# PITTSBURGH, PA DISTRICT

This District comprises part of eastern Ohio, western Pennsylvania, southwestern New York, northern West Virginia, and northwestern Maryland embraced in drainage basin of Ohio River and Tributaries above mile 127 (below Pittsburgh, PA), immediately upstream from New Martinsville, WV.

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## Navigation

### 1. ALLEGHENY RIVER, PA

**Location.** The Allegheny River is 321 miles long. It rises in northern Pennsylvania, flows northwestward into New York, thence generally southwestward to Pittsburgh, PA, where it joins with Monongahela River to form the Ohio. (See Geological Survey Charts for western Pennsylvania and southwestern New York.)

**Existing Project**. The project consists of eight locks and dams to afford slack-water navigation for a length of 72 miles from Pittsburgh, PA to above East Brady, PA. Controlling depth through canalized portion is 9' at normal pool level. Channel width varies from a minimum of 200' to full width of river at mouth. Existing project is complete, the last lock, No. 9, was placed in service in 1938. Navigation channel has been widened at certain points and, in general, maintained to project depth, thus affording adequate depth for passage of commercial tows.

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** City of Pittsburgh constructed a modern wharf for river freight. There are numerous privately maintained terminals and docks, consisting of tipples, various types of hoists, chutes, and pipelines for use in loading and unloading coal, stone, sand, gravel, petroleum products, steel products and other commodities. Transshipment of freight between river and railroads is handled at privately owned river-to-rail terminals. Existing private terminals are adequate for shipments and receipt in Pittsburgh District of type of commerce now in existence.

**Licenses.** The Federal Energy Regulatory Commission granted license for construction on non-federal hydropower facilities on the abutment side of the dam at the following locations: Lock 5, Allegheny - FERC license 3671, generating capacity 9.3 megawatt, start of operation October 1988; Lock 6, Allegheny - FERC license 3494, generating capacity 8.6 megawatt, start of operation December 1988; Lock 8, Allegheny - FERC license 3021, generating capacity 13.6 megawatts, start of operation November 1990; Lock 9, Allegheny - FERC license 3021, generating capacity 18.0 megawatts, start of operation November 1990.

**Operations & Maintenance, General.** In FY09, emergency scour repairs were done at Lock and Dam 6 for $2,970,305, dredging of the approaches of locks 2, CW Bill Young (old Lock 3), Lock 4, and Lock 6 for $372,436. Repair Party work to replace downstream miter gates and repair gate operating machinery at the CW Bill Young Lock for $286,170.

### 2. CONSTRUCTION OF LOCKS & DAMS, OHIO RIVER

See this heading under Ohio River portion.

### 3. MONONGAHELA RIVER, PA & WV

**Location.** Formed by junction of Tygart and West Fork Rivers about one mile south of Fairmont, WV, and flows northerly for 128.7 miles to its junction with Allegheny River, thus forming Ohio River at Pittsburgh, PA. (See Geological Survey Charts for southwestern Pennsylvania and northern West Virginia.)

**Previous Project.** For details see Annual Report for 1963, page 1070.

**Existing Project.** Provides for improvement of river by nine locks and dams to afford slack-water navigation for its entire length from Pittsburgh to above Fairmont, WV. Original Locks and Dams 7, 8 and 9 were replaced by new Locks and Dams 7 and 8 in 1925. Increased traffic necessitated enlargement and improvement of Locks and Dams 1 to 6 between Pittsburgh and Rices Landing, PA, by building two parallel chambers and fixed concrete dams during 1905 and 1932. Locks and Dam 1 were eliminated in 1938 by raising Emsworth Dam, Ohio River. Reconstruction of Lock 2 was completed in 1953 to provide two modern navigation chambers. The existing Locks and Dam 2 were originally completed in 1907; major modifications were made in 1923 and 1924, and in 1926 the upper guard and guide walls were extended. Construction of Maxwell Locks and Dam and the reconstruction of Dam 4 have allowed for removal of obsolete Locks and Dams 5 and 6. Small and antiquated original Locks and Dams 10 to 15, inclusive, have been replaced by three modern structures. Morgantown Lock and Dam, initial step in replacement program, was completed in 1950 replacing Locks and Dams 10 and 11. Hildebrand Lock and Dam, next upstream, was completed in 1959 replacing Locks and Dams 12 and 13. Raising crest of Dam 8 was also completed in 1959 as part of upper river improvement and eliminates restricted depth in upper reach of pool. Opekiska Lock and Dam were completed in 1967 replacing Locks and Dams 14 and 15. Completion of this link in upper river replacement program provides for entire river length of minimum channel depth of 9', varying in width from a minimum of 250' to practically full width at mouth.

Locks and Dam 3 showed advanced stages of deterioration and, because of its strategic location and its importance to industry throughout the greater Pittsburgh area and the nation, emergency remedial work had to be done in 1977. Major rehabilitation of Locks and Dam 3 was completed on October 27, 1980.

The Water Resources Development Act of 1986 authorized the replacement of Lock and Dam 7 with Grays Landing Lock and Dam and the construction of a new lock landward of the existing lock at Lock and Dam 8 (renamed Point Marion Lock and Dam). In accordance with the provisions of this act, 50% of the total cost of construction for the Grays Landing and Point Marion projects was derived from the Inland Waterways Trust Fund. Construction of a new lock at Point Marion was completed and put into service in December 1993. Construction of a new lock at Grays Landing was completed and put into service in May 1993. Construction of the dam at Grays Landing was completed in December 1995.

Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec.301 (a) Water Resources Development Act of

1992; PL 102-580, Sec. 10 Authorized the Navigation improvements to replace the fixed crest dam at Locks and Dam 2 with a gated dam; raises the existing pool 2 by 5', construct twin 84'x720' locks at Locks and Dam 4, and eliminates Locks and Dam 3; lowering the existing pool 3 by 3.2'. Authorized cost of $750,000,000. Cost of construction is to be paid equally from the general fund of the Treasury and the Inland Waterways Trust Fund.

**Local Cooperation.** None required.

**Terminal Facilities.** City of Pittsburgh constructed a modern wharf for freight. Boat landings are maintained by some municipalities along the river. A large number of tipples at mines and various types of hoists at manufacturing plants and sand and gravel supply companies are maintained for private use in loading and unloading coal, coke, billets, steel products, sand, gravel, and other commodities. These terminals and docks are not available for general commerce. A number of docks and pipelines are also privately maintained for petroleum and acid products. Marine ways are maintained by some of the larger industries. These are also several terminals for rail-to-river and river-to-rail transfer. Facilities are considered adequate for existing commerce.

**Operations during Fiscal Year.** Work continues on cultural resources and finalizing real estate actions for the remainder of the Grays Landing and Point Marion projects. The present projects consist of 84 acres of fee land and 403.3 acres of easement. The Water Resources Development Act of 1992 authorized the District to proceed with navigation improvements on the Lower Monongahela River. Locks and Dams (L/D) 2, 3 and 4 are located within 50 miles of the "Point" in Pittsburgh. The authorized Lower Mon Project is a two-for-three improvement that will replace the 100-year old fixed-crest dam at L/D 2 with a gated dam (Braddock Dam) and replace the 74-year old, undersized Locks 4 with new twin 84' x 720' locks. The 102-year old L/D 3 will be removed and a new navigation pool will be established that will be 5' higher between Braddock and Elizabeth and 3.2' lower between Elizabeth and Charleroi. The project will adjust all municipally owned facilities adversely affected by these river level changes and dredge existing Pool 3. In addition, the Port Perry Railroad Bridge crossing at river mile 11.7 will be adjusted to accommodate the higher pool level under a cost sharing contract with Norfolk Southern Railroad. The new Braddock Dam has been in operation since 2004. Project focus has sense shifted to construction of the new locks at the Charleroi L/D**.** Approximately $449 million has been invested in the project through FY09 on the following project features. The new Braddock Dam, Approach dikes for the Braddock and Charleroi Locks, Pool 3 dredging, Relocations for West Elizabeth, Municipal Authority of the City of McKeesport, Elizabeth Borough Municipal Authority, Borough of Dravosburg, City of Duquesne, Borough of Glassport, Authority of the Borough of Charleroi, North Versailles Sanitary Authority, and the Mon Valley Sewage Authority. Site development for the new Charleroi Locks, Demolition of the existing river chamber at the Charleroi Locks, and Construction of the Charleroi River Wall. In August 2009 a contract was awarded for the Charleroi Upper and Lower Guard walls construction using American Recovery and Reinvestment Act funding. Efforts continuing in FY10 include construction of the Charleroi Locks River and Guard Walls, design for other project features, and design and construction of Pool 2 relocations. Contracts for the fabrication of miscellaneous Government furnished items for the Charleroi Locks which were substantially and/or fiscally completed in FY09 included: Filling Valves, Floating Mooring Bits, Mooring Cells, Maintenance and maintenance Bulkheads..

**Operations & Maintenance, General**. In FY09, Braddock repair auxillary chamber gate operating machinery was repaired for $1,305,000. The approach to Braddock and intermittent locations between RM 7.0 and RM 20.0 were dredged for $988,552. The communication systems were upgraded from the Pt. Marion to Opekiska L/Ds for $384,513. The Emergency Dam Stabilization Contract No. 2 at Mon L/D 3 was done for $1,620,661. The Point Marion renovation of the landwall emptying valves were done for $960,850. Lock 3 Dewater Auxillary Chamber Repairs for $2,263,000.

## 4. OPEN-CHANNEL WORK, OHIO RIVER

See this heading under Ohio River portion.

## 5. TYGART LAKE, WV

**Location**. Tygart Lake is located on the Tygart River in Taylor and Barbour Counties, north central WV. The lake is approximately 26 road miles due east of Clarksburg, WV and 30 road miles south of Morgantown. The dam is situated 22.7 river miles above the mouth of the Tygart River at Fairmont, or 2.25 miles upstream from Grafton, WV, and about 78 miles south of Pittsburgh, PA. (See Geological Survey Charts for Fairmont, Thornton, and Belington, WV.)

**Existing Project**. A reservoir for low water regulation and flood control. Dam is concrete gravity type with an uncontrolled center spillway flanked by abutment sections joining valley sides. Project was authorized by Public Works Administration January 11, 1934, and adopted by 1935 River and Harbor Act. For further project description see Annual Report for 1962. Authorized project is complete. Reservoir is in operation for low water control in Monongahela River and for purpose of flood protection in Monongahela and Ohio Valleys. Construction of dam was started in 1935 and placed in operation in 1938. Present project lands consist of 2,662.9 acres in fee, flowage easements over 1,216.9 acres and 1,731.9 acres of other easements. The project includes a Class C Visitor Center at the dam site and a day use picnic area outside the office, although no significant recreation exists on Corps managed land.

Tygart Dam was selected as a Dam Safety Assurance Project in March 1996. The Evaluation Report was initiated in March 1994 to address spillway

capacity and structural stability in relation to the probable maximum flood event. Findings of the report concluded that under present conditions, the probable maximum flood would overtop the dam and cause failure. The report recommends protecting the dam from failure to include downstream erosion protection and stilling basin modifications. The Design Memorandum was completed in September 1998 and Plans and Specifications were completed in July 1999. The construction contract was advertised in August 1999 and awarded to Joseph B. Fay Co. on September 28, 1999 for $5,628,929. The Notice to Proceed was issued in October 1999 and work was completed in November 2002. The project features included construction of a new road to provide access to the left. Bank abutment of the dam, new concrete channels consisting of a concrete wall (end sill) and concrete slope paving on the downstream side of the dam, new concrete lagging retaining walls on the left and right banks of the dam, modification of the existing parapet wall, and minor repairs to the roadway decking. The project is now in compliance with current Dam Safety Guidelines.

**Local Cooperation.** The State of West Virginia has assumed responsibility for the development and operation of hunting and fishing areas as well as the Tygart Lake State Park. Controlled releases for downstream navigation and recreation are also coordinated with others to the extent feasible. No local cooperation is required at completed project; however, future recreational developments are subject to certain conditions of non-federal cost-sharing under Federal Water Project Recreation Act of 1965. A cost-sharing agreement was executed with the West Virginia Department of Recreation in May 1981.

**Licenses.** The City of Grafton submitted an application for a preliminary permit on March 26, 2004, which was denied on February 7, 2007 by FERC and is currently being appealed by the City. There is currently no active license to construct and operate a hydro plant. However, a Preliminary Permit 12613 has currently been issued to “Tygart LLC”.

**Operations during Fiscal Year.** Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required, and project structures were operated and maintained in a serviceable condition throughout the year. In FY08, contract was awarded for replacing the 7 dam service gates for $2,650,000. Estimated flood control benefits achieved by this project for FY08 were $6,365,000 and, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $1,159,983,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public use facilities continued. This work was limited in scope as the State of West Virginia has jurisdiction over most of the recreation in the reservoir area.

## 6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 18-C on other authorized navigation projects.

### Flood Control - Local Protection

## 7. ELKINS, WV

**Location.** On Tygart River in north central Randolph County, WV, about 155 miles south of Pittsburgh, PA. It is at downstream end of a long, broad reach of upper Tygart Valley, about 75 miles above mouth of river. (See Geological Survey Chart for Elkins, WV.)

**Existing Project.** Provides flood protection by diverting flood discharges from upstream arm of loop of natural river channel into an artificial cutoff channel, thereby bypassing City of Elkins. Improvement is designed to accommodate discharges equivalent to maximum flood of reasonable expectancy. Project construction was started in May 1946 and completed in May 1949. Completed work, except that portion of channel maintained by federal government, has been operated and maintained by City of Elkins since March 31, 1949. Present project lands consist of 32.04 acres in fee and 526.01 acres in easements. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1222. Federal cost of completed project was $1,772,627; estimated non-federal cost for lands, easements, and rights-of-way was $40,000.

**Local Cooperation.** Fully complied with.

**Operations during Fiscal Year.** Operation & Maintenance, General: routine investigations routine investigations and inspections were made. Project was inspected in 2009. Total benefits through September 2008, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $23,936,000.

## 8. JOHNSTOWN, PA

**Location.** Project is located in southwestern Cambria County, PA, about 58 miles east of Pittsburgh, PA. It is in a deep and comparatively narrow valley at junction of Stoney Creek and Little Conemaugh River, which unite to form Conemaugh River. (See Geological Survey Chart for Johnstown, PA.)

**Existing Project.** Provides for increased channel capacity by enlarging and realigning channels and protecting banks with concrete pavement. Improvement designed to accommodate discharges equivalent to those of March 1936 flood, maximum natural flow of record, and minimum of over-bank flow and to practically eliminate damages there from. Project construction began in August 1938 and was completed in November 1943. Footer protection for Unit 4 was completed in November 1949. Present project lands consist of easements over 199 acres. Project was authorized by Flood Control Acts of 1936 and 1937. For further project description see Annual Report for 1962, page 1215.

The FY 1991 Energy and Water Resources Development Appropriations Act authorized and

directed the Corps to undertake a major rehabilitation of the existing project. The major rehabilitation work is to be accomplished under the Construction, General (CG) appropriation at an estimate cost of $32,500,000. Contract plans and specifications were initiated in July 1995. The CG project was physically complete in September 2004 at a cost of $30,000,000. The Construction, General work consisted of the repair of 54 existing wall sections, slope paving and replacement of balustrade (safety) wall. Also included in the major rehabilitation is all the necessary Operation and Maintenance (O&M) funded work. The O&M work estimated to cost $7,500,000 consists of concrete spall repairs, slope paving joint repairs, sediment removal and miscellaneous repairs. $3,445,000 of O&M funded work is included in an ongoing construction contract scheduled to be completed in FY10.

**Local Cooperation.** The rules of local cooperation for the rehabilitation of the existing project are governed by the FY 1991 Energy and Water Resources Appropriations Act. Pursuant to this act, the City of Johnstown will have a limited role in securing the needed rights of access to non-federal structures included in the line of protection and will hold and save the United States from damages due to construction or operation and maintenance of the work on the non-federal structures, except for damages due to the fault or negligence of the United States or its contractors.

**Operations during Fiscal Year.** Operations & Maintenance, General: In FY09, routine inspections and investigations were made. Total flood damages prevented by the project through September 30, 2009 were estimated to be $814,620,000.

## 9. PUNXSUTAWNEY, PA

**Location.** Borough of Punxsutawney is on Mahoning Creek in Jefferson County, PA, about 85 miles northeast of Pittsburgh, PA. It is on a comparatively wide, alluvial flood plain about 52 miles above mouth of stream and 30 miles above Mahoning Creek flood control dam. (See Geological Survey Charts for Punxsutawney and Smicksburg, PA.)

**Existing Project**. Provides flood protection by channel enlargement, dikes, and walls. Improvement is designed to accommodate discharges 20% greater than that of maximum flood of record. Construction was accomplished by construction of four units. Construction started in May 1946 and was completed in June 1950. Present project lands consist of perpetual easements over 72.6 acres. Completed works, except that portion of channel maintained by the Federal government, have been operated and maintained by Borough of Punxsutawney since July 31, 1950. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1209.

**Local Cooperation**. Fully complied with.

**Operations during Fiscal Year.** In FY08 operation activities continued and routine investigations and inspections were made. Contract was awarded for sediment removal for $350,000. Project was inspected in 2008. The estimated total flood control benefits through September 2009 were $98,684,000.

## 10. SAW MILL RUN, PITTSBURGH, PA

**Location:** The project is located within the City of Pittsburgh, Allegheny County, at Ohio River mile 0.7 and traverses upstream from the mouth of Saw Mill Run approximately 4,700 L.F.

**Existing Project:** The proposed project was authorized in the 1986 WRDA in accordance with the Chief of Engineers report dated January 30, 1978. The 1996 WRDA increased the project estimate to $12,780,000 and increased to $22,000,000 in the FY 2004 Appropriations Act. This project was included in the FY 1997 appropriations as a new construction start.

In October 1997, a Project Cooperation Agreement was executed with the City of Pittsburgh. In June 1998, the District executed a Memorandum of Agreement (MOA) for the purpose of allowing the District to acquire the real estate and complete relocation work on behalf of the city. With the MOA executed and the funds for this effort transferred to the District in July 1998, real estate acquisition was initiated, and was completed in November 2000. Plans and specifications for the project were completed in March 2000 and the construction contract was advertised in November 2000. The contract was awarded in April 2001 for $12,881,875. The current construction contract was completed in May 2004 and turned over to the City of Pittsburgh for operation and maintenance responsibilities in June 2004.

