		Cost	0	19,850	322,676	138,078	480,604 <sup>13</sup>
14.	Ocean City Harbor and Inlet and Sinepuxent Bay, MD	New Work					
		Approp.	0	0	0	0	362,193 <sup>14</sup>
		Cost	0	0	0	0	362,193 <sup>14</sup>
		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 <sup>15</sup>
		Cost	--	--	71,681	111,125	182,806 <sup>15</sup>
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 <sup>16</sup>
		Cost	0	61,805	944,514	159,502	1,165,821 <sup>16</sup>

**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 <sup>17</sup>
		Cost				20,000	20,000 <sup>17</sup>
21.	Tall Timber, MD	Maint.					
		Approp.	--	--	--	151,400	151,400 <sup>18</sup>
		Cost	--	--	--	8,977	8,977 <sup>18</sup>
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 <sup>19</sup>
		Cost	0	31,679	28,398	64,024	173,649 <sup>19</sup>
24.	Washington Harbor, DC	New Work					
		Approp.	0	0	0	0	3,191,077 <sup>20</sup>
		Cost	0	0	0	0	3,191,077 <sup>20</sup>
		Maint.					
		Approp.	29,900	36,454	45,723	38,000	5,355,760 <sup>21,22</sup>
		Cost	29,806	36,657	45,721	35,613	5,353,271 <sup>21,22</sup>
25.	Wicomico River, MD	New Work					
		Approp.	0	0	0	0	471,609 <sup>23</sup>
		Cost	0	0	0	0	471,609 <sup>23</sup>
		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
<b>33A.</b>	<b>Aylesworth Creek Lake, PA</b>	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
<b>34.</b>	<b>Loyalsock Creek Warrensville Rd., PA</b>	New Work					
		Approp.	0	0	0	72,500	72,500
		Cost	0	0	0	62,529	62,529
<b>35.</b>	<b>Lycoming County Flood Warning System, PA</b>	New Work					
		Approp.	0	0	0	126,300	126,300
		Cost	0	0	0	198,945	198,945
<b>36.</b>	<b>Moorefield, WV</b>	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
<b>37.</b>	<b>Lackawanna River, Olyphant, PA</b>	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
<b>38.</b>	<b>Raystown Lake Raystown Branch, Juniata River, PA</b>	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
<b>39.</b>	<b>Scranton, Lackawanna River, PA</b>	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
<b>40.</b>	<b>Ocean Pines, Worcester County, MD</b>	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.	<b>Williamsport Hagerman Flume</b>	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.	<b>PA and WV Flooding Program</b>	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.	<b>Addison, NY</b>	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.	<b>Almond Lake, NY</b>	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.	<b>Arkport Dam, NY</b>	New Work					
				Approp.	0	0	0	0	1,910,000 <sup>24</sup>
Cost	0			0	0	0	1,910,000 <sup>24</sup>		
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.	<b>Avoca, NY</b>	New Work					
				Approp.	--	--	--	--	436,374 <sup>25</sup>
Cost	--			--	--	--	436,374 <sup>25</sup>		
Maint.									
		Approp.	16,800	17,960	25,039	29,000	663,560		
		Cost	17,187	17,987	25,037	28,745	663,201		
		43E.	<b>Binghamton, NY</b>	New Work					
				Approp.	0	0	0	0	3,460,000 <sup>26</sup>
Cost	0			0	0	0	3,460,000 <sup>26</sup>		
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.	<b>Canisteo, NY</b>	New Work					
				Approp.	0	0	0	0	1,183,111 <sup>27</sup>
Cost	0			0	0	0	1,183,111 <sup>27</sup>		
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 <sup>28</sup>
		Cost	0	0	0	0	3,322,000 <sup>28</sup>
		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 <sup>29</sup>
		Cost	0	0	0	0	4,558,698 <sup>29</sup>
		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 <sup>30</sup>
		Cost	0	0	0	0	661,199 <sup>30</sup>
		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 <sup>31</sup>
		Cost	0	0	0	0	131,000 <sup>31</sup>
		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 <sup>32</sup>
		Cost	0	0	0	0	30,887,063 <sup>32</sup>
		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 <sup>33</sup>
		Cost	0	0	0	0	5,601,167 <sup>33</sup>
		Maint.					
		Approp.	552,000	640,041	543,906	532,000	19,079,737 <sup>34</sup>
		Cost	569,543	641,146	511,430	550,897	19,070,769 <sup>34</sup>
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.	<b>South Central Environmental Restoration Infrastructure and Resource Protection Development Pilot, PA</b>	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.	<b>Deep Run/Tiber Hudson, MD (New Project)</b>	New Work					
		Approp.	--	--	--	173,300	173,300
		Cost	--	--	--	154,902	154,902
62.	<b>Dents Run, PA</b>	New Work					
		Approp.	--	--	148,300	456,100	604,400
		Cost	--	--	148,858	454,881	603,739
63.	<b>Isle of Wight Bay, MD</b>	New Work					
		Approp.	--	--	--	1,784,614	1,784,614 <sup>35</sup>
		Cost	--	--	--	1,783,746	1,783,746 <sup>35</sup>
		Contributed					
		Approp.	--	--	--	412,021	412,021
		Cost	--	--	--	0	0
64.	<b>Little Falls Fish Passage #2</b>	New Work					
		Approp.	--	--	--	23,300	23,300 <sup>36</sup>
		Cost	--	--	--	23,276	23,276 <sup>36</sup>
		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.		<b>BALTIMORE HARBOR AND CHANNELS, MD and VA</b>	
	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., 1 <sup>st</sup> 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., 1 <sup>st</sup> 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, 85 <sup>th</sup> Cong., 1 <sup>st</sup> 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, 79 <sup>th</sup> Cong., 2 <sup>nd</sup> 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, 85 <sup>th</sup> Cong., 1 <sup>st</sup> 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, 94 <sup>th</sup> Cong., 1 <sup>st</sup> 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.		<b>BALTIMORE HARBOR ANCHORAGES AND CHANNELS, MD</b>	
	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.		<b>BALTIMORE HARBOR, MD, COLLECTION AND REMOVAL OF DRIFT</b>	
	Jun 30, 1948	Collection and removal of drift from Baltimore Harbor and its tributary waters.	River and Harbor Act of 1948
4.		<b>BONUM CREEK, VA</b>	
	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.		<b>COAN RIVER, VA</b>	
	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.		<b>DUCK POINT COVE, MD</b>	
	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, 76 <sup>th</sup> Cong., 1 <sup>st</sup> Sess.
7.		<b>FISHING CREEK, MD</b>	
	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, 75 <sup>th</sup> Cong., 1 <sup>st</sup> Sess.
8.		<b>HONGA RIVER AND TAR BAY, MD</b>	
	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, 74 <sup>th</sup> Cong., 1 <sup>st</sup> 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, 80 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
9.		<b>KNAPPS NARROWS, MD</b>	
	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, 72 <sup>nd</sup> Cong., 1 <sup>st</sup> Sess.
10.		<b>MONROE BAY AND CREEK, VA</b>	
	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, 70 <sup>th</sup> Cong., 1 <sup>st</sup> Sess. <sup>2</sup>
11.		<b>MUDDY HOOK &amp; TYLER COVE, MD</b>	
	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**