**Local Cooperation:** The City of Pittsburgh is the local sponsor for this project and is responsible for real estate acquisition and relocation design and construction. The project will be cost shared 75% federal and 25% non-federal in accordance with the requirements of the 1986 WRDA.

**Operations during Fiscal Year:** Due to contract overruns and unforeseen conditions certain project features were deleted from the existing construction contract in order to maintain project cost within funding constraints. The project was completed to a 5-year level of protection in 2006. The plans and specifications were completed in 2007 and included a base contract with two options. Construction to complete the project to the authorized 20 year level of protection was advertised in FY08 as scheduled. However, due to the receipt of unawardable bids the construction contract was not awarded. The remaining work was repackaged into one construction contract with no options. This construction contract could not be advertised until the local sponsor resolved all real estate issues associated with the project The local sponsor resolved all outstanding issues in August 2009 and the construction contract was advertised in September 2009 with a tentative award date of November 2009. This construction contract will complete the project to its authorized level of protection.

## 11. WEST VIRGINIA & PENNSYLVANIA FLOOD CONTROL

**Location.** Projects under this program in the

Pittsburgh District are located in the Tygart River Basin in West Virginia and the lower Allegheny River in Pennsylvania. The priority (named in the legislation) communities located in West Virginia are Phillipi, Belington, Parsons and Rowlesburg. The priority communities in Pennsylvania are New Bethlehem, Clymer, Benson, Hooversville, Meyersdale, Connellsville, Dubois, Millvale (Pine Creek Watershed), and Etna (Girty's Run Watershed). Section 581 of the Water Resources Development Act of 1996 authorizes the Secretary of the Army to design and construct flood control measures for these priority communities at a level of protection sufficient to prevent future losses from flooding equivalent to that which occurred in January 1996, but at least no less than a 100 year level of protection for projects that incorporate floodwalls or levees. Project development will consist of developing a least cost plan including structural and/or non-structural elements, to provide the authorized level of protection without reguard to a benefit/cost ratio. As a result of WRDA 2007, new Implementation Guidance has been requested to consider upstream storm water management as a flood reduction measure.

**Local Cooperation.** The reconnaissance (initial assessment) phase is 100% federally funded. The Detailed Project Report (DPR), Plans and Specifications and Construction phases are cost shared at 65% federal funds and 35% non-federal funds. A Design Agreement is required to design efforts and a Project Cooperation Agreement is required prior to the project construction. In September 1998, Director of Civil Works, HQUSACE, approved the District's request for a waiver of the up-front cost sharing for the design portion of the West Virginia projects. The basis for the approval of the waiver was that the priority communities in West Virginia qualified for a reduced cost share (5%) based on the ability to pay provisions of Section 103(m) of the Water Resources Development Act of 1986.

In Pennsylvania, the General Management Plans for the seven communities were completed in January 1999. Project Study Plans (PSP) for the seven communities were completed in July 2000. Design Agreements are being prepared and current plans call for the execution of these agreements pending the local sponsors' ability to obtain the non-federal cost share. Design Agreements were executed for the Clymer, Meyersdale, and Hooversville projects.

In West Virginia, the PSPs for the two communities were completed in September 1998 and approved in November 1998. Since no Design Agreement is required for West Virginia communities, work on the Detailed Project Reports started in December 1998. Least cost plans and locally preferred plans for both communities have been developed. A decision to implement a Flood Warning System for the two communities as the first phase of the projects was made in September 1999. An interim DPR for the Flood Warning System for both was submitted in November 2001. Installation of the Flood Warning System was completed. The Philippi DPR was completed in FY 2004 and approved in FY 2005. In FY 2007 a 50% DDR was completed for Philippi by the Huntingdon District, updating project information to include lessons learned from the Hurricane Katrina event. The Pittsburgh District will bring the Philippi DDR to 100% in FY10 and FY11.

**Operation during Fiscal Year.** In Pennsylvania, a Detailed Project Report (DPR) was executed for the Clymer Project. Phase I of the DPR was completed and presented to Local Sponsors (Borough of Clymer). It was determined that a Non-Structural Project was the least cost plan. Clymer Borough Officials have requested additional time for them to obtain non-federal funding to proceed into Phase II.

In West Virginia, the Design Phase continued for Philippi at a slower than expected pace. Post Katrina design changes are being incorporated into the Philippi Design Documentation Report. Efforts for Belington and Parsons were stalled in FY09 but will resume in late FY10

**Flood Control – Reservoirs**

**12. BERLIN LAKE, OH**

**Location**. Dam is on Mahoning River about 73 miles above its confluence with Shenango River. It is about 10 miles above existing Milton Reservoir Dam and 35 miles upstream from Warren, Ohio. Reservoir is in Portage, Mahoning and Stark Counties, OH. (See Geological Survey charts for Warren, Ravenna, and Alliance, OH.)

**Existing Project.** A reservoir for flood control and water supply. Dam consists of a partially controlled, concrete gravity, center spillway flanked by rolled-earth fill abutment sections joining valley sides. Authorized project is complete and in operation for flood control and low water regulation purposes in industrialized Mahoning Valley below. Construction of dam was started in January 1942 and completed in June 1943. Present project lands consist of 6,885.3 acres in fee and 1,098.7 acres in easements. For further project description, see Annual Report for 1962, page 1233.

**Local Cooperation.** None required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during Fiscal Year.** Operations & Maintenance, General: Reservoir was operated as required and necessary repairs were made to structures and appurtenances in FY09. The following major maintenance items was accomplished using ARRA funding: Replaced Maintenance Building Roof with contract of $94,000. Completed repairs of the Tainter Crest Gates and machinery to reduce risk of complete gate failure and reduce future maintenance costs. (Total cost was $3.6M of which $2.4M were ARRA funds.) Repair and Seal Parking Lots & upgrade trails, Mill Creek Day Use Area utilizing $89,116. In addition, the Mill Creek Recreation area paving contract was awarded to complete $447,037 worth of additional paving and road maintenance using regular O&M funds. Estimated flood control benefits achieved by this

reservoir for FY09 were $12,851,000; total flood control benefits through September 2009 were $1,386,497,000.

### 13. CONEMAUGH RIVER LAKE, PA

**Location.** Dam is on Conemaugh River in Indiana and Westmoreland Counties, PA, 7.5 miles above junction of Conemaugh River and Loyalhanna Creek, which form the head of the Kiskiminetas River. It is about 2 miles northeast of Tunnelton, PA, and about 42 miles east of Pittsburgh, PA. Reservoir is in Westmoreland and Indiana Counties, PA. (See Geological Survey Charts for Latrobe, New Florence and Elders Ridge, PA.)

**Existing Project**. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides and an earth embankment ending in right abutment. Authorized project is complete. Reservoir system is designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Present project lands consist of 7608.7 acres in fee and 522.8 acres in easements. Project authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1217.

**Local Cooperation.** None required by law.

**Licenses.** A non-federal hydropower project utilizing Conemaugh Lake was constructed downstream of the dam under FERC Licenses 3207. The 15-megawatt project began commercial operation on February 6, 1989. It is owned by National Renewable Resources, Inc.

**Operations during Fiscal Year.** Operation & Maintenance, General: In FY09, contract was awarded to do repairs on the concrete of the dam for $125,000. A contract under ARRA for $25,000 was awarded to re-roof the dam site recreation area restroom. Reservoir was operated for benefit of flood control as required, and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this reservoir for FY09 were $845,000; total flood control benefits through September 2009, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were $2,157,007,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities were continued.

### 14. CROOKED CREEK LAKE, PA

**Location.** Dam is on Crooked Creek 6.7 miles above junction of creek with Allegheny River near Ford City, PA, and about 32 miles northeast of Pittsburgh, PA. (See Geological Survey Charts for Freeport and Elders Ridge, PA.)

**Existing Project**. A flood control reservoir dam of earth-fill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in March 1938 and completed in October 1940. Present project lands consist of 2,561.7 acres in fee and 100.22 acres in easements. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1213.

**Local Cooperation.** None required by law

**Operations during Fiscal Year.** Operations & Maintenance, General: Reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. In FY 09 furnaces in the resource manager's office were replaced for $12,460. Repairs to the inside of the control tower for the dam are under contract for $213,849. This work was completed under ARRA funds. Replacement of the Service Bridge Railing at the control tower was undertaken at a total cost of $113,941. Congress has mandated the transfer of 97.48 acres of fee land to Manor Township for operation of the Armstrong Horse Park. Activities to facilitate this transfer continued in 2009. Estimated flood control benefits achieved by this reservoir for FY09 were $59,000; total benefits achieved through September 30, 2009, revised to reflect damages prevented in down stream districts as well as Pittsburgh District, were estimated at $539,629,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued.

### 15. EAST BRANCH, CLARION RIVER LAKE, PA

**Location.** Dam is in Elk County, PA on East Branch of Clarion River above Middle Fork, 7.3 miles above junction of East and West branches of Clarion River at Johnsonburg, PA, and about 105 miles northeast of Pittsburgh, PA. Reservoir is in Elk County, PA. (See Geological Survey Chart for Mount Jewett, PA.)

**Existing Project**. A reservoir for flood control and low-water regulation. Dam is rolled-earth fill type with gate-controlled concrete tunnel under right abutment and a paved uncontrolled spillway on left abutment slope. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Clarion River Valley below and for flood control as a unit of a coordinated reservoir system for protection of Pittsburgh and upper Ohio Valley, generally. Construction of dam was started in June 1947 and completed in July 1952. Present project lands consist of 287.2 acres in fee and 1,296.7 acres in easements. Project was selected for construction under general authorization for Ohio River Basin in Flood Control Acts of 1938 and 1944. For further project description.

See Annual Report for 1962, page 1206.

In 2006 East Branch Dam was classified to be Dam Safety Action Class II (Urgent, unsafe or potentially unsafe). In January 2008 a potential failure mode analysis and risk assessment was conducted and concluded that the dam under normal operations presents a potential hazard to downstream life and

property that exceeds established standards. This led to the decision in February 2008 to operate the Lake at a lower pool until it can be determined what permanent measures would be implemented to reduce the risk of failure of the dam due to the potential for internal erosion of the embankment. An Interim Risk Reduction Measures Plan was completed and other measures were implemented including 24 hour a day seven days a week staffing. An Issues Evaluation Study was completed and concluded that the issues should be further evaluated and alternatives and a recommendation for permanent remediation be included in a Dam Safety Modification Study. The Dam Safety Modification Study is scheduled to be complete in FY10.

**Local Cooperation.** None required by law.

**Operations during Fiscal Year.** Operations & Maintenance, General: reservoir was operated for flood control and low-water regulation, as required; and necessary repairs were made to structures and appurtenances. For example, in FY09 a contract was awarded for $133,500 to replace a fuel tank at the control tower, re-seal stilling basin joints, and provide the outflow gage house with upgraded electric service and heaters. In order to reduce risk to boating public and improve water safety due to the interim pool reduction measures currently in place, $64,760 of ARRA funding was used to replace the boat launch dock system. A contract was awarded for $29,000 to construct an extension of the boat ramp at the dam so as to not preclude all recreation use on the lake. Some reservoir management activity was performed throughout the year comprising sanitation measures, conservation, land management and operation of public-use facilities. Estimated flood control benefits achieved by this reservoir for FY09 were $466,000; Total flood control benefits for this reservoir through September 30, 2009 were $85,376,000.

## 16. KINZUA DAM & ALLEGHENY RESERVOIR, PA & NY

**Location.** Dam site is on Allegheny River 7 miles above Warren, PA, and 198 miles above mouth of river at Pittsburgh, PA. Reservoir is in Warren and McKean Counties, PA, and Cattaraugus County, NY. (See Geological Survey Charts for Warren and Kinzua, PA-NY, and Randolph and Salamanca, NY.)

**Existing Project.** Reservoir provides flood control, low water regulation and recreation. Dam consists of a combination concrete gravity structure and rolled earth embankment with gate-controlled spillway and discharge conduits controlled by slide-gates in gravity section. Construction of project, initiated in February 1960, is complete. Construction of dam was started in September 1960 and completed in December 1965. Development of recreation area at Onoville under a cost-sharing agreement with Cattaraugus County was completed in June 1978. Present project lands consist of 2,646 acres in fee and easements over 22,420.0 acres. For further details see Annual Report for 1962, page 1202. Project was authorized by Flood Control Acts of 1936, 1938 and 1941.

**Local Cooperation**. None required by law.

**Licenses.** The Federal Power Commission granted a license to Pennsylvania Electric Company and Cleveland Electric Illuminating Company on December 28, 1965, for the joint construction, operation and maintenance of a 435-megawatt pumped-storage installation (FPC Project No. 2280). The project is complete. Present ownership is with First Energy Corporation.

**Operations during Fiscal Year**. Operations and Maintenance, General: In FY09, Major maintenance items included awarding contracts totaling $354,193 to complete remedial repairs to the dam service bridge and internal elevator. ARRA funding included a contract for improvements to the Dam Service Road security gate for 6,000, and a contract was awarded to replace the roof and gutters of the maintenance building for $135,000. ARRA funds of $55,000 were also used to replace a water line to an overlook restroom in the Bent Run Area. Reservoir was operated for benefit of flood control, hydropower, fish and wildlife, recreation and low water regulation, as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this reservoir for FY09 were $1,621,000. Total flood control benefits for this reservoir through September 30, 2009 were $1,208,314,000.

## 17. LOYALHANNA LAKE, PA

**Location.** Dam is on Loyalhanna Creek, 4.5 miles above junction of creek with Conemaugh River at Saltsburg, PA, and about 29 miles east of Pittsburgh, PA. Reservoir is in Westmoreland County PA. (See Geological Survey Chart for Latrobe, PA).

**Existing Project.** A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides, and an earth embankment section ending in left abutment. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in October 1939 and completed in June 1942. Present project lands consist of 3,330.8 acres in fee and easements over 86.7 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1219.

**Local Cooperation.** None required by law.

**Operations during Fiscal Year.** Operations & Maintenance, General: In FY08, the reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. Major maintenance was performed to the dam service bridge replacing parts of the concrete decking and refurbishing bearing and crane rails at a cost of $1,162,247. Replacement of the trash boom and gantry crane cable reels was completed at a cost of $154,423. Estimated flood control benefits achieved by this project for FY09 were $197,000. Total benefits for this reservoir through September 30, 2009 were $519,511,000. Activities under reservoir management

program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

## 18. MAHONING CREEK LAKE, PA

**Location.** Dam is on Mahoning Creek in Armstrong County, PA, 22.9 miles above junction of creek with Allegheny River. It is about 6.50 miles southeast of New Bethlehem, PA, and about 51 miles northeast of Pittsburgh, PA. Reservoir is in Armstrong, Indiana and Jefferson Counties, PA. (See Geological Survey Charts for Rural Valley and Smicksburg, PA).

**Existing Project.** A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam started in February 1939 and was completed in June 1941. Present project lands consist of 2,519.36 acres in fee and easements over 83.5 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1210.

**Operations during Fiscal Year.** Operations & Maintenance, General: Reservoir was operated for benefit of flood control as required and necessary repairs were made to structures and appurtenances. In FY08 a contract was awarded for Dam Concrete Repairs for $1,441,000. In FY09 ARRA funding of $2,828,453 enabled the remainder of this critical maintenance to be completed. Contracts were also awarded with $169,331 of ARRA funds for critical health and safety needs to replace the dam access road guard rail, replace the furnace and roof at the manager's office and replace unsafe playground equipment. Replacement of cable reels and wire ropes at the dam was also completed with $179,955 of O&M funding. In FY09, estimated flood damages prevented by this project were $137,000; total benefits through September 30, 2009, revised to reflect damages prevented in downstream districts as well as Pittsburgh District were $670,295,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance for public-use facilities continued.

## 19. MICHAEL J. KIRWAN DAM & RESERVOIR, OH

**Location.** Dam site is on West Branch of Mahoning River which joins Mahoning River at Newton Falls, OH. It is 11 miles above mouth of branch and about 15 miles upstream from Warren, OH. Reservoir is in Portage County, OH. (See Geological Survey Charts for Ravenna, Garrettsville, Chagrin Falls, and Kent, OH.)

**Existing Project**. Reservoir provides flood control, low-water regulation and recreation. Dam consists of a rolled-earth embankment structure with gate-controlled outlet works and an uncontrolled side-hill spillway through left abutment. Authorized project is completed and in operation for flood control and low water regulation purposes. Present project lands consist of 6,298.9 acres fee and easements over 27.9 acres. For further description see Annual Report for 1962, page 1231 (West Branch Reservoir, Mahoning River, Ohio). Project was authorized by 1958 Flood Control Act (H. Doc. 191, 85th Cong. 1st sess.), with local contribution requirements modified by Flood Control Act of 1960. Federal costs of completed project are $17,370,000. Local interests contributed $3,230,000 during period of construction bringing initial project cost to $20,600,000. The State of Ohio has a lease from the Secretary of the Army for development and operation of recreation facilities in the reservoir area.

**Local Cooperation.** Local interests must contribute $5,200,000 for water pollution abatement and for municipal and industrial water supply purposes, of which $3,230,000 was paid in cash during construction. Unpaid balance at time project is placed in operation, $1,970,000, will be paid in cash at that time or on an annual basis. Of the unpaid balance of contributed funds due and payable, payment in full of Trumbull County's share in the amount of $663,040 has been received. Mahoning County elected to pay their share ($1,306,960) in 50 annual installments of $50,323.32, including interest.

**Operations during Fiscal Year**. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. In FY09 $497,902 was expended on major maintenance to repair a failed embankment area at the dam abutment, reline the culvert under the maintenance access road, resurface the maintenance access road, and re-roof the manager's office. ARRA funding was utilized to award a contract for $140,497 to resurface the dam access and crest roadway. Estimated flood control benefits achieved by this project for FY09 were $5,933,000. Total benefits for this reservoir through September 30, 2009 were $632,244,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as state of Ohio has jurisdiction over most of the recreation in reservoir area.