<b>See Section in Text</b>	<b>Date Authorizing Act</b>	<b>Project and Work Authorized</b>	<b>Documents</b>
12.		<b>NANTICOKE RIVER, MD</b>	
	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, 75 <sup>th</sup> Cong., 1 <sup>st</sup> Sess. <sup>2</sup>
13.		<b>OCCOQUAN CREEK, VA</b>	
	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, 59 <sup>th</sup> Cong., 1 <sup>st</sup> Sess. (The latest published map is in H. Doc. 190, 63d Cong., 2d Sess.)
14.		<b>OCEAN CITY HARBOR AND INLET AND SINEPUXENT BAY, MD</b>	
	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, 72 <sup>nd</sup> Cong., 1 <sup>st</sup> 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, 74 <sup>th</sup> Cong., 1 <sup>st</sup> 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, 82 <sup>nd</sup> Cong., 2 <sup>nd</sup> Sess.
15.		<b>POCOMOKE RIVER, MD</b>	
	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, 74 <sup>th</sup> Cong., 1 <sup>st</sup> Sess. <sup>2</sup>
	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. 429, 76 <sup>th</sup> Cong., 1 <sup>st</sup> Sess. <sup>2</sup>
	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.	H. Doc. 486, 81 <sup>st</sup> Cong., 2 <sup>nd</sup> Sess. <sup>2</sup>
16.		<b>POTOMAC &amp; ANACOSTIA RIVERS, DC, COLLECTION &amp; REMOVAL OF DRIFT</b>	
	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, 89 <sup>th</sup> Cong., 1 <sup>st</sup> Sess.
17.		<b>POTOMAC RIVER BELOW WASHINGTON, DC</b>	
	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, 52 <sup>nd</sup> Cong., 1 <sup>st</sup> Sess.
18.		<b>PREVENTION OF OBSTRUCTIONS AND INJURIOUS DEPOSITS, BALTIMORE HARBOR, MD</b>	
	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.	<b>RHODES PT TO TYLERTON, MD</b>	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,
	Jan 22, 1982		June 1981
	Sec. 107 Jul 14, 1960	tance of about one-mile, through Sheel Pen Gut to deep water in the Chesapeake Bay.	
	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. <sup>2</sup>
	Aug 1, 1968	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
	Sec. 107 Jul 14, 1960		
20.	<b>TILGHMAN ISLAND HARBOR, MD</b>	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.
	May 13, 1966		
	Sec. 107 Jul 14, 1960	Modification to provide for construction of a breakwater at the harbor entrance.	Detailed Project Report, July 1980
	Oct 20, 1980		
	Sec. 107 Jul 14, 1960		
21.	<b>TALL TIMBERS, MD</b>	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 downstream sides of the entrance channel 770 and 650 feet long, respectively. The project length is 1,630 feet.	H. Doc. 159 84 <sup>th</sup> Cong., 1 <sup>st</sup> Sess <sup>2</sup>
	May 7, 1986	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
	Sec. 111		
22.	<b>TWITCH COVE AND BIG THOROFARE, MD</b>	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, 62 <sup>nd</sup> Cong., 2 <sup>nd</sup> Sess.
23.	<b>UPPER THOROFARE DEAL ISLAND, MD</b>	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 Committee Doc. 37, 72 <sup>nd</sup> Cong., 1 <sup>st</sup> Sess.
	Aug 30, 1935	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, 75 <sup>th</sup> Cong., 1 <sup>st</sup> Sess.
	Aug 26, 1937		
24.	<b>WASHINGTON HARBOR, DC</b>	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, 74 <sup>th</sup> Cong., 1 <sup>st</sup> Sess
	Aug 30, 1935		

**TABLE 4-B AUTHORIZING LEGISLATION**

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
25.		<b>WICOMICO RIVER, MD</b>	
	Sep 19, 1890	Channel 9 feet deep from Main Street Bridge to about 2 miles below.	H. Doc. 20, 51 <sup>st</sup> Cong., 1 <sup>st</sup> 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, 61 <sup>st</sup> Cong., 2 <sup>nd</sup> 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, 63 <sup>rd</sup> Cong., 3 <sup>rd</sup> 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, 75 <sup>th</sup> Cong., 3 <sup>rd</sup> Sess.
	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, 81 <sup>st</sup> Cong., 2 <sup>nd</sup> Sess.
28.		<b>ASSATEAGUE ISLAND, MD</b>	
	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.		<b>ATLANTIC COAST OF MARYLAND</b>	
	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.		<b>CUMBERLAND, MD, AND RIDGELEY, WV</b>	
	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, 73 <sup>rd</sup> Cong., 1 <sup>st</sup> 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.		<b>JENNINGS RANDOLPH LAKE, MD AND WV</b>	
	Oct 23, 1962	Construction of Bloomington Lake project.	H. Doc. 469, 87 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
33.		<b>LACKAWANNA RIVER BASIN, PA</b>	
	Oct 23, 1962	Construction of Aylesworth Creek Lake, Fall Brook Lake, and local protection works on Lackawanna River at Scranton, Pennsylvania	S. Doc. 141, 87 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
35.		<b>LYCOMING FLOOD WARNING SYSTEM, LYCOMING COUNTY, PA</b>	
	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.		<b>MOOREFIELD, WV</b>	
	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.		<b>OLYPHANT, LACKAWANNA RIVER, PA</b>	
	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 associated 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.		<b>RAYSTOWN LAKE, RAYSTOWN BRANCH, JUNIATA RIVER, PA</b>	
	Oct 23, 1962	Construction of dam and appurtenant facilities.	H. Doc. 565, 87 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
39.		<b>LACKAWANNA RIVER, SCRANTON, PA</b>	
	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.		<b>OCEAN PINES, WORCESTER COUNTY, MD</b>	
	Oct 12, 1996	Restoration of 6.3 acres of filled salt marsh to tidal salt marsh.	Ecosystem Restoration Report
41.		<b>WILLIAMSPORT, PA - HAGERMAN'S RUN</b>	
	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.		<b>WV &amp; PA FLOODING PROGRAM</b>	
	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.		<b>SOUTHERN NEW YORK FLOOD CONTROL PROJECTS</b>	
	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, 77 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.

**TABLE 4-B AUTHORIZING LEGISLATION**

<b>See Section in Text</b>	<b>Date Authorizing Act</b>	<b>Project and Work Authorized</b>	<b>Documents</b>
44.		<b>STILLWATER LAKE, LACKAWANNA RIVER, PA</b>	
	Aug 18, 1941	Construction of a flood control reservoir.	H. Doc. 702, 77 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
45.		<b>SUSQUEHANNA RIVER FLOOD CONTROL PROJECTS, NY AND PA</b>	
	Jul 3, 1958	Construction of Cowanesque and Tioga-Hannond reservoirs, local flood protection works at Elkland, PA, and Nichols, NY and channel improvement at	H. Doc. 702, 77 <sup>th</sup> Cong., 2 <sup>nd</sup> Cortland, NY. 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, 84 <sup>th</sup> Cong., 2 <sup>nd</sup> 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.		<b>WEST BRANCH OF SUSQUEHANNA RIVER, PA</b>	
	Sep 3, 1954	Construction of three flood control reservoirs.	H. Doc. 29, 84 <sup>th</sup> Cong., 1 <sup>st</sup> Sess.
47.		<b>WYOMING VALLEY, PA (LEVEE RAISING)</b>	
	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.		<b>YORK, INDIAN ROCK DAM, PA</b>	
	Jun 22, 1936	Construction of Indian Rock Dam and channel improvements on Codorus Creek.	H. Doc. 702, 77 <sup>th</sup> Cong., 2 <sup>nd</sup> Sess.
52.		<b>ANACOSTIA RIVER AND TRIBUTARIES, MD AND DC</b>	
	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.		<b>CHESAPEAKE BAY OYSTER RECOVERY, MD</b>	
	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.		<b>CHESAPEAKE BAY ENVIRONMENTAL RESTORATION</b>	
	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.		<b>HART MILLER ISLAND, MD</b>	
	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.		<b>NORTHEAST PENNSYLVANIA, PA</b>	
	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.		<b>ROOSTER ISLAND, MD</b>	
	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.		<b>POPLAR ISLAND, MARYLAND</b>	
	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.		<b>SOUTH CENTRAL PA ENVIRONMENTAL IMPROVEMENT PROGRAM</b>	
	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.		<b>DEEP RUN/TIBER HUDSON, MD</b>	
	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.		<b>DENTS RUN, PA</b>	
	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.		<b>ISLE OF WIGHT, MD</b>	
	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.		<b>LITTLE FALLS FISH PASSAGE ,MD</b>	
	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**