## 20. MOSQUITO CREEK LAKE, OH

**Location.** Dam is on Mosquito Creek, 12.6 miles above junction of creek with Mahoning River at Niles, OH, and about 18 miles northwest of Youngstown, OH. (See Geological Survey Charts for Bristolville and Kinsman, OH, and PA.)

**Existing Project**. A reservoir for flood control, low-water regulation and water supply storage. Dam is rolled-earth fill type with outlet facilities through dam, and an uncontrolled natural wasteway to discharge overflow from reservoir. Authorized project is complete and in operation for flood control and low-water regulation purposes in industrialized Mahoning and Beaver Valleys below. Construction of dam was started in July 1943 and was ready for beneficial use in January

1944. Present project lands consist of 11,180.4 acres in fees and easements over 276.0 acres. State of Ohio has a license from Secretary of the Army for development and operation of recreation facilities in reservoir area. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1228.

**Local Cooperation.** There is a water supply agreement with the City of Warren for municipal and industrial water storage in an amount equal to 11.1% of total reservoir storage. The City makes annual payments for this storage. No other local cooperation is required at completed project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during Fiscal Year.** Operation & Maintenance, General: Reservoir was operated for benefit of flood control and low-flow regulation as required and necessary repairs were made to structures and appurtenances. In FY09 $121,127 was expended for sealing the outlet conduit and training wall joints at the dam. Estimated flood control benefits achieved by this reservoir for 2009 were $3,597,000. Total flood control benefits for this reservoir through September 30, 2009 were $277,133,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of certain public-use facilities continued. This work was limited in scope as State of Ohio has jurisdiction over most of the recreation in reservoir area.

## 21. OHIO RIVER BASIN (PITTSBURGH DISTRICT)

**Location.** A series of dikes, floodwalls, channel improvements, and reservoirs/lakes in Ohio River Basin within Pittsburgh District.

**Existing Project**. Individual projects considered in comprehensive plan within Pittsburgh District. (See Tables 18-B, 18-E and 18-K on Acts authorizing existing projects, local protection projects and reservoirs.)

**Operations during Fiscal Year**. New Work: none by the United States except as stated in individual projects. Completed local protection projects operated and maintained by local interests, including those projects for which individual reports have been included.

## 22. SHENANGO RIVER LAKE, PA & OH

**Location.** Dam is on Shenango River about 0.8 mile above Sharpsville, PA, and about 33 miles above junction of river with Mahoning River, which unite near New Castle, PA, to form Beaver River. Reservoir is in Mercer County, PA and Trumbull County, OH. (See Geological Survey Chart for Kinsman, OH, and Shenango, PA.)

**Existing Project.** A reservoir for flood control, low-flow augmentation and recreation. Dam consists of a concrete gravity structure with gate-controlled outlet works and an uncontrolled center spillway section. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Shenango River valley below and for flood control as a unit of a coordinated reservoir system for protection of Shenango River valley and the Beaver and upper Ohio River Valley, generally. Construction of dam was started in March 1963 and completed in May 1965. Present project lands consists of 14,485.94 acres in fee and easements over 198 acres. Approximately 65.94 acres in abandoned railroad right-of-way were acquired for project use. Future work consists of completion of project lands of any additional recreation facilities as required to serve the public needs. For further project description, see Annual Report for 1962, page 1230. Project was authorized by 1938 Flood Control Act.

**Local Cooperation.** None required by law.

**Operations during Fiscal Year.** Operations and Maintenance, General: Reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. In FY09, a contract was awarded to install a new roof on the dam pylon building for $37,000. Under ARRA a contract was awarded to replace the Service Gate Position Indicators and Outflow warning system for $304,494. Estimated flood control benefits achieved by this reservoir for FY09 were $1,382,000; Total flood control benefits for this reservoir through September 30, 2009 were $158,778,000. Continuing activities under the reservoir management program are comprised of sanitation measures, conservation, land management and operation and maintenance.

## 23. STONEWALL JACKSON LAKE, WV

**Location.** In Lewis County, North Central West Virginia, on the West Fork River, this joins the Tygart River at Fairmont, WV to form the Monongahela River. Dam site is located on Route 30 at Brownsville, WV, about 4 miles south of Weston and 72 miles above mouth of West Fork River at Fairmont, WV. (See Geological Survey Charts for Weston and Crawford, WV.)

**Existing Project.** Provides for construction of a reservoir for flood control, water supply, water quality control, area redevelopment and recreation. Dam is concrete gravity type, 95’ high and 620’ long. Outlet works consist of two multi-level sluices and three fixed-level sluices, spillway is uncontrolled. Storage capacity is 74,650 acre-feet controlling an area of 102 square miles. A station hydropower plant completed in 1995 supplies power to the dam, with excess power being sold to an electric utility company. Project was authorized by 1966 Flood Control Act. Estimated initial federal cost for new work (1991) is $231,000,000 (includes an estimated $24,900,000 reimbursement by non-federal interests.) Present project lands consist of 20,451 acres in fee and easements over 398 acres.

The Corps worked with the State of West Virginia to revise the Master Plan to incorporate higher revenue

producing recreation facilities, including a lodge, golf course, cabins and camping. The revised Master Plan was approved by the Corps in 1992. The FY 1992 Energy and Water Development Appropriations Act allow the state cost-sharing credits for all of these facilities except the golf course. In March 1994, the State and the Assistant Secretary of the Army for Civil Works executed an amendment to the 1977 Stonewall Jackson Lake Recreation Cost-Sharing Contract to reflect these credits.

The state must design and build the approved remaining recreation facilities by March 2006, in accordance with the schedule and conditions set forth in the amended contract. The state broke ground in July 2001 for the $50,000,000 Stonewall Resort, which includes a 200-room lodge, conference center, spa, cabins and more camping areas, in addition to a championship 18-hole golf course that is not eligible for cost share credit. By the end of FY 2002, the state had essentially completed and opened to the public all facilities except miscellaneous recreation facilities. The District is currently completing miscellaneous real estate actions related to the original construction with the project

**Local Cooperation.** The reservoir contains 2,200 acre feet of storage designated for the purpose of municipal and industrial water storage. The storage is not under contract and there are no prospects of near-term water supply agreements. In accordance with the Federal Water Project Recreation Act local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement to make arrangements for repayment, under the provisions of the Water Supply Act of 1958, as amended, of that part of the construction cost and annual operation, maintenance and replacement costs allocated to municipal and industrial water supply, an amount presently estimated at $4,350,000 for construction; and $15,000 annually for operations, maintenance and replacements. Also, in accordance with Federal Water Project Recreation Act, local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement, pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first costs of the reservoir project allocated to recreation and fish and wildlife enhancement, an amount presently estimated at $24,810,000, bear all costs of operation, maintenance and replacement of recreation and fish and wildlife land and facilities, the amount involved being currently estimated on an average annual basis to be $457,000, exercise to the full extent of their legal capability, control against removal of stream flow made available for water quality control; and contribute to the control of pollution of streams subject to low-flow augmentation by adequate treatment or other methods of controlling wastes at their source. The requirements of Section 221 were amended in 1971 to exempt assurances for future demands for water supply pursuant to the Water Supply Act of 1958 from the contractual requirements of the Act. Accordingly, the city of Weston, WV has provided assurances that it will enter into a water supply contract with the Department of the Army within a period of time which will permit paying out the costs allocated to the water supply storage within the life of the project. A recreation cost-sharing contract, in accordance with the requirements of the Federal Water Project Recreation Act, PL 89-72, was executed by the State of West Virginia on March 27, 1977. Local cooperation assurances for recreation cost-sharing were executed by the Governor and Attorney General of West Virginia on May 29, 1973. In this connection, Section 8 of PL 92-222 deleted the requirement that the State of West Virginia "hold and save the United States free from damages resulting from water rights claims due to construction and operation of the project." Legislation relieving Stonewall Jackson Lake, WV, project of the requirements of Section 221, PL 96-611 was contained in Water Resources Development Act of 1974 signed by the President on March 7, 1974.

**Operations during Fiscal Year.** Operations and Maintenance, General: In FY09 the reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved for this project for FY09 were $8,886,000; total flood control benefits through September 30, 2009, were $205,049,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as State of West Virginia has jurisdiction over most of the recreation in reservoir area.

## 24. TIONESTA LAKE, PA

**Location.** Dam is on Tionesta Creek, 1.25 miles above junction of creek with Allegheny River at Tionesta, PA, and about 78 miles northeast of Pittsburgh, PA. Reservoir is entirely in Forest County, PA. (See Geological Survey Charts for Tionesta, Tidioute and Sheffield, PA.)

**Existing Project**. A flood control reservoir dam of earth fill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in May 1938 and completed in January 1941. Present project lands consists of 2,794.77 acres in fee and easement over 13.1 acres. Approximately 2.53 acres of fee were disposed at the project. Future work consists of provision on project lands of additional recreational facilities as required to serve public needs. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1203.

**Local Cooperation**. None required by law.

**Operations during Fiscal Year.** Operation & Maintenance, General: reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. In FY09 major maintenance was completed in the dam control tower and on gate machinery for a cost of $578,058. Work included refurbishing gate no. 3 and

emergency gate, completing electrical upgrades and motorizing the 36-inch gate valves, installing 3 new flat wire ropes on gates, and renovating service gate #2. A contract was awarded to replace two failed drainage culverts and sixty feet of sewer line for $74,432 in order to assure continued health and safety for employees and recreationists. Estimated flood control benefits achieved for this project for FY09 were $159,000; total flood control benefits through September 30, 2009, were $543,588,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public-use facilities continued.

## 25. UNION CITY DAM, PA

**Location.** In Erie County, northwestern PA, on French Creek, a tributary of Allegheny River. Dam site is 24 miles upstream from Cambridge Springs, PA, and 41 miles upstream from Meadville, PA. (See Geological Survey Chart for Union City, PA - NY.)

**Existing Project**. A flood control reservoir dam of earth embankment non-gated type with uncontrolled side-channel spillway. Outlet works consist of a lower outlet located in valley floor constructed of reinforced concrete conduit 8' by 4.5' and an upper outlet consisting of an uncontrolled slot 9.5' wide through the north end of the ogee weir in the spillway. Dam is 1,420' long at top rising 88' above streambed and provides gross capacity of 47,640 acre-feet from a drainage area of 222 square miles. Project authorization was modified to provide for a conservation pool and addition of recreation facilities. On November 5, 1974, a referendum proposal was defeated by the constituents of Erie County in regard to the cost-sharing for construction of recreation facilities. In view of the foregoing, all action toward implementation of the authorized project modification was discontinued. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth, Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Initial highway relocations were completed in October 1968 and remaining highway relocations were completed in May 1972. Construction of the dam was started in July 1968 and completed in September 1971. Present project lands consist of 161.4 acres in fee and easements over 2,410.29 acres. Existing project was authorized by 1962 Flood Control Act.

**Local Cooperation.** Local interests are required to inform affected interests in French Creek Basin at least annually, that the system of reservoirs of which Union City Dam is a part, will not provide protection against maximum floods. On November 10, 1964 the Department of Forests and Waters of the Commonwealth of Pennsylvania furnished formal assurances of local cooperation in respect to notifying local interests at least annually that the system of reservoirs will not provide protection against maximum floods. A referendum on the ballot during the November 1974 election regarding the approval to cost-share the maintenance of a summer pool was defeated by the local voters.

**Operations during Fiscal Year.** Operation & Maintenance, General: In FY09 maintenance of the structure and appurtenances was performed as required. The right bank dam drainage gutter was repaired for $73,000. This dam acted as an uncontrolled detention type dam during the fiscal year. Estimated flood control benefits achieved for this project for FY09 were $3,474,000; Total flood control benefits for this reservoir through September 30, 2009, revised to include downstream districts, were $74,926,000.

## 26. WOODCOCK CREEK LAKE, PA

**Location.** In Crawford County, northwestern PA, on Woodcock Creek, a tributary of French Creek. Dam site is about 4.1 miles above mouth of Woodcock Creek and about 5 miles northeast of Meadville, PA. (See Geological Survey Chart for Meadville, PA.)

**Existing Project.** A flood-control reservoir dam of rolled-earth embankment type, gate-controlled outlet works with a 6 foot-wide by 7.75 foot-high conduit and uncontrolled saddle spillway on the left abutment. Dam is 4,650' long at top rising 90' above streambed and provides for gross capacity of 20,000 acre-feet from a drainage area of 46 square miles. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth. Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Authorized project is complete. Construction of dam was started in July 1970 and completed in July 1973. Land acquired for project consists of 1,731.5 acres in fee and easements over .56 acres. Project was authorized for flood control and recreation by 1962 Flood Control Act. Storage for water quality control was added to the project during the preconstruction planning stage.

**Local Cooperation.** Local interests must inform affected interests in French Creek Basin at least annually, in a manner satisfactory to District Engineer, that a system of reservoirs of which Woodcock Creek is a part, will not provide protection against maximum floods. Pennsylvania Department of Forests and Waters assumed responsibility of local cooperation for project.

**Operations during Fiscal Year.** Operation & Maintenance, General: In FY09 maintenance of the structure and appurtenances was performed as required. Estimated flood control benefits achieved by this project for FY09 were $385,000; Total flood control benefits achieved by this project through September 30, 2009, revised to include downstream districts were $33,035,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

## 27. YOUGHIOGHENY RIVER LAKE, PA & MD

**Location.** Dam is on Youghiogheny River about 74.2 miles above its junction with Monongahela River at McKeesport, PA. It is 1.2 miles upstream from Confluence, PA, and about 57 miles southeast of

Pittsburgh, PA. Reservoir is in Fayette and Somerset Counties, PA, and Garrett County, MD. (See Geological Survey Charts for Confluence, PA, Accident, MD, West Virginia and Pennsylvania.)

**Existing Project.** Reservoir for flood control, low-flow augmentation, pollution abatement, and recreation purposes. Dam is rolled-earth fill type with separate uncontrolled side channel spillway and tunnel outlet works. Authorized project is complete. For flood control, reservoir is operated as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in June 1940 and completed in May 1944. Present project lands consist of 3,914.9 acres in fee and easements over 0.62 acres.

Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1223.

**Local Cooperation.** None required.

**Licenses.** A non-federal hydropower project utilizing releases from Youghiogheny River Lake was constructed in accordance with FERC License 3623. D/R Hydro Company is the authorized representative of the Licensee, Youghiogheny Hydroelectric Authority, and is responsible for operation of the plant. It has a 10-megawatt capacity. The plant began commercial operation on December 7, 1989.

**Operations during Fiscal Year.** Operations & Maintenance, General: In FY09 the reservoir was operated for benefit of flood control and low flow augmentation, as required and necessary repairs were made to structures and appurtenances. Total flood control benefits achieved by this project through September 30, 2009 were $3,827,000; revised to include damages prevented in downstream districts, were $538,948,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

## 28. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within boundaries of their respective districts. Inspections were made of completed units transferred to local interests for maintenance and operation and local interests were advised, as necessary, of measures required to maintain these projects in accordance with standards prescribed by regulations. (See Table 18-L for dates of inspections.)

Costs for FY09 were $302,060; total cost to September 30, 2009 was $3,400,073.

## 29. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 18-E on other authorized flood control projects.

## 30. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATIONS

**For emergency bank protection pursuant to Section 14, 1946 Flood Control Act, PL 79-526, as amended**

See Table 18-M.

**For flood control activities pursuant to Section 205, 1948 Flood Control Act, PL 80-858, as amended**

See Table 18-M.

**For aquatic ecosystem restoration pursuant to Section 206, 1996 WRDA, PL 104-303, as amended**

See Table 18-M.

**For modification for improvement of the environment pursuant to Section 1135, 1986 WRDA, PL 99-662, as amended**

See Table 18-M.

**For flood control and coastal emergencies pursuant to 1955 Emergency Flood Control Funds Act, PL 84-99 and antecedent legislation**

See Table 18-M.

### Environmental

## 31. CONEMAUGH RIVER BASIN, NANTY GLO, PA ENVIRONMENTAL RESTORATION

**Location.** Conemaugh River Basin is an area of 1,372 square miles located in southwestern Pennsylvania in Cambria and Indiana Counties. The Nanty Glo project is located in the headwaters of South Branch Blacklick Creek in the Borough of Nanty Glo, Cambria County.

**Existing Projects.** Authorized by WRDA 1992 (PL 102-580), Section 331, the Conemaugh River Basin Reconnaissance Report completed in February 1994 identified seven sites as candidates for ecosystem restoration studies. Remediation of a site at Nanty Glo, PA was identified as highest priority. The project involves restoration of environmental damage caused by the abandoned Webster Coal Mine. Its discharge accounts for much of the acid load in the creek and approximately 5% of the acid load downstream at the Corps' Conemaugh River Lake. Water from the mine is discharged into Pergrin Run, approximately 1,300' upstream from its confluence with South Branch Blacklick Creek. The project will involve a passive treatment system consisting of dual vertical flow ponds and a wetland. The project will treat the Webster Mine discharge, design flow of 450 gallons per minute with a PH of 3.0. The vertical flow ponds provide 3.9 acres of surface treatment area and the wetland provides 2.3 acres of surface treatment area. A pipe will carry water from Webster Mine to the vertical flow ponds. The PH of the treated design flow discharged from the wetland

to Pergrin Run will be 6.5 Project implementation will restore the lower seven miles of the creek and promote return of a viable fishery to the waters.

Notice to proceed issued September 20, 2002. Amount of contract was $4,200,000. Contractor was Charles J. Merlo Construction Incorporated. Contract was completed in October 2004.

**Local Cooperation.** The non-federal cost-sharing sponsor is the Cambria County Conservation and Recreation Authority (CCCRA). CCCRA has been the cost-sharing partner on this project since inception in l994. The CCCRA will cost share 25% of total project costs.

**Operations during Fiscal Year**. None. Closeout scheduled in FY 2007

## 32. SOUTH CENTRAL, PA ENVIRONMENTAL IMPROVEMENT WORK

**Location.** Projects under this program in the Pittsburgh District are located in the South Central, PA counties of Allegheny, Armstrong, Cambria, Fayette, Greene, Indiana, Somerset Washington and Westmoreland.