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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, 1933. 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	Operation and Maintenance
Accotink Creek, VA <sup>1</sup>	Completed	1878	\$ 5,000	\$ --
Anacostia River and Flats <sup>2</sup>	Deferred	1953	3,910,582	--
Annapolis Harbor, MD	Completed	1993	34,250 <sup>3</sup>	51,366
Aquia Creek, VA	Inactive	1928	52,465 <sup>4</sup>	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 <sup>6</sup>	Completed	1950	47,924 <sup>5</sup>	47,593
Broad Creek, River, DE	Completed	1964	65,510 <sup>6</sup>	
Cambridge Harbor, MD	Completed	1993	195,974 <sup>7</sup>	946,934
Chester River, MD	Completed	2003	70,495	864,155 <sup>8</sup>
Chester River, Bodkin Island, MD	Deferred	2000	67,000	0
Choptank River, MD	Completed	1979	96,796	104,230
Claiborne Harbor, MD <sup>1</sup>	Deferred	1987	42,974	709,047
Colonial Beach, VA	Completed	2003	41,200	
Corsica River, MD	Completed	1948	39,071 <sup>10</sup>	134,770
Crisfield Harbor, MD	Completed	2003	416,736 <sup>11</sup>	1,923,394
Cypress Creek, MD	Completed	1947	3,057	14,729
Elk and Little Elk Rivers, MD <sup>12</sup>	Completed	1932	90,121 <sup>13</sup>	53,808 <sup>14</sup>
Fishing Bay, MD	Completed	1998	34,074 <sup>15</sup>	2,161,260
Goose Creek, MD <sup>16</sup>	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 <sup>17</sup>	40,475
Little Creek, Kent Island, MD	Completed	1958	23,000 <sup>18</sup>	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 <sup>16</sup>	Completed	1977	125,550	42,643
Manokin River, MD <sup>19</sup>	Completed	1919	34,788 <sup>20</sup>	43,534
Middle River and Dark Head Creek, MD	Completed	1947	38,715 <sup>21</sup>	96,785
Muddy Hook Tyler Coves, MD	Completed	1996	64,001	687,568
Nan Cove, MD <sup>4</sup>	Completed	1965	34,861 <sup>22</sup>	33,138
Nanticoke River at Bivalve, MD	Completed	1983	240,817	142,131
Neale Sound, MD	Completed	2003	73,243 <sup>23</sup>	945,585
Neavitt Harbor, MD <sup>16</sup>	Completed	1968	36,500	45,019
Nomini Bay and Creek, VA <sup>24</sup>	Completed	1946	78,446	42,063
Northeast River, VA	Completed	2002	28,489	1,816,146
Parish Creek, MD	Completed	1988	19,170 <sup>26</sup>	533,808
Patuxent River, MD <sup>12</sup>	Completed	1905	14,000 <sup>27</sup>	---
Petersburg, WV	Completed	2001	18,554,009 <sup>39</sup>	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 <sup>1</sup>	Completed	1956	1,744,692 <sup>28</sup>	27,461 <sup>29</sup>
Queenstown Harbor, MD	Completed	1985	72,858 <sup>30</sup>	321,803
Rock Hall Harbor, MD	Completed	1998	1,072,500 <sup>31</sup>	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 <sup>32</sup>	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 <sup>1</sup>	Completed	1956	1,744,692 <sup>28</sup>	27,461 <sup>29</sup>

**TABLE 4-C OTHER AUTHORIZED NAVIGATION PROJECTS**

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003	
			Construction	Operation and Maintenance
Queenstown Harbor, MD	Completed	1985	72,858 <sup>30</sup>	321,803
Rock Hall Harbor, MD	Completed	1998	1,072,500 <sup>31</sup>	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 <sup>32</sup>	659,369
St. George's Creek, MD	Completed	1985	147,650	---
St. Jerome's Creek, MD	Completed	1991	44,357 <sup>33</sup>	756,360
St. Michael's Harbor, MD <sup>16</sup>	Completed	1964	16,723 <sup>32</sup>	35,666
St. Patrick's Creek, MD	Completed	1987	15,752	151,849
St. Peter's Creek, MD <sup>16</sup>	Completed	1963	46,740 <sup>34</sup>	41,223
Smith Creek, MD	Completed	1936	5,252	16,448
Susquehanna River				
above and below Havre De Grace, MD	Completed	1985	293,570 <sup>35</sup>	859,051
Susquehanna River at Williamsport, PA <sup>16</sup>	Completed	1974	57,031 <sup>36</sup>	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 <sup>37</sup>	54,302
Upper Machodoc Creek, VA	Completed	1971	20,281	34,777
Warwick River, MD	Completed	1984	22,041 <sup>38</sup>	148,728

- Unconstructed portion of the project was deauthorized August 5, 1977.
- Project deferred for restudy.
- Includes \$8,476 for previous projects.
- Includes \$31,065 for previous projects.
- Includes \$37,500 for previous projects.
- Includes \$50,000 for previous projects.
- Excludes \$3,998 contributed funds and includes \$61,321 for previous projects.
- Includes \$40,041 for previous projects.
- Authorization for the unconstructed portion of the project was withdrawn by the Chief of Engineers January 22, 1979.
- Includes \$30,000 for previous projects.
- Includes \$87,741 for previous projects.
- Unconstructed portion of the project was deauthorized November 2, 1979.
- Includes \$79,626 for previous project and excludes \$8,414 contributed funds.
- Includes \$24,321 for previous projects.
- Includes \$2,840 for previous projects.
- Authorized by Chief of Engineers.
- Excludes \$10,306 contributed funds.
- Excludes \$1,100 contributed funds.
- Abandonment recommended in 1926 (H. doc. 467, 69<sup>th</sup> Cong., 1<sup>st</sup> Sess.)

- Includes \$2,000 expended outside project limits.
- Excludes \$111,581 expended by Navy Department and \$52,000 from contributed funds.
- Excludes \$565 contributed funds.
- Excludes \$1,000 contributed funds.
- Unconstructed portion of the project was deauthorized November 6, 1977.
- Includes \$25,000 for previous projects.
- Includes \$19,170 Works Progress Administration funds.
- Includes \$10,617 for previous projects.
- Excludes \$389,000 contributed funds.
- Excludes \$101,162 Public Health Service funds expended for waterchestnut removal.
- Includes \$19,000 for previous projects.
- Excludes \$672,880 contributed funds.
- Excludes \$600 contributed funds.
- Includes \$26,500 for previous projects.
- Excludes \$6,984 contributed funds.
- Unconstructed portion of the project was deauthorized November 6, 1977. Includes \$22,905 Works Progress funds and \$97,390 for previous projects.
- Excludes \$40,000 contributed funds.
- Excludes \$10,158 contributed funds.
- Includes \$6,000 for previous projects.
- 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	Operation and Maintenance
Oxford, MD <sup>1</sup>	Complete	1978	97,750 <sup>2</sup>	---
Punch Island Road, MD	Complete	1996	199,105	---
Town of North Beach, MD	Complete	1995	450,610 <sup>3</sup>	---