**Existing Projects**. Section 313 authorizes the Secretary of the Army to establish a program to provide design and construction assistance to non-federal interests in south central Pennsylvania including projects for waste water treatment and related facilities, water supply, storage, treatment, and distribution facilities, and surface water resource protection and development. A total of 54 projects are physically complete. The largest project was a regional wastewater treatment plant and interceptor system for the Forest Hills Municipal Authority located in the suburbs of Johnstown, PA.

**Local Cooperation**. Legislation requires the project to be cost shared at no more than 75% federal funds and a minimum of 25% non-federal funds. Project Partnership Agreements are executed between the Corps of Engineers and the non-federal sponsors. Operation and maintenance of the projects will be at 100% non-federal costs.

**Operations during Fiscal Year.** During FY09 completed work at Lower Ten Mile, Menallen (Phase II), and Sutersville-Sewickley. Continued design of projects at Bentleyville, Center-West, Derry-New Alexandria, Dry Tavern, Dunbar (Wastewater Treatment Facility), Dunbar (Sewage System), El Rama, German Township, Gilpin, Jackson Township, Kiski Township, Lower Ten Mile (Phase II), Mt Pleasant, Pegasus, Perry Township, Point Marion (Waterline), Point Marion (Sewer), Ralphton, SW PA Water, Swan Plan, Upper Allegheny and Washington Township. Continued construction of projects at North Union, Parks Township, and Tri-County.

Other projects will be identified as funds become available.

## 33. THREE RIVERS WET WEATHER DEMONSTRATION PROJECT

**Location.** The Three Rivers Wet Weather Demonstration Program administers grants to Allegheny County communities for innovative, cost-effective, watershed-based methods of wet weather sewer overflow elimination and management.

**Existing Project.** The District is working with the Three Rivers Wet Weather Demonstration Program under Section 219 of the 1992 WRDA, as amended. Under this program, the District is authorized to provide assistance to non-federal interests for carrying out water-related environmental infrastructure and resource protection and development project in Allegheny County. These projects include wastewater treatment and related facilities and water supply, storage, treatment and distribution facilities. Projects worked on during FY09 were Aspinwall Borough**,** Homestead Run, Pine Hollow Run, Sheraden Park, and Sheraden Park (Phase II).

**Local Cooperation** Legislation requires the project to be cost shared at 75% federal and 25% non-federal. Project Partnership Agreements are executed between the Corps of Engineers and the non-federal sponsors. Projects are operated and maintained at 100% non-federal costs.

**Operations during Fiscal Year.** In FY09, the District worked on design of projects at Aspinwall Borough, Homestead Run, Sheraden Park (Phase II), and Pine Hollow Run. Continued construction of the Sheraden Park project.

Other projects will be identified as funds become available.

## 34. FORMERLY USED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

**Location.** Shallow Land Disposal Area (SLDA) is a 44-acre site in Armstrong County, Pennsylvania, about 23 miles east-northeast of Pittsburgh.

**Existing Project**. The site includes ten trenches containing estimated 23,500-36,000 cubic yards of potentially contaminated waste and soil. The total trench surface-area is 1.2 acres. The trenches are separated into two general areas; one area containing trenches 1 through 9 and a second area containing trench 10. Uranium and thorium contaminated wastes consisting of process wastes; equipment, scrap and trash from the nearby Apollo nuclear fuel fabrication facility were disposed of in the SLDA between 1961 and 1970. The uranium in the trenches is present at various levels of enrichment from highly depleted to highly enrich. Americium and plutonium, whose presence is attributed to storage of equipment used in the Parks Facility, have been detected in surface soils in trench 10 area. Nuclear Materials and Equipment Corporation (predecessor of current owner BWX Technologies) conducted the disposals according to the Atomic Energy Commission regulations. The NRC license requires BWXT to properly maintain the site to ensure the protection of workers and the public.

PL 107-117, Section 8143 directs the Corps of Engineers to clean up radioactive waste at the SLDA site, consistent with the Memorandum of Understanding between the United States Nuclear

Regulatory Commission and United States Army Corps of Engineers dated July 5, 2001 for the coordination of cleanup and decommissioning of FUSRAP sites with NRC-licensed facilities and in accordance with Section 611 of PL 106-60. The SLDA site will be remediated following the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process.

**Local Cooperation.** The project is currently conducted with congressionally authorized FUSRAP funds.

**Operations during Fiscal Year.** Significant accomplishments for Parks Township, PA Shallow Land Disposal Area included the completion of the Proposed Plan and the Record of Decision (ROD).and the initiation of the remedial design for $1,000,000. The ROD recommends excavation and disposal of radioactively contaminated material out of state at a licensed facility. The remedial design was completed in FY09 as scheduled along with the Final Status Survey Plan. Mobilization at the site is scheduled to occur 2nd Qtr FY10 with remediation of the trenches scheduled to begin in the 4th Qtr 2010.

## 35. SURVEYS

### General Investigations

| | |
|---|---|
| Navigation Studies | $3,795,420 |
| Flood Damage Prevention Studies | 2,773 |
| Special Studies | 0 |
| Review of Authorized Projects | 0 |
| Miscellaneous Activities | 72,637 |
| Coordination with other Federal Agencies | 19,657 |
| Total Federal Cost for Fiscal Year | $3,890,487 |

## 36. COLLECTION & STUDY OF BASIC DATA

Federal costs this fiscal year were $127,157 for flood plain management services.

## 37. PRECONSTRUCTION, ENGINEERING & DESIGN

| | |
|---|---|
| Mon River, WV (project close out) | $0 |
| Weirton Port, WV | $0 |
| Total Federal Costs for Fiscal Year | $0 |

## TABLE 18-A COST & FINANCIAL STATEMENT

| See Sect. in Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total Cost to Sept 30, 2009 |
|---|---|---|---|---|---|---|---|
| **NAVIGATION** | | | | | | | |
| 1 | Allegheny River, PA | New Work Approp | --- | --- | --- | --- | 18,157,860[1] |
| | | New Work Cost | --- | --- | --- | --- | 18,157,860[1] |
| | | Maint Approp | 4,037,000 | 5,730,281 | 6,512,000 | 13,707,880 | 248,607,485[2] |
| | | Maint Cost | 3,935,426 | 5,723,622 | 6,435,828 | 9,458,432 | 244,143,283[2] |
| 2 | Emsworth, PA | New Work Approp | --- | --- | --- | 17,335,000 | 17,335,000 |
| | | New Work Cost | --- | --- | --- | --- | 0 |
| | | Maint Approp | --- | --- | --- | --- | 0 |
| | | Maint Cost | --- | 1,699 | 1,356 | --- | 3,055 |
| | | Rehab Approp | --- | 17,000,000 | 42,312,000 | 25,800,000 | 85,112,000 |
| | | Rehab Cost | --- | 13,579,653 | 9,410,430 | 3,200,429 | 26,190,512 |
| 3 | Monongahela River, PA & WV | New Work Approp | 49,745,000 | 63,272,000 | 40,400,000 | 57,387,800 | 916,692,635[3] |
| | | New Work Cost | 40,179,338 | 37,515,282 | 36,800,456 | 21,349,067 | 828,883,653[4] |
| | | Maint Approp | 16,221,000 | 12,467,000 | 15,884,000 | 29,825,234 | 490,743,822[5] |
| | | Maint Cost | 16,997,244 | 13,456,041 | 14,505,051 | 17,277,493 | 465,978,466[6] |
| | | Rehab Approp | --- | --- | --- | --- | 15,857,000 |
| | | Rehab Cost | --- | --- | --- | --- | 15,857,000 |
| 5 | Tygart Lake, WV | New Work Approp | --- | --- | --- | --- | 28,022,534[7] |
| | | New Work Cost | --- | --- | --- | --- | 28,022,533[7] |
| | | Maint Approp | 1,437,000 | 945,564 | 3,472,000 | 1,485,745 | 45,086,877[8] |
| | | Maint Cost | 1,725,411 | 960,249 | 1,144,648 | 3,711,178 | 44,976,643[8] |
| | | Rehab Approp | --- | --- | --- | --- | 89,000 |
| | | Rehab Cost | --- | --- | --- | --- | 88,999 |
| **FLOOD CONTROL – LOCAL PROTECTION** | | | | | | | |
| 6 | Chartiers Creek, PA | New Work Approp | --- | --- | --- | --- | 30,818,153[41] |
| | | New Work Cost | --- | --- | --- | --- | 30,818,513[41] |
| | | Maint Approp | --- | --- | --- | --- | 0 |
| | | Maint Cost | --- | --- | --- | --- | 0 |
| 7 | Elkins, WV | New Work Approp | --- | --- | --- | --- | 1,772,627 |
| | | New Work Cost | --- | --- | --- | --- | 1,772,627 |
| | | Maint Approp | 14,000 | 17,000 | 12,000 | 12,740 | 526,898 |
| | | Maint Cost | 14,071 | 15,814 | 13,170 | 12,771 | 526,899 |
| 8 | Johnstown, PA | New Work Approp | --- | --- | --- | --- | 8,865,388[9] |
| | | New Work Cost | --- | --- | --- | --- | 8,865,388[9] |
| | | Maint Approp | 987,000 | 149,105 | 1,253,000 | 2,239,900 | 18,877,167 |
| | | Maint Cost | 946,102 | 169,685 | 124,599 | 2,292,586 | 17,794,932 |
| | | Rehab Approp | --- | --- | --- | --- | 36.690,000[43] |
| | | Rehab Cost | --- | --- | --- | 5,249 | 36,431,708[44] |
| 9 | Punxsutawney, PA | New Work Approp | --- | --- | --- | --- | 3,586,107[10] |
| | | New Work Cost | --- | --- | --- | --- | 3,586,107[10] |
| | | Maint Approp | 12,000 | 14,000 | 727,000 | 18,620 | 2,523,189[11] |
| | | Maint Cost | 12,249 | 13,686 | 96,704 | 647,326 | 2,521,222[11] |
| 10 | Saw Mill Run Pittsburgh, PA | New Work Approp | 688,000 | 2,940,000 | 0 | 800,000 | 19,931,435[6] |
| | | New Work Cost | 72,987 | 2,322,664 | 38,167 | 31,463 | 17,011,474[6] |
| | | Maint Approp | --- | --- | --- | --- | 0 |
| | | Maint Cost | --- | --- | --- | --- | 0 |

## TABLE 18-A COST & FINANCIAL STATEMENT

| See Sect. in Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total Cost to Sept 30, 2009 |
|---|---|---|---|---|---|---|---|
| 11 | West Virginia & PA Flood | New Work Approp | 1,010,000 | --- | 1,673,000 | 2,000,000 | 10,660,647[47] |
| | | New Work Cost | 230,284 | 490,504 | 328,106 | 146,401 | 1,208,497 |
| | | Maint Approp | --- | --- | --- | --- | 0 |
| | | Maint Cost | --- | --- | --- | --- | 0 |
| **FLOOD CONTROL - RESERVOIR** | | | | | | | |
| 12 | Berlin Lake, OH | New Work Approp | --- | --- | --- | --- | 8,739,987[12] |
| | | New Work Cost | --- | --- | --- | --- | 8,739,987[12] |
| | | Maint Approp | 1,413,000 | 1,692,500 | 3,090,000 | 7,184,641 | 71,979,887[13] |
| | | Maint Cost | 1,454,474 | 1,548,485 | 3,221,176 | 2,171,968 | 66,948,366[13] |
| 13 | Conemaugh River Lake, PA | New Work Approp | --- | --- | --- | --- | 46,012,411[14] |
| | | New Work Cost | --- | --- | --- | --- | 46,012,411[14] |
| | | Maint Approp | 951,000 | 1,135,000 | 1,507,000 | 1,947,468 | 35,331,865[39] |
| | | Maint Cost | 968,110 | 1,108,702 | 964,996 | 2,081,887 | 34,877,240[39] |
| 14 | Crooked Creek Lake, PA | New Work Approp | --- | --- | --- | --- | 4,482,933[15] |
| | | New Work Cost | --- | --- | --- | --- | 4,482,933[15] |
| | | Maint Approp | 949,000 | 1,132,850 | 1,348,000 | 2,305,620 | 46,993,898[16] |
| | | Maint Cost | 1,039,855 | 1,126,748 | 1,308,850 | 2,095,974 | 46,738,601[16] |
| 15 | East Branch, Clarion River Lake, PA | New Work Approp | --- | --- | 1,920,000 | --- | 11,459,586[17] |
| | | New Work Cost | --- | --- | 954,509 | --- | 10,494,095[17] |
| | | Maint Approp | 904,000 | 899,000 | 1,666,000 | 2,583,740 | 31,548,044[18] |
| | | Maint Cost | 1,043,266 | 893,160 | 1,461,398 | 1,923,098 | 30,575,003[18] |
| 16 | Kinzua Dam & Allegheny Reservoir, PA & NY | New Work Approp | --- | --- | --- | --- | 109,305,076[19] |
| | | New Work Cost | --- | --- | --- | --- | 109,305,076[19] |
| | | Maint Approp | 1,422,000 | 1,620,309 | 1,274,000 | 2,254,719 | 45,013,074[19] |
| | | Maint Cost | 1,685,955 | 1,587,577 | 1,319,203 | 1,426,536 | 45,223,143[19] |
| | | Rehab Approp | --- | --- | --- | --- | 2,921,000 |
| | | Rehab Cost | --- | --- | --- | --- | 2,921,000 |
| 17 | Loyalhanna Lake, PA | New Work Approp | --- | --- | --- | --- | 5,727,531[20] |
| | | New Work Cost | --- | --- | --- | --- | 5,727,531[20] |
| | | Maint Approp | 864,000 | 944,526 | 1,093,000 | 2,542,540 | 35,392,626[21] |
| | | Maint Cost | 891,461 | 944,060 | 1,079,688 | 1,499,640 | 34,330,902[21] |
| 18 | Mahoning Creek Lake, PA | New Work Approp | --- | --- | --- | --- | 7,144,973[22] |
| | | New Work Cost | --- | --- | --- | --- | 7,144,973[23] |
| | | Maint Approp | 837,000 | 732,000 | 2,228,000 | 4,710,160 | 34,698,036[40] |
| | | Maint Cost | 835,113 | 735,543 | 959,912 | 2,962,782 | 30,927,856[40] |
| | | Rehab Approp | --- | --- | --- | --- | 47,033 |
| | | Rehab Cost | --- | --- | --- | --- | 47,033 |
| 19 | Michael J. Kirwan Dam & Reservoir, OH | New Work Approp | --- | --- | --- | --- | 17,376,097[24] |
| | | New Work Cost | --- | --- | --- | --- | 17,376,097[24] |
| | | Maint Approp | 730,000 | 709,000 | 1,409,000 | 2,814,440 | 27,424,358[25] |
| | | Maint Cost | 716,583 | 724,537 | 987,900 | 2,086,915 | 26,277,665[25] |
| 20 | Mosquito Creek Lake, OH | New Work Approp | --- | --- | --- | --- | 4,253,029[26] |
| | | New Work Cost | --- | --- | --- | --- | 4,253,029[26] |
| | | Maint Approp | 635,000 | 825,000 | 1,600,000 | 1,354,370 | 29,086,401[45] |
| | | Maint Cost | 637,938 | 832,485 | 1,193,932 | 1,631,715 | 28,953,197[45] |

## TABLE 18-A COST & FINANCIAL STATEMENT

| See Sect. in Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total Cost to Sept 30, 2009 |
|---|---|---|---|---|---|---|---|
| 21 | Ohio River Basin, PA | New Work Approp | --- | --- | --- | --- | 985,197[27] |
| | (Pittsburgh District) | New Work Cost | --- | --- | --- | --- | 985,197[27] |
| | | Maint Approp | --- | --- | --- | --- | 0 |
| | | Maint Cost | --- | --- | --- | --- | 0 |
| 22 | Shenango River Lake, | New Work Approp | --- | --- | --- | --- | 40,217,201[28] |
| | PA & OH | New Work Cost | --- | --- | --- | --- | 40,217,201[28] |
| | | Maint Approp | 1,604,000 | 1,971,262 | 2,777,000 | 3,210,080 | 66,835,080[29] |
| | | Maint Cost | 1,625,918 | 1,855,304 | 2,163,479 | 2,938,818 | 63,864,744[29] |
| 23 | Stonewall Jackson | New Work Approp | --- | --- | --- | 838,000 | 212,367,741 |
| | Lake, WV | New Work Cost | 22,906 | 1,056 | --- | 32,661 | 211,582,287 |
| | | Maint Approp | 782,000 | 787,611 | 1,036,000 | 1,084,720 | 18,902,915[51] |
| | | Maint Cost | 792,093 | 789,453 | 944,362 | 983,511 | 18,882,083[51] |
| 24 | Tionesta Lake, PA | New Work Approp | --- | --- | --- | --- | 7,792,378[30] |
| | | New Work Cost | --- | --- | --- | --- | 7,792,378[31] |
| | | Maint Approp | 1,687,000 | 1,443,500 | 2,282,000 | 3,168,410 | 48,829,615[32] |
| | | Maint Cost | 1,694,100 | 1,447,300 | 1,919,860 | 2,856,417 | 48,130,508[32] |
| 25 | Union City Lake, PA | New Work Approp | --- | --- | --- | --- | 14,559,800 |
| | | New Work Cost | --- | --- | --- | --- | 14,559,800 |
| | | Maint Approp | 130,000 | 303,115 | 296,000 | 787,120 | 9,330,743[52] |
| | | Maint Cost | 136,201 | 155,462 | 433,821 | 752,841 | 9,285,398[52] |
| 26 | Woodcock Creek | New Work Approp | --- | --- | --- | --- | 20,545,065[33] |
| | Lake, PA | New Work Cost | --- | --- | --- | --- | 20,545,065[34] |
| | | Maint Approp | 906,000 | 740,526 | 885,000 | 1,045,855 | 22,760,824[35] |
| | | Maint Cost | 911,408 | 738,970 | 877,944 | 882,209 | 23,191,482[35] |
| 27 | Youghiogheny River | New Work Approp | --- | --- | --- | --- | 12,521,167[36] |
| | Lake, PA & MD | New Work Cost | --- | --- | --- | --- | 12,521,167[36] |
| | | Maint Approp | 1,874,000 | 1,834,486 | 2,003,500 | 2,847,020 | 60,237,691[37] |
| | | Maint Cost | 1,877,810 | 1,830,073 | 1,981,094 | 2,300,884 | 59,623,203[37] |
| **ENVIRONMENTAL** | | | | | | | |
| | Central West Virginia | New Work Approp | --- | 825,000 | -400,000 | 220,000 | 685,000 |
| | Environmental | New Work Cost | 14,123 | 14,465 | 374,297 | 169,916 | 601,960 |
| | Infrastructure, WV | | | | | | |
| 31 | Nanty Glo, PA | New Work Approp | --- | --- | --- | --- | 4,186,337[49] |
| | Environmental | New Work Cost | --- | --- | --- | --- | 3,988,866[49] |
| | Restoration | | | | | | |
| | Ohio Environmental | New Work Approp | 657,500 | 1,214,000 | 3,099,000 | 1,925,000 | 8,574,500 |
| | Infrastructure, OH | New Work Cost | 103,121 | 92,847 | 672,242 | 1,316,502 | 3,211,008 |
| 32 | South Central, PA | New Work Approp | 4,455,000 | 6,967,000 | 4,133,000 | 14,550,000 | 81,939,925[42] |
| | Environmental | New Work Cost | 3,204,848 | 1,396,312 | 1,801,463 | 3,584,407 | 58,721,216[42] |
| | Improvement Program | | | | | | |
| 33 | Three Rivers Wet | New Work Approp | 668,000 | 2,094,250 | 468,000 | 7,650,000 | 11,787,250[50] |
| | Weather Demo | New Work Cost | 184,831 | 61,906 | 1,127,287 | 1,528,136 | 3,437,017[50] |
| 34 | Formerly Used Sites | New Work Approp | 1,410,000 | 1,000,000 | 1,250,000 | 3,500,000 | 61,779,925[42] |
| | Remedial Action | New Work Cost | 1,085,681 | 744,935 | 982,626 | 1,177,421 | 57,240,361[42] |
| | Program | | | | | | |

[1] Includes $2,453,737 from emergency relief funds and $1,250,049 from public works funds.