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**

BALTIMORE, MD DISTRICT

Project	Status	For Last Full Report See Annual Report	Cost to September 30, 2003	
			Construction	Operation and Maintenance
Anacostia River and Tributaries Flood Protection and Navigation Improvements, DC and MD	Completed	1995	\$ 6,042,325	\$3,735,979 <sup>1</sup>
Anacostia River and Tributaries, Prince Georges Co., MD <sup>2</sup>	Completed	1977	1,000,000 <sup>3</sup>	---
Bainbridge, NY <sup>3,4</sup>	Completed	1959	382,000	---
Bath, NY <sup>5</sup>	Completed	1970	638,332	---
Bayard, WV <sup>4</sup>	Completed	1965	55,218 <sup>6</sup>	---
Black Walnut Point, MD	Completed	1985	200,500	---
Bridgewater, VA <sup>4</sup>	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 <sup>7</sup>	---
Conklin-Kirkwood, NY <sup>4</sup>	Completed	1955	71,000	---
Cortland, NY <sup>8</sup>	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 <sup>9</sup>	---
Forest Heights, MD <sup>4</sup>	Completed	1964	430,000 <sup>10</sup>	---
Fourmile Run, VA	Completed	1987	52,480,000	---
Hills Point Road, Dorchester Co., MD <sup>3</sup>	Completed	1989	186,077	---
Greene, NY <sup>4</sup>	Completed	1951	37,000	---
Kingston-Edwardsville, PA	Completed	1979	4,731,394 <sup>11</sup>	---
Kitzmilller, MD	Completed	1965	501,500 <sup>12</sup>	---
Latta Brook Rd., NY	Completed	1984	115,500	---
McCready's Point Road, MD	Completed	1993	74,019 <sup>13</sup>	---
Middle Hooper Island, MD	Completed	1993	327,165 <sup>14</sup>	---
Neabsco Creek, VA	Completed	2003	57,841	2,227,375
Nichols, NY	Completed	1974	1,487,800	---
Norwich, NY <sup>4</sup>	Completed	1950	94,500	---
Painted Post, NY <sup>5</sup>	Completed	1970	414,181	---
Paxton Creek, Harrisburg, PA	Completed	1998	48,509 <sup>15</sup>	---
Plymouth, PA	Completed	1958	1,911,689 <sup>16</sup>	---
Savage River Dam, MD	Completed	1954	2,271,939 <sup>17</sup>	33,999
Scranton, PA <sup>18</sup>	Completed	1971	2,006,800	---
Spring Brook Creek, Pittston Township, PA	Completed	1993	425,960 <sup>19</sup>	---
Solomon Creek, Ashley Borough, Luzerne County, PA	Completed	1993	70,441 <sup>20</sup>	---
Solomons Island, Calvert County, MD	Completed	1993	126,049 <sup>21</sup>	---
Sunbury, PA	Completed	1953	6,063,000 <sup>22</sup>	---
Swoyersville-Forty Fort, PA	Completed	1968	2,728,113	---
Tunkhannock Creek, Tunkhannock, PA	Completed	1991	174,491 <sup>23</sup>	---
Tyrone, PA <sup>24</sup>	Deferred	1980	6,401,016	---
Unadilla, NY	Completed	1970	1,000,000 <sup>25</sup>	---
Upper Marlboro, MD <sup>4</sup>	Completed	1965	590,013	---
Verona Lake, VA <sup>26</sup>	Deferred	1978	992,000	---
Washington, DC and Vicinity	Completed	1953	331,927 <sup>27</sup>	---
Wilkes-Barre, Hanover Township, PA	Completed	1958	3,853,457 <sup>28</sup>	---
Williamsport, PA	Completed	1979	12,964,893 <sup>29</sup>	---
Wyoming Valley, PA	Completed	1987	25,549,098	---

**TABLE 4-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Includes \$49,998 emergency relief funds.</li> <li>2. Local interests will not accept operation and maintenance responsibility of the project until the severe erosion and sedimentation of the project caused by tropical storm Eloise is corrected and the project is restored to design condition.</li> <li>3. Excludes \$357,022 contributed funds.</li> <li>4. Authorized by Chief of Engineers.</li> <li>5. Unit of Southern New York Flood Control Projects.</li> <li>6. Excludes \$182,672 Public Works Acceleration funds and \$4,290 contributed funds.</li> <li>7. Excludes \$67,954 Contributed funds.</li> <li>8. Unit of Susquehanna River Flood Control Projects.</li> <li>9. Excludes \$154,694 contributed funds.</li> <li>10. Excludes \$87,720 contributed funds.</li> <li>11. Includes \$1,162,548 emergency relief funds and excludes \$225,877 emergency relief funds expended prior to adoption of project.</li> <li>12. Excludes \$6,616 contributed funds.</li> <li>13. Excludes \$42,081 contributed funds.</li> <li>14. Excludes \$137,900 contributed funds.</li> </ol> | <ol style="list-style-type: none"> <li>15. Excludes \$14,917 contributed funds.</li> <li>16. Includes \$4,357 emergency relief funds.</li> <li>17. Includes \$200,000 expended from contributed funds.</li> <li>18. Unit of Lackawanna River Basin Projects.</li> <li>19. Excludes \$126,255 contributed funds.</li> <li>20. Excludes \$25,014 contributed funds.</li> <li>21. Excludes \$51,666 contributed funds.</li> <li>22. Excludes \$140,504 contributed funds.</li> <li>23. Excludes \$53,383 contributed funds.</li> <li>24. The unconstructed portion of the project was reclassified to the deferred category January 8, 1981.</li> <li>25. Excludes \$132,578 contributed funds.</li> <li>26. Authorized for the design memorandum state of advanced.</li> <li>27. Cost of previous project includes \$106,500 emergency relief funds.</li> <li>28. Includes \$872,715 emergency relief funds. Excludes \$36,375 emergency relief funds expended for new work before adoption of project.</li> <li>29. Includes \$1,887 emergency relief funds and excludes \$110,835 contributed funds.</li> </ol> |
|---|---|