[2] Includes $64,365 public works acceleration, executive funds (1963) and $191,400 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $995,000 appropriated and expended for major maintenance at L&D 2, 3 & 4. Includes $3,824,000 appropriated and $2,447,324 expended on maintenance for ARRA.
[3]Includes amounts appropriated to date for: Point Marion, L&D 8, PA - $113,013,400 for CG and IWTF, $3,322,057 for raising crest of dam in 1958-9, $2,086,438 for original reconstruction years 1923-26 and $618,758 for AE&D. Grays Landing, L&D 7, PA - $172,793,200 for CG and IWTF, and $803,000 for AE&D. L&D 2, 3 & 4 - $237,481,700 for CG and IWTF. Includes $55,198,800 appropriated for ARRA.
[4] Includes amounts expended to date on: Point Marion, L&D 9, PA - $112,667,403 for CG and IWTF, $3,322,057 for raising crest of dam in 1958-9, $2,086,438 for original reconstruction years 1923-6 and $618,758 for AE&D. Grays Landing, L&D 7, PA - $172,751,744 for CG and IWTF, and $803,000 for AE&D. L&D 2, 3 & 4 - $237,123,612 for CG and IWTF. Includes $6,752,350 expended for ARRA.
[5] Includes $22,549 public works acceleration, executive funds (1963), $742 for maintenance for previous project and $582,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $2,904,094 appropriated for ARRA.
[6] Includes $22,549 public works acceleration, executive funds (1963), $742 for maintenance for previous project and $464,508 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $497,453 expended for ARRA.
[7] Includes $1,999,995 emergency relief funds, $10,000,000 public work funds, $234,000 Code 711 funds and $412,088 Code 713 funds, $462,000 appropriated to and $218,374 expended on the Dam Safety Assurance Program - CG; excludes $409,622 contributed by local interest.
[8] Includes $89,000 provided from the Productive Employment Appropriations, Act (PL 98-8) 1983 funds. Also includes $425,000 appropriated to and $424,493 expended on the Dam Safety Assurance Program O&M. Includes $101,985 appropriated and $21,591 expended for ARRA.
[9] Includes $33,423 from emergency relief funds.
[10] Excludes $180,485 for new work expended from contributed funds.
[11] Includes $283,988 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.
[12] Includes $1,542,500 Code 711 funds, $809,700 Code 712 funds and $99,111 Code 713 funds; excludes $100,000 contributed by local interest.
[13] Includes $40,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $7,679 appropriated to and expended from M&O of dams in FY97 and $703,407 expended to date on M&O of dams. Includes $3,357,001 appropriated and $199,604 for ARRA.
[14] Includes $5,351 from emergency relief funds and $328,000 Code 711 funds.
[15] Includes $63,788 from emergency relief funds. Also includes $278,044 Code 711 funds.
[16] Includes $45,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes $1,918 appropriated to and expended from M&O of dams in FY97 and $697,646 expended to date on M&O of dams. Includes $353,600 appropriated and $152,449 expended for ARRA.
[17] Includes $156,812 Code 711 funds.
[18] Includes $322,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $12,674 appropriated to and $12,674 expended to date on M&O of dams. Includes $222,100 appropriated and $71,609 expended for ARRA.
[19] Includes $2,791 emergency relief funds, $14,622 Code 711 funds, $568,265 Code 713 funds; excludes $389,370 contributed by local interest. Includes $330,999 appropriated and $63,901 expended for ARRA.
[20] Includes $7,339 from emergency relief funds and $274,669 Code 711 funds.
[21] Includes $256,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $104,866 appropriated to and $104,864 expended to date on M&O of dams. Includes $123,000 appropriated and $40,625 expended for ARRA.
[22] Includes $25,671 emergency relief funds, $162,381 Code 711 funds, $561,247 Code 713 funds; excludes $500,086 contributed by local interests.
[23] Includes $25,671 emergency relief funds, $162,381 Code 711 funds, $561,247 Code 713 funds; excludes $456,611 contributed by local interests.
[24] Includes $74,900 Code 711 funds; excludes $4,585,627.29 for new work contributed by local interest.
[25] Includes $315,500 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $3,174 appropriated to and $3,713 expended to date on M&O of dams. Includes $635,000 appropriated and $53,733 expended for ARRA.
[26] Includes $122,729 Code 711 funds and $94,900 Code 713 funds.
[27] Includes $8,914 from emergency relief funds.
28 Includes $1,730,100 Code 711 funds and $1,618,300 Code 713 funds.
[29] Includes $152,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $11,896 appropriated to and $11,891 expended to date on M&O of dams. Includes $1,058,000 appropriated and $252,300 expended for ARRA.
[30] Includes $2,303,076 Code 711 funds ($256,760 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), $275,900 Code 712 funds, and $24,201 emergency relief funds.
[31] Includes $2,303,077 Code 711 funds, ($256,531 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), $275,900 Code 712 funds, and $24,201 emergency relief funds.
[32] Includes $203,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $9,362 appropriated to and $9,360 expended to date on M&O of dams. Includes $536,950 appropriated and $147,559 expended for ARRA.
[33] Includes $1,671,366 Code 711 funds.
[34] Includes $1,671,366 Code 711 funds.
[35] Includes $85,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds). Includes $106,035 appropriated and $37,875 expended for ARRA.
[36] Includes $2,846,263 Code 711 funds ($293,000 provided from the Productive Employment Appropriations Act. (PL 98-8) 1983 funds).
[37] Includes $591,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes $22,240 appropriated to and $22,236 expended to date on M&O of Dams. Includes $502,000 appropriated and $176,430 expended for ARRA.
[38] Includes $1,840,000 (non-federal) original construction cost and an additional $4,205,000 (non-federal) contributed and $4,159,759 (non-federal) expended to date.
[39] Includes $701,504 appropriated to and $701,504 expended to date on M&O of dams. Includes $335,000 appropriated and $166,547 expended for ARRA.
[40] Includes $104,684 appropriated to and $104,683 expended to date on M&O of dams. Includes $3,052,000 appropriated and $902,019 expended for ARRA.
[42] Includes $285,000 (non-federal) contributed funds and $282,914 (non-federal) expended to date. Includes $6,550,000 appropriated and $13,071 expended for ARRA.

[43] Includes $4,894,000 appropriated to date for Rehab O&M and $2,925,000 appropriated to date for Rehab Construction, General. Also includes $222,000 (non-federal) contributed funds to date.
[44] Includes $4,880,202 expended to date for Rehab O&M and $2,824,695 expended to date for Rehab Construction, General. Also includes $205,323
(Non-federal) expended to date.
[45] Includes $701,504 appropriated to and $701,504 expended to date on M&O of dams. Includes $96,050 appropriated and $33,128 expended for ARRA.
[46] Includes $3,244,435 (non-federal) contributed funds and $2,565,808 (non-federal) expended to date.
[47] Includes $131,618 (non-federal) contributed funds and $102,016 (non-federal) expended to date.
[49] Includes $867,703 (non-federal) contributed funds and $852,806 (non-federal) expended to date.
[50] Includes $125,000 (non-federal) contributed funds and $99,511 (non-federal) expended to date. Includes $7,250,000 appropriated and $28,925 expended for ARRA.
[51] Includes $140,000 appropriated and $31,828 expended for ARRA.
[52] Includes $12,000 appropriated and $3,759 expended for ARRA.

**TABLE 18-B** **AUTHORIZATION LEGISLATION**

| Section in Text | Authorizing Act Date | Project and Work Authorized | Documents |
|---|---|---|---|
| **1.** | | **Allegheny River, PA** | |
| | Aug 5, 1886 | For lock and dam 1. (Fixed dam contemplated. Sep 29, 1891 Secretary of War authorized change to a moveable dam.) | Annual Report, 1886, p. 1545<br>Annual Report, 1891, p. 2366 |
| | Jun 3, 1896 | For locks and dams 2 and 3. | H. Doc. 204, 54th Cong., 1st Sess.<br>Annual Report 1896, p. 2212 |
| | Jul 25, 1912 | For locks and dam 4 to 8 inclusive. | H. Doc. 540, 62nd Cong., 2nd Sess. |
| | Jul 3, 1930 | For a depth of 9' in the lower 61 miles. | H. Doc. 356, 71st Cong., 2nd Sess. |
| | Aug 30, 1935[1] | Replace lock and dam 1 by a dredged channel, 9' deep and 200' wide up to lock 2, and construct new locks and Dams 2 and 3, to replace existing locks and dams 2 and 3. | Rivers and Harbors Committee, Doc. 16, 72nd Cong., 1st Sess. |
| | Aug 30, 1935[1] | Construct locks and dam 9, raising crest of dam 8, and Dredging a navigable channel to head of pool 8. | H. Doc. 721, 71st Cong., 3rd Sess.<br>Rivers and Harbors Committee, Doc. 27, 73rd Cong., 2nd Sess. |
| | Jun 26, 1934[2] | Operation and care of locks and dams provided for with funds from War Department appropriation for rivers and harbors. | |
| **3.** | | **Monongahela River, PA & WV** | |
| | Mar 3, 1899 | Enlarge and improve lock and dam 6, additional work at lock 3; new repair steamer and new dredge boat with equipment; all at an estimated cost of $185,556. | Annual Report, 1897, p. 2423 |
| | Jun 13, 1902 | Rebuild lock and dam 2 at estimated cost of $655,961. (Estimate increased in 1910 to $698,961.) | Annual Report, 1909, p. 1756 |
| | Mar 3, 1905 | Acquisition of land and additional improvements at 5 and 6 At a cost of $7,850. | Annual Report, 1904, p. 460 |
| | Mar 3, 1905 | Rebuild lock and dam 3 at estimated cost of $589,196. | H. Doc. 209, 58th Cong., 2nd Sess. |
| | Mar 2, 1907 | Reconstruct lock and dam 5 at estimated cost of $756,042. | H. Doc. 209, 58th Cong., 2nd Sess. |
| | Mar 4, 1913 | Reconstruct lock and dam 6 at estimated cost of $356,400. (Estimate increased in 1916 to $418,860.) | H. Doc. 1217, 62nd Cong., 3rd Sess. |
| | Sep 22, 1922 | Additional improvements at estimated cost as follow: Guide walls and guard walls, 1 to 6, $1,255,130; lengthen land chamber of lock 3 to 720', $787,722; new chamber (360' $1,161, 24 long), lock 4, $699,786; lock and dam 7, Lock and dam 8, $1,165,758; lock and dam 7 second chamber, $419,126; Lock and dam 8 second chamber, $504,465; reconstruction dam 4, $397,211; marine ways, repair plant, office and warehouse, $250,000 for a total of $6,640,439. | H. Doc. 288, 67th Cong., 2nd Sess. |
| | Jul 3, 1930 | Construct new locks and dam 2.5 miles below existing structure, at estimated cost of $2,175,000 in lieu of work authorized at old lock and dam 4. | Rivers and Harbors Committee, Doc. 22, 70th Cong., 2nd Sess. |
| | Jan 31, 1931[3] | Chief of Engineers authorized to locate new locks and dam 4 above existing structure and on such site as they may deem most desirable. | |
| | Jun 26, 1934[2] | Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors. | |
| | May 17, 1950 | Modification of existing project as follows:<br>Provide 2 new locks and dams similar to Morgantown lock and dam to replace existing locks and dams 12 to 15 inclusive.<br>Provide a movable crest on existing dam 8 to raise existing pool full elevation 4'.<br>Provide a navigation channel of 300' minimum bottom width and a 9' project depth above lock and dam 8.<br>Provide an extension of navigable channel of upper Monongahela River, into lower Tygart River for 2.1 miles at a maximum bottom width of 200' and a 9' project depth. | S. Doc. 100, 81st Cong., 1st Sess. |

**TABLE 18-B** **AUTHORIZATION LEGISLATION**

| Section in Text | Authorizing Act Date | Project and Work Authorized | Documents |
|---|---|---|---|
| | Nov 17, 1986 | Construct new lock and dam 7 (Grays Landing Lock and Dam) as follows: The Grays Landing Lock and Dam will be located 3.0 miles downriver from existing Lock and Dam 7. It will consist of a single lock chamber, 84' wide by 720' long, with a fixed crest dam 576' in length. The existing Maxwell Pool at elevation 763.0 will be shortened 3 miles and the existing Pool 7 at elevation 778.0 will be extended downriver to the new dam. There will be no change in pool elevation above existing Dam 7. Upon completion of the new replacement lock and dam, existing Lock and Dam 7 will be removed. Total authorized cost is $181,000,000. | Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301(a) |
| | Nov 17, 1986 | Replace existing 56' by 360' lock chamber at Point Marion Lock and Dam (Lock and Dam 8) with new 84' x 720' chamber. Existing movable crest dam to remain; no change in pool elevations. Total authorized cost is $53,600,000. | Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301 (a) |
| | Oct 31, 1992 | Navigation improvements as follows: The project replaces the fixed crest dam at Locks and Dam 2 with a gated dam; raises the existing pool 2 by 5', constructs twin 84' x 720' locks at Locks and Dam 4, and eliminates Locks and Dam 3; lowering the existing pool 3 by 3.2'. Authorized cost is $750,000,000. Cost of construction is to be paid equally from the general fund of the Treasury and the Inland Waterways Trust Fund. | Water Resources Development Act of 1992; PL 102-580, Sec. 101 |
| **5.** | | **Tygart Lake, WV** | |
| | Jan 11, 1934 | Construction of a dam and reservoir for low water regulation and flood control. | H. Doc. 1792, 64th Cong., 2nd Sess. |
| | Aug 30, 1935 | | H. Doc 106, 76th Cong., 1st Sess. |
| **7.** | | **Elkins, WV** | |
| | Jun 28, 1938 | For construction of local flood protection projects. | H. Doc 306, 74th Cong., 1st Sess.<br>FCC Doc. 1, 75th Cong., 1st Sess. |
| **8.** | | **Johnstown, PA** | |
| | Jun 28, 1938 | For construction of local flood protection projects. | H. Doc. 306, 74th Cong., 1st Sess.<br>FCC Doc. 1, 75th Cong., 1st Sess. |
| **9.** | | **Punxsutawney, PA** | |
| | Jun 28, 1938 | For construction of local flood protection projects. | H. Doc. 306, 74th Cong., 1st Sess.<br>FCC Doc. 1, 75th Cong., 1st Sess. |
| **10.** | | **Saw Mill Run, Pittsburgh, PA** | |
| | Nov 17, 1986 | For construction of local flood protection projects. | Water Resources Development Act of 1986 |
| | Oct 12, 1996 | | Water Resources Development Act of 1996 |
| **11.** | | **West Virginia & Pennsylvania Flood Control** | |
| | Oct 12, 1996 | For construction of local flood protection projects. | Water Resources Development Act of 1996, PL 102-580, Sec 313 |
| **12.** | | **Berlin Lake, OH** | |
| | Jun 28, 1938 | Construction of a dam and reservoir for flood control and low water regulation. | H. Doc. 306, 74th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **13.** | | **Conemaugh River Lake, PA** | |
| | Jun 22, 1936 amended by Jun 28, 1938 | Construction of a dam and reservoir for flood control. | H. Doc, 306, 74th Cong., 1st Sess.<br>FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |

**TABLE 18-B** **AUTHORIZATION LEGISLATION**

| Section in Text | Authorizing Act Date | Project and Work Authorized | Documents |
|---|---|---|---|
| **14.** | | **Crooked Creek Lake, PA** | |
| | Jun 22, 1936 amended by Jun 28, 1938 | Construction of a dam and reservoir for flood control. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **15.** | | **East Branch, Clarion River Lake, PA** | |
| | Jun 28, 1938 | Construction of a dam and reservoir for flood control and low water regulation. | H. Doc. 306, 74th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **16.** | | **Kinzua Dam & Allegheny Reservoir, PA & NY** | |
| | Jun 22, 1936 amended by Jun 28, 1938 modified by Aug 18, 1941 | Construction of a dam and reservoir for flood control and low Water regulation and recreation. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | | Construction of a dam and reservoir for flood control, pollution Abatement, low water regulation and recreation. | H. Doc. 300, 76th Cong., 1st Sess. |
| | Dec 22, 1944 | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| | | **Lower Girard Dam, OH** | |
| | | Design and construction assistance to non-federal interests For repair and rehabilitation of the Lower Girard Dam | Sec 507, WRDA 1996 PL 104-303 |
| | Nov 7, 2007 | Special Rules – the project for Lower Girard Lake Dam, Ohio is justified on the basis of public safety | Sec 3129, WRDA 2007 PL 110-114 |
| **17.** | | **Loyalhanna Lake, PA** | |
| | Jun 22, 1936 amended by Jun 28, 1938 | Construction of a dam and reservoir for flood control. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **18.** | | **Mahoning Creek Lake, PA** | |
| | Jun 22, 1936 amended by Jun 28, 1938 | Construction of a dam and reservoir for flood control. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **19.** | | **Michael J. Kirwan Dam & Reservoir, OH** | |
| | Jul 3, 1958 | Construction of a dam and reservoir for flood control, water Supply, low water regulation and recreation. | H. Doc. 191, 85th Cong., 1st Sess. |
| | Jul 14, 1960 | To define cost-sharing arrangement for municipal and industrial water supply and water for pollution abatement purposes. | PL 86-645 |
| **20.** | | **Mosquito Creek Lake, OH** | |
| | Jun 28, 1938 | Construction of a dam and reservoir for flood control and low water regulation. | H. Doc. 306, 74th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **21.** | | **Ohio River Basin (Pittsburgh District)** | |
| | Aug 28, 1937 | Construct levees, floodwalls and drainage structures for protection of cities and towns in Ohio River Basin. Projects to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed $24,877,000 for construction. | Flood Control Committee, Doc. 1, 75th Cong., 1st Sess. |
| | Jun 28, 1938 | Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized $75,000,000 for reservoirs and $50,300,000 for local flood protection works. | Flood Control Committee, Doc. 1, 75th Cong., 1st Sess. |

**TABLE 18-B** **AUTHORIZATION LEGISLATION**

| Section in Text | Authorizing Act Date | Project and Work Authorized | Documents |
|---|---|---|---|
| | Aug 18, 1941 | Additional $45 million for prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 300, 76th Cong., 1st Sess. |
| | Dec 22, 1944 | Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin, to include tributary basins. | H. Doc. 762, 77th Cong., 2nd Sess. |
| | Jul 24, 1946 | Additional $125 million for further prosecution of comprehensive plan including additional projects in tributary basins. | H. Doc. 506, 78th Cong., 1st Sess. |
| | May 17, 1950 | Additional $100 million for prosecution of comprehensive plan for Ohio River Basin | S. Doc. 20, 81stCong., 1st Sess. |
| | Dec 30, 1963 | Additional $150 million for further prosecution of comprehensive plan for flood control and other purposes in Ohio River Basin. | PL 88-253, 88th Cong., 1st Sess. |
| | Jun 18, 1965 | Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 6755, 89th Cong., 1st Sess. |
| | May 12, 1967 | Additional $38 million for further prosecution of comprehensive plan for Ohio River Basin. | PL 90-17, 90th Cong., 1st Sess. |
| | Aug 13, 1968 | Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin. | PL 90-483, 90th Cong., 2nd Sess. |
| | Jun 19, 1970 | Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 15166, 91st Cong., 2nd Sess. |
| | Mar 7, 1974 | Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 10203, 93rd Cong. River Basin Monetary Authorization Act of 1974 |
| | Oct 22, 1976 | Authorized Phase I design memorandum stage of advanced engineering and design of the project for abatement of acid mine drainage in the Clarion River Basin, PA. | Water Resources Development Act of 1976; PL 94-587, Sec. 101 (a) |
| **22.** | | **Shenango River Lake, PA & OH** | |
| | Jun 28, 1938 | Construction of a dam and reservoir for flood control and low water regulation and recreation. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **23.** | | **Stonewall Jackson Lake, WV** | |
| | Nov 7, 1966 | Construction of a dam and reservoir for flood control, water supply, water quality control, area redevelopment and recreation. | S. Doc. 109, 89th Cong., 2nd Sess. |
| **24.** | | **Tionesta Lake, PA** | |
| | Jun 22, 1936 amended by Jun 28, 1938 | Construction of a dam and reservoir for flood control and low water regulation. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **25.** | | **Union City Dam, PA** | |
| | Oct 23, 1962 | Construction of a dam and reservoir for flood control. | S. Doc. 95, 87th Cong., 2nd Sess. |
| **26.** | | **Woodcock Creek Lake, PA** | |
| | Oct 23, 1962 | Construction of a dam and reservoir for flood control, recreation and storage for water quality control. | S. Doc. 95, 87th Cong., 2nd Sess. |
| **27.** | | **Youghiogheny River Lake, PA & MD** | |
| | Jun 28, 1938 | Construction of a dam and reservoir for flood control, low-flow Augmentation and pollution abatement purposes. | H. Doc. 306, 74th Cong., 1st Sess. FCC Doc. 1, 75th Cong., 1st Sess. |
| | Dec 22, 1944 as amended | Construction, operation and maintenance of recreation facilities. | Sec. 4, Flood Control Act of 1944 |
| **32.** | | **South Central, PA Environmental Improvement Program** | |
| | Oct 31, 1992 | Construction of local flood protection projects. | Water Resources Development Act of 1992; PL 102-580, Sec 313 |
| **33.** | | **Three Rivers Wet Weather Demonstration Project** | |
| | Oct 31,1992 | Environmental infrastructure | Water Resources Development Act Of 1992, PL 102-850, Sec 219 |
| **34.** | | **Formerly Used Sites Remedial Action Program (FUSRAP)** | |
| | Jul 5, 2001 | Coordination on cleanup and decommissioning of FUSRAP sites. | PL 107-117, Sec 8143 |

[1] Included in the Emergency Relief Program, April 8, 1935.
[2] Permanent Appropriations Repeal Act.
[3] Public Res. 117, 71st Cong., 3rd Sess.

## OTHER AUTHORIZED NAVIGATION PROJECTS
**(See Section 6 of Text)**

### TABLE 18-C

| Project | Status | For Last Full Report See Annual Report | Construction | Cost to September 30, 2009 Operations and Maintenance |
|---|---|---|---|---|
| Allegheny River, PA Open-Channel Work | Completed | 1934 | 197,000 | 133,940 |
| Buckhannon River, WV[1,2] | Completed | 1893 | 5,500 | |
| Cheat River, WV[1,2] | Completed | 1895 | 12,997 | |
| Pittsburgh Harbor, PA | Completed | 1922 | 110,663 | 81,613 |

[1] Abandonment recommended in H. Doc. 467, 69th Cong., 1st Sess.
[2] No commerce reported.

**TABLE 18-E** **OTHER AUTHORIZED FLOOD CONTROL PROJECTS (All Projects Not Specifically Identified in Text)**

| Project and Status | For Last Full Report See Annual Report For | Construction (Federal Cost) | Non-Federal Cost | Cost to September 30, 2009 Operations and Maintenance |
|---|---|---|---|---|
| **Flood Protection** | | | | |
| Specifically Authorized Projects Completed: | | | | |
| Bradford, PA | 1962 | 7,601,763 | 1,895,000 | |
| Brookville, PA | 1963 | 964,976 | 289,000 | |
| Buckhannon, WV | 1972 | 1,568,661 | 75,000 | |
| Butler, PA | 1970 | 1,556,181 | 534,000 | |
| Dubois, PA | 1979 | 4,464,607 | 910,000 | |
| Johnsonburg, PA | 1958 | 674,664 | 130,000 | |
| Kittanning, PA, Part 1 | 1949 | 130,317 | 2,000 | |
| Latrobe, PA | 1951 | 207,659 | 44,400 | |
| Latrobe, PA | 1970 | 2,556,652 | 698,000 | |
| Olean, NY | 1954 | 3,217,531 | 597,000 | |
| Portage, PA | 1965 | 150,386 | 14,900 | |
| Portville, NY | 1954 | 2,070,484 | 353,000 | |
| Reynoldsville, PA | 1959 | 385,494 | 26,000 | |
| Ridgeway, PA (Elk Creek) | 1964 | 628,888 | 465,000 | |
| Salamanca, NY | 1972 | 2,880,535 | 4,180,720 | |
| Turtle Creek, PA | 1998 | 22,500,079 | 323,000 | |
| Washington, PA | 1964 | 789,093 | 113,000 | |
| Wellsville, OR Section 1 | 1965 | 483,910 | | |
| Wellsville, OR Section 11 | 1956 | 157,633 | 152,200 | |
| Youngstown, OH | 1976 | 3,621,134 | | |
| Specifically Authorized Projects Deferred: | | | | |
| Benwood, WV | 1954 | 81,028 | | |
| Chartiers Creek, PA | 1998 | 30,818,153[3] | | |
| Authorized by Chief of Engineers Completed: | | | | |
| Amsterdam, OH | 1964 | 183,072 | 22,500 | |
| Big Run, PA | 1965 | 364,208 | 35,900 | |
| Burgettstown, PA | | 83,129 | | |
| Friendsville, MD | | 41,529 | 2,200 | |
| Girty's Run, Millvale, PA | 1986 | 2,655,934 | 701,722 | |
| Grantville, PA | -- | 75,908 | 3,000 | |
| Leetonia, OH | -- | 89,299 | 17,200 | |
| Oil City, PA | -- | 43,595 | | |
| Oil City Ice Control Structures | 1987 | 3,927,792 | 25,000 | |
| Root Creek, Bolivar, NY | 1986 | 1,591,436 | | |
| Slovan, PA | -- | 57,811 | | |
| Sykesville, PA | -- | 184,246 | 9,000 | |
| Tarentum, PA | 1964 | 136,591 | 24,600 | |
| Tenmile Creek at Marianna, PA | 1981 | 1,554,428 | | |
| West Little Pine Creek, Etna, PA | -- | 2,021,852 | 86,200 | |
| Wilmore, PA | -- | 96,853 | 1,300 | |
| Authorized by Chief of Engineers Active: | | | | |
| Ridgeway & Vicinity (Clarion River)[2] | 1979 | 132,464 | | |
| Authorized by Chief of Engineers Inactive: | | | | |
| Black Fork at Hendricks, WV | 1972 | 6,800 | | |
| Oakdale, PA | -- | 14,127 | | |
| Rouseville, PA | -- | 1,642 | | |
| Wallace, WV[1] | -- | 11,035 | | |
| Weston Mills, Olean, NY | -- | 50,100 | | |
| Weston Mills, Portville, NY | -- | 52,100 | | |
| **Reservoirs** | | | | |
| Rowlesburg Lake, WV | 1977 | 2,873,799 | | |

[1] Lacks local support.
[2] No longer economically justified.
[3] Includes $4,225,188 (non-federal) contributed and expended to date.

## TABLE 18-G DEAUTHORIZED PROJECTS

| Project | For Last Full Report See Annual Report for | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Adena, OH (Short Creek) | | Aug 5, 1977 | 13,452 | |
| Allegany, NY Unit I (Allegheny River)[1] | | Nov 17, 1986 | 4,100 | |
| Allegany, NY Unit II (Five Mile Creek Area)[1] | 1975 | Nov 17, 1986 | 64,851 | |
| Bellaire, OH | | May 6, 1981 | 76,487 | |
| Brackenridge, Tarentum and Natrona, PA[1] | | Nov 17, 1986 | | |
| Brilliant, OH | | Aug 5, 1977 | | |
| Brockway, PA (Allegheny River Basin) | | Aug 5, 1977 | 194 | |
| Clarington, OH | | Aug 5, 1977 | | |
| Coraopolis, PA | | Aug 5, 1977 | | |
| Dillonvale, OH (Short Creek) | | Aug 5, 1977 | 16,884 | |
| Eagle Creek Reservoir, OH | | Jan 1, 1990 | 100,000 | |
| Empire-Stratton, OH[1] | | Nov 17, 1986 | 33,031 | |
| Follansbee, WV | | Aug 5, 1977 | | |
| Freeport, PA (Allegheny River) | | Aug 5, 1977 | | |
| Industry, PA | | Aug 5, 1977 | | |
| Kittanning, PA, Part 11 (Allegheny River) | | Nov 6, 1977 | | |
| Lake Chautauqua and Chadakoin River, NY[2] | 1965 | Mar 2, 1970 | 190,722 | |
| Lake Erie-OW Canal, OH and PA - 1935 Act | 1972 | May 6, 1981 | 1,342,000 | |
| Leetsdale, PA | | Nov 17, 1986 | | |
| Martins Ferry, OH[1] | 1941 | Nov 17, 1986 | 25,164 | |
| McKees Rocks, PA | | Oct 3, 1978 | | |
| Mingo Junction, QH | | Aug 5, 1977 | | |
| Moundsville, WV[1] | | Nov 17, 1986 | | |
| Muddy Creek Dam, PA[1] | 1977 | Nov 17, 1986 | 402,459 | |
| Neville Island, PA[1] | | Nov 17, 1986 | | |
| New Cumberland, WV | | Aug 5, 1977 | | |
| New Kensington and Parnassus, PA[1] | | Nov 17, 1986 | | |
| Pittsburgh, PA (Golden Triangle) | | Oct 3, 1978 | | |
| Pittsburgh, PA (North Side) | | Oct 3, 1978 | | |
| Pittsburgh, PA (The Strip) | | Oct 3, 1978 | | |
| Powhaten Point, OH[1] | | Nov 17, 1986 | | |
| Proctor, WV[1] | | Nov 17, 1986 | | |
| Redbank Creek Lake, PA | | Aug 5, 1977 | 156,377 | |
| Rochester, PA[1] | | Nov 17, 1986 | | |
| St. Marys, PA (Allegheny River Basin) | | Aug 5, 1977 | 13,529 | |
| Smith Ferry, PA | | Aug 5, 1977 | | |
| Uniontown, PA | 1956 | Jan 1, 1990 | | |
| Warwood, WV[1] | | Nov 17, 1986 | | |
| Wellsburg, WV | | Aug 5, 1977 | 6,387 | |
| West Bridgewater, PA | | Aug 5, 1977 | | |
| Wheeling, WV[1] | 1954 | Nov 17, 1986 | 189,067 | |
| Wheeling, WV (North Wheeling)[1] | | Nov 17, 1986 | | |
| Wheeling, WV (Wheeling Island)[1] | | Nov 17, 1986 | 21,700 | |
| Wilcox, PA[3] | | Mar 5, 1955 | 16,761 | |
| Woodlands, WV[1] | | Nov 17, 1986 | | |
| Youghiogheny River, PA and MD (Canalization)[1, 4] | 1971 | Nov 17, 1986 | 232,863 | |

[1] Deauthorized under Water Resource Act of 1986 (PL 99-662).
[2] Local interests failed to meet requirements of cooperation, authority for project expired Mar 2, 1970.
[3] Local interests failed to meet requirements of cooperation, authority for project expired Mar 5, 1955.
[4] Includes $47,195 construction costs expended under previous project and $1,700 O&M costs expended under previous project.

**TABLE 18-H** **ALLEGHENY RIVER, PA, LOCKS AND DAMS (See Section 1 of Text)**

| No. | Miles Above Mouth | Nearest Town | Dimensions: Width of Chamber (feet) | Dimensions: Available Length to Full Width (feet) | Dimensions: Upper Lift at Normal Pool Level (feet) | Dimensions: Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills at Normal Pool Level[1]: Lower (feet) | Depth on Miter Sills at Normal Pool Level[1]: Upper (feet) | Character of Foundation: Lock | Character of Foundation: Dam | Kind of Dam | Type of Construction: Lock | Type of Construction: Dam | Percent Complete | Year Open to Nav | Actual Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 6.7 | Aspinwall, PA | 56 | 360 | 11.0 | 721.0 | 12.0 | 10.9 | Rock | Rock | Fixed | Concrete | Concrete | 100 | 1934[2] | 1,763,485 |
| 3 | 14.5 | Cheswick, PA | 56 | 360 | 13.8 | 734.8 | 10.8 | 11.8 | Rock | Pile-Rock | Fixed | Concrete | Concrete | 100 | 1934[2] | 1,875.665 |
| 4 | 24.2 | Natrona, PA | 56 | 360 | 10.6 | 745.4 | 10.0 | 8.5 | Rock | Rock | Fixed | Concrete | Concrete | 100 | 1927 | 1,707.690 |
| 5 | 30.4 | Freeport, PA | 56 | 360 | 11.6 | 757.0 | 10.5 | 10.3 | Piling | Crib-Pile | Fixed | Concrete | Concrete | 100 | 1927 | 1,940,537 |
| 6 | 36.3 | Clinton, PA | 56 | 360 | 12.4 | 769.4 | 10.6 | 10.8 | Rock | Crib-Pile | Fixed | Concrete | Concrete | 100 | 1928 | 1,523,959 |
| 7 | 45.7 | Kittanning, PA | 56 | 360 | 13.0 | 782.4 | 9.8 | 10.9 | Piling | Steel Sheet Piling | Fixed | Concrete | Concrete | 100 | 1930 | 1,460,008 |
| 8 | 52.6 | Templeton, PA | 56 | 360 | 17.8 | 800.2 | 10.4 | 13.8 | Rock | Rock | Fixed | Concrete | Concrete | 100 | 1931 | 2,848,920 |
| 9 | 62.2 | Rimer, PA | 56 | 360 | 22.0 | 822.2 | 10.5 | 11.3 | Rock | Rock | Fixed | Concrete | Concrete | 100 | 1938 | 2,510,373 |
| Abandoned lock and dam 1 | | | | | | | | | | | | | | | | 591,187 |
| Abandoned lock and dam 2 | | | | | | | | | | | | | | | | 544,929 |
| Abandoned lock and dam 3 | | | | | | | | | | | | | | | | 310,103 |
| Demolishing old dam 1 | | | | | | | | | | | | | | | | 26,001 |
| Dredging channel | | | | | | | | | | | | | | | | 1,055,003 |
| | | Total | | | | | | | | | | | | | | 18,157,860 |

[1] All depths as shown are on guard sills and are controlling depth.
[2] Dates shown represent replacement structures.