**TABLE 4-G DEAUTHORIZED PROJECTS**

<b>Project</b>	<b>For Last Full Report See Annual Report For</b>	<b>Date and Authority</b>	<b>Federal Funds Expended</b>	<b>Contributed Funds Expended</b>
Almond Village, NY <sup>1,2</sup>	1970	May 26, 1953 1941 Flood Control Act	\$ 24,622 <sup>3</sup>	---
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 <sup>2</sup>	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 <sup>2</sup>	1970	May 6, 1981 1974 Water Res. Dev. Act	106,700 <sup>3</sup>	---
Cuckold Creek, MD <sup>4</sup>	1978	Jan 22, 1979 1960 River and Harbor Act	5,720	---
Cunninghill Cove, MD <sup>4</sup>	1977	Jan. 22, 1979 1960 River and Harbor Act	11,200	---
Curwensville Lake (WaterLine), PA <sup>5</sup>	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Davenport Center Lake, NY <sup>2</sup>	1970	May 6, 1981 1974 Water Res. Dev. Act	286,400 <sup>3</sup>	---
Endicott, Johnson City, and Vestal (Remedial), NY <sup>5</sup>	---	Nov. 18, 1991 1986 Water Res. Dev. Act	---	---
Fall Brook Lake, PA <sup>6</sup>	1970	May 6, 1981 1974 Water Res. Dev. Act	46,100	---

**TABLE 4-G DEAUTHORIZED PROJECTS**

<b>Project</b>	<b>For Last Full Report See Annual Report For</b>	<b>Date and Authority</b>	<b>Federal Funds Expended</b>	<b>Contributed Funds Expended</b>
Genegantslet Lake, NY	1954	May 6, 1981 1974 Water Res. Dev. Act	214,578 <sup>3</sup>	---
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 <sup>3</sup>	---
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 <sup>7</sup>	1974	Dec. 29, 1981 1974 Water Res. Dev. Act	---	---
South Plymouth Lake, NY	1953	May 6, 1981 1974 Water Res. Dev. Act	100,036 <sup>3</sup>	---
Susquehanna River, Sunbury Closure Structure, PA <sup>7</sup>	---	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 <sup>2</sup>	1970	May 6, 1981 1974 Water Res. Dev. Act	189,100 <sup>3</sup>	---

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
<b>MARYLAND</b>	
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	April 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**

<b>Project</b>	<b>Date Inspected</b>
<b>MARYLAND</b>	
Anacostia River Basin	October 2003
Cumberland	November 2002
Forest Heights	October 2002
Kitzmilller	November 2002
Upper Marlboro	October 2002
<b>NEW YORK</b>	
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
<b>PENNSYLVANIA</b>	
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**

<b>Project</b>	<b>Date Inspected</b>
<b>VIRGINIA</b>	
Bridgewater	May 2003
Fourmile Run	October 2002
District of Columbia & MD Projects	October 2002
Anacostia River	October 2002
Washington, DC & Vicinity	October 2002
<b>WEST VIRGINIA</b>	
Bayard	November 2002
Moorefield	November 2002
Petersburg	November 2002
Ridgeley	November 2002