**TABLE 18-I** **MONONGAHELA RIVER, PA, LOCKS AND DAMS (See Section 3 of Text)**

| No. | Miles Above Mouth | Nearest Town | Dimensions: Width of Chamber (feet) | Dimensions: Available Length to Full Width (feet) | Dimensions: Upper Lift at Normal Pool Level (feet) | Dimensions: Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills at Normal Pool Level[1]: Lower (feet) | Depth on Miter Sills at Normal Pool Level[1]: Upper (feet) | Character of Foundation: Lock | Character of Foundation: Dam | Kind Of Dam | Type of Construction: Lock | Type of Construction: Dam | Percent Complete | Year Open to Nav | Actual Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 11.2 | Braddock, PA | 56<br>110 | 360<br>720 | 8.7 | 718.7 | 16.0 | 16.0 | Rock | Crib-Pile | Fixed | Concrete | Concrete | 100 | 1953[2] | 145,057,068[5,7] |
| 3 | 23.8 | Elizabeth, PA | 56[3] | 360<br>720 | 8.2 | 726.9 | 11.6 | 11.9 | Rock | Crib-Pile | Fixed | Concrete | Concrete | 100 | 1907 | 58,132,804[5,8] |
| 4 | 41.5 | Charleroi, PA | 56[3] | 360<br>720 | 16.6 | 743.5 | 10.7 | 20.0 | Piles | Piles | Gated | Concrete | Concrete | 100 | 1932[2] | 106,155,062[5,6] |
| -<br>- | 61.2 | Maxwell Locks and Dam - Maxwell, PA | 84[3] | 720 | 19.5 | 763.0 | 15.0 | 20.5 | Rock | Rock | Gated | Concrete | Concrete | 100 | 1964[2] | 30,110,889[5] |

**TABLE 18-I**

**MONONGAHELA RIVER, PA, LOCKS AND DAMS**
**(See Section 3 of Text)**

| No. | Miles Above Mouth | Nearest Town | Dimensions: Width of Chamber (feet) | Dimensions: Available Length to Full Width (feet) | Dimensions: Upper Lift at Normal Pool Level (feet) | Dimensions: Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills at Normal Pool Level[1]: Lower (feet) | Depth on Miter Sills at Normal Pool Level[1]: Upper (feet) | Character of Foundation: Lock | Character of Foundation: Dam | Kind Of Dam | Type of Construction: Lock | Type of Construction: Dam | Percent Complete | Year Open to Nav | Actual Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | 82.2 | Grays Landing | 84 | 720 | 15.0 | 778.0 | 18.0 | 26.0 | Rock | Rock | Fixed | Concrete | Concrete | 100 | 1994 | 173,573,586[9] |
| - | | Locks and Dam, PA | | | | | | | | | | | | | | |
| - | 90.8 | Point Marion | 84 | 720 | 19.0 | 797.0 | 16.2 | 16.2 | Rock | Rock | Gated | Concrete | Concrete | 100 | 1993[2] | 118,694,656[10] |
| - | | Locks and Dam, PA | | | | | | | | | | | | | | |
| - | 102.0 | Morgantown | 84 | 600 | 17.0 | 814.0 | 14.5 | 17.8 | Rock | Rock | Gated | Concrete | Concrete | 100 | 1950 | 8,778,000[5] |
| - | | Locks and Dam, PA | | | | | | | | | | | | | | |
| - | 108.0 | Hildebrand Locks | 84 | 600 | 21.0 | 835.0 | 15.0 | 14.0 | Rock | Rock | Gated | Concrete | Concrete | 100 | 1959 | 12,506,829[5] |
| - | | and Dam, 6 miles | | | | | | | | | | | | | | |
| | | Morgantown, WV | | | | | | | | | | | | | | |
| - | 115.4 | Opekiska Locks | 84 | 600 | 22.0 | 857.0 | 14.0 | 17.8 | Rock | Rock | Gated | Concrete | Concrete | 100 | 1964 | 25,179,622[5] |
| - | | And Dam, 13.4 miles | | | | | | | | | | | | | | |
| | | Morgantown, WV | | | | | | | | | | | | | | |
| Marine Ways, etc. | | | | | | | | | | | | | | | | 250,000 |
| Abandoned lock and dam 1 | | | | | | | | | | | | | | | | 1,019,907[5] |
| Abandoned lock and dam 4 | | | | | | | | | | | | | | | | 780,816[5] |
| Abandoned lock and dam 5 | | | | | | | | | | | | | | | | 1,074,812[5] |
| Abandoned lock and dam 6 | | | | | | | | | | | | | | | | 770,449[5] |
| Abandoned lock and dam 7 | | | | | | | | | | | | | | | | 2,853,580[5] |
| Abandoned lock and dam 8 | | | | | | | | | | | | | | | | 245,900[10] |
| Abandoned lock and dam 9 | | | | | | | | | | | | | | | | 191,000[5] |
| Abandoned lock and dam 10 | | | | | | | | | | | | | | | | 210,445[5] |
| Abandoned lock and dam 11 | | | | | | | | | | | | | | | | 227,668[5] |
| Abandoned lock and dam 12 | | | | | | | | | | | | | | | | 200,550[5] |
| Abandoned lock and dam 13 | | | | | | | | | | | | | | | | 190,691[5] |
| Abandoned lock and dam 14 | | | | | | | | | | | | | | | | 210,127[5] |
| Abandoned lock and dam 15 | | | | | | | | | | | | | | | | 175,829[5] |
| Dredging channel | | | | | | | | | | | | | | | | 587,899[5] |
| | | Total | | | | | | | | | | | | | | 655,658,133[5] |

[1] All depths as shown are on guard sills and controlling depth.
[2] Dates shown for locks and dams number 2 to 8 inclusive represent reconstruction.
[3] 2 chamber.
[4] Includes $3,322,057 for raising crest of dam (1958-9), $2,086,438 for original reconstruction (1923-6), $618,758 AE&D costs for replacement of lock, and $112,667,403 for replacement of lock ($56,215,160 CG funds; $56,452,243 from Inland Waterways Trust Fund).
[5] Actual cost may include estimated costs which have been footnoted as necessary.
[6] Includes $2,173,767 for original reconstruction (1931-2) and $15,080,304 for reconstruction of dam (1963-7).
[7] Includes $16,967,114 for reconstruction of locks.
[8] Includes $15,857,000 for major rehabilitation.
[9] Includes AE&D costs for proposed lock ($803,000) as well as $172,692,644 expended in CG and IWTF.
[10] Includes $213,776 original project and $2,639,804 for reconstruction (1925).

**TABLE 18-J** **MONONGAHELA RIVER, PA & WV**
**TOTAL COSTS OF EXISTING PROJECT TO END OF FISCAL YEAR**
**(See Section 3 of Text)**

| Funds | New Work | Operations & Maintenance, General | Total |
|---|---|---|---|
| Regular | $858,168,389[1, 3] | $469,147,560[2] | $1,327,315,949[1, 2, 3] |
| Maintenance and Operation | | | 452,623 |
| Public Works Acceleration Exec | | | 22,549 |
| Total | $858,168,389[1, 3] | $469,147,560[2] | $1,327,791,121[1, 2, 3] |

[1] Includes $5,420,541 for new work for previous projects.
[2] Includes $20,446,587 expended between July 7, 1897 and June 30, 1937 on operation and care of works of improvement under revisions of permanent appropriation for such purposes and excludes $742 for maintenance of previous projects.
[3] Includes $15,857,000 for major rehabilitation of L/D 3.

**TABLE 18-K** **OHIO RIVER BASIN (PITTSBURGH DISTRICT)**
**RESERVOIRS (See Section 21 of Text)**

| Tributary Basin and Reservoir | Stream | Total Cost |
|---|---|---|
| Allegheny: | | |
| Conemaugh River, PA | Conemaugh River | $ 46,012,411 |
| Crooked Creek, PA | Crooked Creek | 4,482,933 |
| East Branch, Clarion River, PA | Clarion River | 9,539,586 |
| Kinzua Dam and Allegheny Reservoir, PA and NY | Allegheny River | 112,226,076[1] |
| Loyalhanna, PA | Loyalhanna Creek | 5,727,531 |
| Mahoning Creek, PA | Mahoning Creek | 7,144,973 |
| Tionesta, PA | Tionesta Creek | 7,792,378 |
| Union City, PA | French Creek | 14,559,800 |
| Woodcock Creek, PA | Woodcock Creek | 20,545,065 |
| Beaver: | | |
| Berlin, OH | Mahoning River | 8,739,987 |
| Michael J. Kirwan, OH | Mahoning River | 17,376,097 |
| Mosquito Creek, OH | Mosquito Creek | 4,253,029 |
| Shenango River, PA and OH | Shenango River | 40,217,201 |
| Monongahela: | | |
| Stonewall Jackson Lake, WV | West Fork River | 212,520,731 |
| Youghiogheny River, PA and MD | Youghiogheny River | 12,521,167 |

[1] Includes $2,921,000 for dam rehabilitation.

**TABLE 18-L** **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**
**(See Section 28 of Text)**

| Project | Waterway | County | State | Date of Inspection |
|---|---|---|---|---|
| Benwood | Ohio River | Marshall | WV | 23-Sep-09 |
| Big Run | Mahoning Creek | Jefferson | PA | 3-Mar-09 |
| Bolivar | Root Creek | Allegany | NY | 8-Jun-09 |
| Boynton, Village of Elklick Twp | Casselman River & Big Piney Run | Somerset | PA | 21-Aug-09 |
| Bradford | Tunungwant Creek, Kendell Creek, Bolivar Run | McKean | PA | 31-Oct-08 |
| Brockway Borough | Toby Creek | Jefferson | PA | 3-Sep-09 |
| Brookville | Redbank, N. Fork Sandy Lick Creeks | Jefferson | PA | 6-Nov-08 |
| Burgetts Fork, Burgettstown | Burgetts Fork | Washington | PA | 28-Apr-09 |
| Burgetts Fork, Slovan | Burgetts Fork | Washington | PA | 28-Apr-09 |
| Canonsburg Borough | Chartiers Creek | Washington | PA | 5-Jun-09 |
| Canonsburg/Houston | Chartiers Creek | Washington | PA | 8-Apr-09 |
| Darlington Township | Little Beaver Creek | Beaver | PA | 29-May-09 |
| Etna | West Little Pine Creek | Allegheny | PA | 31-Mar-09 |
| Gilpin Township | Brady Run | Armstrong | PA | 13-May-09 |
| Girtys Run, Millvale | Girtys Run | Allegheny | PA | 12-Mar-09 |
| Granville | Pike Run & Gorby Run | Washington | PA | 9-Dec-08 |
| James G. Fulton | Chartiers Creek | Washington | PA | 2-Oct-08 |
| Johnstown & Loraine Borough | Sam's Run | Cambria | PA | 7-Oct-08 |
| Johnstown, Dale Boro & Stoneycreek | Solomon Run | Cambria | PA | 6-Oct-08 |
| Kittanning | Allegheny River | Armstrong | PA | 6-Jan-09 |
| Latrobe | Loyalhanna Creek | Westmoreland | PA | 2-Apr-09 |
| Latrobe Borough | Unity Run | Westmoreland | PA | 10-Jul-09 |
| Marianna | Ten Mile Creek | Washington | PA | 15-Dec-08 |
| Meadville | Mill Run | Crawford | PA | 26-Aug-09 |
| Meyersadle Borough | Flaugherty Creek | Somerset | PA | 1-Sep-09 |
| Nanty Glo Borough | South Blacklick Creek | Cambria | PA | 7-Aug-09 |
| New Freeport Twp | Pennsylvania Fork Fish Creek | Greene | PA | 24-Aug-09 |
| Olean | Allegheny River/Olean Creek | Cattaraugus | NJ | 16-Jun-09 |
| Portville | Allegheny River/Dodge Creek | Cattaraugus | NJ | 9-Jun-09 |
| Reynoldsville Borough | Soldier Fun | Jefferson | PA | 9-Sep-09 |
| Shenango Twp & W Middlesex Borough | Hogback Run | Mercer | PA | 11-Sep-09 |
| Tarentum | Bull Creek | Allegheny | PA | 29-Apr-09 |
| Turtle Creek | Turtle Creek | Allegheny | PA | 23-Apr-09 |
| Turtle Creek Borough Sawmill Run | Sawmill Run | Allegheny | PA | 30-Sep-09 |
| Vintondale Borough | South Branch of Blacklick Creek | Cambria | PA | 24-Sep-09 |
| Wilmore | Little Conemaugh River | Cambria | PA | 11-Feb-09 |
| Youngstown | Crab Creek | Mahoning | OH | 13-Apr-09 |

**TABLE 18-M** **FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION (See Section 30 of Text)**

| Project/Study Identification | | Federal Fiscal Year Costs |
|---|---|---|
| **Emergency Bank Protection - Section 14, 1946 Flood Control Act, PL 79-526** | | |
| Coordination Account | | $ 8,017 |
| Lick Run, South Park, PA | | 47,737 |
| Dunkard Creek, Blackville, PA | | 7,080 |
| Neshannock Creek, New Castle, PA | | 304,804 |
| Salamanca, NY | | 9,460 |
| Weston, WV | | 335,807 |
| Lincoln Borough, PA | | 25,549 |
| Monongahela River, West Elizabeth, PA | | 16,968 |
| Total Federal Cost for Current Fiscal Year | | $736,974 |
| **Flood Control Activities - Section 205, 1948 Flood Control Act, PL 80-858, as amended** | | |
| Coordination Account | | $14,780 |
| Total Federal Cost for Current Fiscal Year | | $14,780 |
| **Aquatic Ecosystem Restoration - Section 206, 1996 WRDA, PL 104-303, as amended** | | |
| Nine Mile Run, Allegheny County, PA | | $ 2,543 |
| Canonsburg Lake, PA | | 51,885 |
| Sheraden Park & Chartiers Creek | | 228,859 |
| North Park Lake, PA | | 436,851 |
| Coordination Account | | 14,543 |
| Total Federal Cost for Current Fiscal Year | | $734,681 |
| **Modifications for Improvement of the Environment – Section 1135, 1986 WRDA, PL 99-662, as amended** | | |
| Tygart Lake, WV (Scab Run) | | $0 |
| Total Federal Cost for Current Fiscal Year | | $0 |
| **Flood Control and Coastal Emergencies - PL 99, 84th Congress and antecedent legislation** | | |
| Disaster Preparedness | | $ 342,830 |
| Emergency Operations | | 91,855 |
| Rehabilitation (To Include the following) | | $1,261,064 |
| - Burgettstown | $4,539 | |
| - Brookville | $52,032 | |
| - Brush Creek, City of Jeannette | $29,622 | |
| - E&D Chartiers/Fulton FCW | $376,405 | |
| - Meyersdale PIR | $284,615 | |
| - Millvale | $394,047 | |
| - Saw Mill Run | $21,740 | |
| - Turtle Creek, Rehab | $98,064 | |
| Total Federal Cost for Current Fiscal Year | | $1,695,749 |

# OHIO RIVER

For actual construction of locks and dams, and operation and care of completed structures, the Ohio River is divided into three sections under immediate supervision and direction of District Engineers at Pittsburgh, Huntington, and Louisville. Pittsburgh section extends 127 miles from head of river at Pittsburgh, PA, to a point immediately upstream from New Martinsville, WV, and includes Emsworth, Dashields, Montgomery, New Cumberland, Pike Island, and Hannibal Locks and Dams. Huntington section extends 311 miles from mile 127 to 438 immediately upstream from Foster, KY, and includes Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, and Captain Anthony Meldahl Locks and Dams. Louisville section extends 543 miles from mile 438 to mouth of river, and includes Markland and McAlpine Locks and Dams (with Louisville and Portland Canal), Cannelton, Newburgh, John T. Myers, and Smithland Locks and Dams, and Locks and Dams 52 and 53.

## Improvements

### Navigation


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### Navigation

## 1. CONSTRUCTION OF LOCKS AND DAMS ON OHIO RIVER

**Location.** The Ohio River is formed by junction of Allegheny and Monongahela Rivers at Pittsburgh, PA, and flows generally southwesterly for 981 miles to join Mississippi River near Cairo, IL. For description of river see page 1227, 1932 Annual Report.

**Previous Projects.** For details see page 1907 of 1915 Annual Report.

**Existing project.** Provides for improvement of entire river by construction of locks and dams to provide channel depth of nine feet and for widening Louisville and Portland Canal at Louisville, KY. Project provides for two locks (110 feet by 600 feet and 56 feet by 360 feet) at Emsworth, Dashields and Montgomery. The dams at Emsworth and Montgomery are movable crests while at Dashields it is a fixed crest. Below Montgomery Locks and Dam, the existing project consists of fixed dams with movable crests with two locks (110 by 1,200 feet and 110 by 600 feet) at New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Greenup, Captain Anthony Meldahl, Markland, Cannelton, Newburgh, and John T. Myers; two locks 110 by 1,200 feet at Robert C Byrd and Smithland; 110- by 1,200-foot temporary locks in addition to the existing locks at Locks and Dams 52 and 53, and reconstruction to provide a 110- by 1,200-foot lock in addition to existing locks and a fixed dam with two sections of movable crest at McAlpine Locks and Dam; widening Louisville and Portland Canal to 500 feet. Auxiliary lock 56 by 360 feet at McAlpine Locks and Dam has been inoperative since failure of downstream lock gates in December 1972. Rehabilitation of existing Locks and Dams 52 and 53 was started in September 1979 under the purview of Section 6, March 1909 Act. Mound City was also considered authorized under purview of 1909 Act, and preconstruction planning was performed in the

period 1965 to 1972. The ruling of the U.S. District Court, District of Columbia, on September 6, 1974, with reference to Lock and Dam 26, Mississippi River, would also apply to this project. Consequently, it is no longer considered authorized. Operation and care of locks and dams were included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. Estimated Federal cost of new work is $3,600,490,636. Foregoing estimate does not include expenditures on previous projects. Various items previously included in this project are considered inactive or unnecessary and are excluded from foregoing cost estimate. See page 693, Annual Report, 1968, for items and estimated cost. Under authority of 1910 River and Harbor Act, Louisville and Portland Canal was widened to 200 feet; Locks and Dams 40 and 42 eliminated; Locks and Dams 1 and 2 replaced by Emsworth Locks and Dam; Lock and Dam 3 replaced by Dashields Locks and Dam; and Locks and Dams 4, 5, and 6 replaced by Montgomery Locks and Dam. Locks and Dams 24, 25, and 26 were replaced by Robert C. Byrd Locks and Dam authorized by August 30, 1935, Act, and constructed under project for improving lower Kanawha River. Locks and Dams 7, 8, and 9 were replaced by New Cumberland Locks and Dam; Locks and Dams 10 and 11 were replaced by Pike Island Locks and Dam; Locks and Dams 12, 13, and 14 were replaced by Hannibal Locks and Dam; Locks and Dams 15, 16, and 17 were replaced by Willow Island Locks and Dam; Locks and Dams 18, 19, and 20 were replaced by Belleville Locks and Dam; Locks and Dams 21, 22, and 23 were replaced by Racine Locks and Dam; Locks and Dams 27, 28, 29, and 30 were replaced by Greenup Locks and Dam; Locks and Dams 31, 32, 33, and 34 were replaced by Captain Anthony Meldahl Locks and Dam; Locks and Dams 35, 36, 37, 38, and 39 were replaced by Markland Locks and Dam; the Louisville and Portland Canal at McAlpine Locks and Dam was widened to 500 feet. Locks and Dams 43, 44, and 45 were replaced by Cannelton Locks and Dam; Locks and Dams 46 and 47 were replaced by Newburgh Locks and Dam; Locks and Dams 48 and 49 were replaced by John T. Myers Locks and Dam, and Locks and Dams 50 and 51 were replaced by Smithland Locks and Dam, as modifications to existing project under purview of Section 6, March 3, 1909 Act, reducing total number of structures to 20. The Water Resources Development Act of 1974 combined the Newburgh Bank Protection Works project with the Newburgh Locks and Dam project. A December 1981 Act established the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks and Dam to protect and preserve existing fossilized coral and a diversity of wildlife. A November 17, 1988 Act authorized a replacement structure for Locks & Dams 52 & 53 at Olmsted, IL. A November 28, 1990 Act authorized an interpretive center at the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks & Dam and a replacement of the existing 110 foot x 600 foot lock at McAlpine Locks & Dam, IN & KY. Table 19-J contains data relative to various features of locks and dams included in existing project. For list of principal towns and cities along Ohio River with their mileage below Pittsburgh, PA, see page 1060, 1962 Annual Report. See Table 19-I for licenses.

Navigation system of 20 locks and dams is in operation and 9-foot navigation throughout length of river is generally available at all times. At certain unstable bars project depth is maintained by dredging, supplemented by contraction works. (See "Open Channel Work, Ohio River.") Table 19-J shows cost and year completion of locks and dams now in operation. New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, Captain Anthony Meldahl, Markland, McAlpine, Cannelton, Newburgh, John T. Myers, and Smithland replacement locks and dams are in operation, replacing 39 old low-lift locks and dams. For total cost of existing project, see Table 19-H.

**Terminal facilities.** Modern public terminals, with warehouses, equipped with operating machinery for transferring materials, have been constructed by private interests at some of the larger cities and towns. A list of terminals on Ohio River is revised annually and can be obtained from Division Engineer, U.S. Army Engineer Division, Great Lakes & Ohio River, Cincinnati, OH.

**Operations during fiscal year**. New work by contract and hired labor:

**Emsworth Locks and Dam**: The major rehabilitation is ongoing and consists of providing two sets of emergency bulkheads, providing permanent erosion protection downstream of the dams, replacing 13 lift gates and associated electrical and mechanical systems, and rehabilitation of the two service bridges. A total of $43,000,000 was appropriated and $9,400,000 was expensed in FY 2008. A $18.9M contract to replace the Back Channel Dam Gates was complete in FY 08; new emergency bulkhead hoists were installed and complete in FY 2008; a contract to replace seven of eight of the Main Channel Dam lift gates, associated operation machinery and erosion protection was awarded in FY 2008 and is ongoing; contracts for the back channel dam right abutment and service bridge

were awarded in FY 09; and plans and specification will be completed and construction contract awarded in FY 2010 for the back channel dam left abutment and erosion protection.

**Greenup Locks and Dam**: WRDA 2000 authorized improvements to Greenup L&D, KY and OH. Preconstruction Engineering and Design is underway consisting of geotechnical investigations, design report for the lock extension, mitigation model studies, and archaeological, historical, cultural, and biological work. FY 2009 PED activities consisted of continuation of detailed design for the lock extension miter gate bay. Rehabilitation of the dam bulkhead crane was completed in FY 2009. Additional maintenance was also completed at Greenup, including dewatering the main chamber for inspection and repairs, repairing the floating mooring bitts, rehabilitating the hydraulic cylinders for miter gates and culvert valves , and rehabilitating the culvert valve and auxiliary emergency gate. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include initiating the development of a Historic Properties Management Plan, replacing emergency gate trash screens, and hiring temporary maintenance staff. A contract was awarded in September 2009 to fabricate the first of two sets of replacement miter gates at an estimated cost of $7,027,000. Fabrication should be completed in FY 2011, pending availability of funds.

In FY 2004 security measures were completed under contract for $2,668,000. For details, see the Annual Report for FY 2008.

**Robert C. Byrd Locks and Dam**: The existing project, constructed under project for improving lower Kanawha River, was placed in operation in August 1937. The dimensions of the original lock chambers and poor approach conditions, particularly to downstream traffic, had created a higher than normal accident rate to the structure with corresponding hazards and delays to traffic. The Water Resources Development Act of 1976 authorized Phase I studies for 1,200-foot locks in a bypass canal. These studies are complete.

Initial Construction. General funds for the continuation of engineering activities were received in September 1985. Real estate acquisition is complete. The contract for the Locks was awarded in October 1987 and the new locks were put into operation in 1993. The contract for the Dam Rehabilitation was awarded in June 1993 and is complete. In addition to completion of the dam rehabilitation contract, funds in 2009 were used to continue mitigation actions via preservation of the Jenkins House. This mitigation work is scheduled for completion in FY 2010. The total estimated cost of the project is $383,500,000, which is 50 percent federal cost and 50 percent Inland Waterways Trust Fund cost.

Maintenance activities completed in FY 2009 included dewatering the main chamber for inspection and repairs and rehabilitating the hydraulic cylinders for miter gates and culvert valves. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include initiating the development of plans and specifications for the miter gate storage pier, initiating the development of a Historic Properties Management Plan, replacing the grating on the miter gates, and hiring temporary maintenance staff. In FY 2005 security measures were completed under contract for $2,822,000. For details, see the Annual Report for FY 2008.

**Falls of the Ohio National Wildlife** Conservation Area Was authorized by 97-137 on December 29, 1981 and modified by Public Law 101-640 on November 28, 1990 to design and construct an interpretive center. The Conservation Area protects 1,000 acres, which consists of birdlife and other wildlife. Planning consisted of efforts to define facilities to be cost shared with local interests. All Real Estate tracts have been acquired and one tract remains in a condemnation trial. A construction contract to construct the cost-shared recreation facilities was awarded on 30 September 1993, and completed in February 1995. The Indiana Department of Natural Resources manages the area under a Public Park and Recreation Lease granted on 1 January 1992. A portion of the Ohio River Shoreline within the Conservation Area abutting the location of Emery Crossing Road in the vicinity of the historic town of Clarksville, Indiana, collapsed into the river in the spring of 2004, exposing remnants of a prehistoric village and one human burial site. Consequently, an extensive investigation and limited recovery preceded bank stabilization construction, which was closely coordinated with the Indiana State Historic Preservation Office. Construction to restore the bank and provide a base for Town of Clarksville to rebuild the road was completed in July 2005, including a modification to increase toe protection by placing rock berm between road collapse repair and Mill Creek Bridge.

**John T. Myers Locks and Dam**: Construction was initiated in June 1965. All work is complete. An extension of the existing 600-foot x 110-foot auxiliary lock chamber to a 1,200-foot x110-foot chamber was authorized by the WRDA of 2000 in Public Law 106-541 on 11 December 2000. This effort will give the

J.T. Myers project twin 1,200-foot locks for inland navigation tow traffic. In FY 2009, the Louisville District performed limited Preconstruction and Design activities for the lock extension with carry out funds from FY 2008. A construction contract for the first site preparation was awarded in September 2004 for $392,000. With funds provided by the American Recovery and Reinvestment Act (ARRA) of 2009, the Louisville District will award two site preparation contracts in FY 2010 – Upper Approach Widening at approximately $5.4 million and construction of a Resident Engineer's Building and Visitor Overlook at approximately $1.8 million. The District will also award a small ARRA-funded task order for wetland restoration associated with the Upper Approach Widening.

In addition to the lock extension project, the Louisville District completed a draft report in 2007 for major rehabilitation of the J.T. Myers' navigation dam. In FY 2009, the District circulated an Environmental Assessment (EA) for Agency and public review. There were no substantive comments on the text of the document. As a result the Deputy District Commander signed a Finding of No significant Impact (FONSI) on April 6, 2009. The Louisville District will submit the final major rehabilitation evaluation report and EA for LRD-RIT review in early FY 2010.

**Markland Lock Major Rehab McAlpine Locks and Dam**: The major rehab of the 110 foot x 1,200 foot main chamber lock at Markland continued in FY09. The project consists of fabrication and installation of miter gates and culvert valves and construction of a miter gate assembly pier. The contractor continued to fabricate the two new miter gates that were awarded 23 Sept 2008. The contract for the Culvert Valves was awarded 28 September 2008 for $3,592,080.00 and the contract for miter gate assembly pier was awarded in July 2009 for $1,768,000. $10,144,000 was appropriated for this project in FY09, $9,261,495 was obligated and $7,735,708 was expended.

**McAlpine Locks and Dam**: A replacement of the existing 110 foot x 600 foot lock with a new 100 foot x 1,200 foot lock was authorized by WRDA of 1990 in Public Law 101-640. Construction has been initiated. A contract to construct a cofferdam and demolish the 360 foot and 600 foot locks was awarded in May 2000 and was completed March 2003. A contract to construct a boat mooring facility was awarded 4 April 2002 for $2,680,000 and was completed in April 2004. A contract to construct the new 1,200 foot lock and an access bridge to Shipping port Island was awarded on 24 September 2002 for $221,441,468. The lock contract is approximately 65% complete at the end of FY 06. $308,730,000 has been allocated for the lock replacement and ancillary efforts.

**Olmsted Locks & Dam**: A replacement structure for Locks and Dams 52 & 53 was authorized by the WRDA of 1988 in Public Law 100-676 on 17 November 1988. Engineering during construction continued to support the dam construction contract. The annual environmental monitoring was performed. The Dam construction contract was awarded on 28 January 2004. Notice to proceed was issued on 18 February 2004, mobilization efforts continued including the erection of the Catamaran barge and lower marine skid way. Progress on the dam construction reached approximately 40%. The construction of the Storage Building was completed in the FY. Operations continued to maintain the completed lock structure. In FY 09, $103,730,591 was expended on the Olmsted project and $100,313,515 was obligated. .

**Emsworth Locks and Dam**: In FY 2006, emergency bulkheads were purchased for $797,000, completed security improvements for $56,000, repaired dam gate trucks for $101,000, and repaired miter gates fpr $373,000. Total maintenance cost for FY06 was $1,389,000

**Dashields Locks and Dam:** In FY 2006: completed repairs to the access road for $254,000, completed security improvements at $254,000, and repaired miter gates for $488,000. Total maintenance cost for FY06 was $997,000**.**

**Montgomery Locks and Dam**: FY 2006: security improvements for $1,044,000, repaired the land wall filling valve & operating machinery for $427,000, and completed a structural assessment of the dam gates for $171,000. Total maintenance cost for FY06 was $1,688,000.

**New Cumberland Locks and Dam**: In FY 2006: security improvements were completed for $595,000. Total maintenance cost for FY06 was $711,000.

**Pike Island Locks and Dam:** In FY 2006, security improvements were completed for $178,000, renovation of the land wall filling valve for $932,000, and initiated design of new miter gates for $208,000. Total maintenance cost for FY06 was $1,354,000.

**Hannibal Locks and Dam**: In FY 2006: dredging was completed for $338,000, security improvements for $161,000, renovation of the land wall emptying valve for $842,000, and emergency repairs to miter gate quoin seals for $412,000. Total maintenance cost for FY06 was $1,805,000.

**Captain Meldahl Locks and Dam**: A contract was awarded in September 2005 to fabricate the first of two sets of replacement miter gates at an estimated cost of $6,138,000. Fabrication should be completed in FY 2010. A contract was awarded in September 2008 to fabricate the second of two sets of replacement miter gates at an estimated cost of $6,447,000. Fabrication should be completed in FY 2010 pending availability of funds. Maintenance activities completed in FY 2009 included replacing the emergency gate trash screens at the project, rehabilitating the hydraulic cylinders for miter gates and culvert valves, and fabricating a miter gate storage rack and preparing the miter gate anchorage for the installation of the replacement miter gates in FY 2010. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include replacing the emergency gate trash screens and hiring temporary maintenance staff. In FY 2006 security measures were completed under contract for $1,819,000. For details, see the Annual Report for FY 2008.

**Racine Locks and Dam:** Maintenance activities completed in FY 2009 included repairing the bulkhead crane and dam line shafts, initiating repair to the auxiliary chamber emergency gate sheave anchorage, rehabilitating the hydraulic cylinders for miter gates and culvert valves, and initiating repair/replacement of the miter gate strut arms. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include initiating the development of a Historic Properties Management Plan, fabricating culvert intake screens, and hiring temporary maintenance staff. In FY 2006 security measures were completed under contract for $2,034,000. For details, see the Annual Report for FY 2008.

**Belleville Locks and Dam**: Maintenance activities completed in FY 2009 included replacing the bulkhead seals and main lock lower miter gate machinery and rehabilitating the hydraulic cylinders for miter gates and culvert valves. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include initiating the development of a Historic Properties Management Plan, fabricating culvert intake screens, and hiring temporary maintenance staff. In FY 2006 security measures were completed under contract for $907,000. For details, see the Annual Report for FY 2008.

**Willow Island Locks and Dam:** Maintenance activities completed in FY 2009 included rehabilitating the hydraulic cylinders for miter gates and culvert valves. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include fabricating culvert intake screens and hiring temporary maintenance staff. In FY 2006 security measures were completed under contract for $2,335,000. For details, see the Annual Report for FY 2008.

**Inland Waterway Navigational Charts**: In FY 2009 ARRA funds were provided to continue work on the development of Inland Electronic Navigational Charts (IENCs) for the Mississippi River and its tributaries. The majority of the funds provided ($1.710M) were used for new chart development on waterways other than the Ohio River, however, $187,791 was used to perform hydrographic surveys for the Smithland, John T. Myers and Newburgh Pools on the Ohio River (approximately 195 miles).

**Parkersburg Riverfront Park, WV:** The project was authorized for construction by the Water Resources Development Act (WRDA) of 1999, Section 557(1), Public Law 106-53, as amended by the WRDA 2007, Section 3172, Public Law 110-114 at a total cost of $12,000,000, with an estimated Federal cost of $6,000,000 and an estimated non-Federal cost of $6,000,000. The project is an expansion and upgrade of an existing recreation facility cost-shared between the Corps and the City of Parkersburg, WV in the early 1980's. The current recreation facility is the primary river terminal for regular ferry service between West Virginia and the Blennerhassett Island Historic WV State Park. Visitor usage of the Parkersburg Riverfront Park for recreation at the site and access to the river is very high and increases annually. Visitor use demands are exceeding the planned uses of the site in the 1980's. The Project Partnership Agreement (PPA) for construction was executed in September 2008 between the Corps and the City of Parkersburg. A contract to purchase steel for the project was awarded in September 2008. Phase I construction was awarded June 2009 for $2.8M. Phase II of construction is scheduled to be awarded in June 2010.

**Operation and maintenance, general.** Locks and dams operated as required and necessary repairs and improvements made thereto and to operator's quarters, grounds and esplanades. Costs were $25,317,615 for Huntington District,

$37,775,223 for Louisville District and $17,885,603 for Pittsburgh District.

## 2. OPEN CHANNEL WORK, OHIO RIVER

**Location.** Under jurisdiction of District Engineer in whose district work is located. Portion of river included in project extends 981.0 miles from head of river at Pittsburgh, PA, to mouth of Cache River (Mound City, IL). Open channel improvement from mouth of Cache River to mouth of Ohio River is under jurisdiction of Mississippi River Commission.

**Existing Projects.** Before completion of canalization project, no project depth had been fixed by Congress under project for open channel work; but, in order to properly aid packet and barge navigation, it was necessary to secure a low-water channel with a minimum depth of 4 to 6 feet, and a width, depending upon difficulty of running channel, of 400-600 feet; also, to permit movement of large coal tows, which movement occurred at stages of water exceeding 10 feet, it was necessary to remove points of projecting bars which formed at various locations along river. Accomplishment of this purpose involved concentration of current by closing back channels at islands with low dams, contraction and straightening wide open channels by low dikes, dredging bars and shoals, and removal of snags and wrecks. Incidental to direct improvement of Ohio River is construction and maintenance of ice piers as required for protection of river craft. Stage of extreme high water on Ohio River varies from 46 feet at Pittsburgh, PA, to 80 feet at Cincinnati, OH, with 57.2 feet at Louisville, KY (head of falls, 53.8 feet at Evansville, IN, and 59.5 feet at Cairo, IL (mouth of river). Estimated cost of new work is $16.16 million, exclusive of following items which are considered inactive: Ice piers authorized by 1927 River and Harbor Act; reforestation of sloughs of Kentucky Peninsula near Evansville, IN, authorized by 1930 River and Harbor Act; dredging to widen channel at certain points; and placing revetment at various points. Estimated cost of these items is $6,565,000. Operation of snag boats on Ohio River below Pennsylvania State line was included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. See Table 19-B for authorizing legislation.

New work under this project is substantially complete, since it is not anticipated that work on inactive portion of project will be accomplished. In addition to dredging, local stabilization of channel has been effected at various points by construction of dikes and revetment. Work, which remains, consists of dredging to widen channels at certain points to project depth.

**Local cooperation.** River and Harbor Act of January 21, 1927, authorizing construction of ice piers for general open channel work, imposes condition that before work is begun on any pier, local interests convey to the United States free of cost such riparian rights as may be deemed necessary in connection with the improvements at locality (H. Doc. 187, 67th Congr., 2nd Sess.). Existing ice piers are adequate for present purposes and local cooperation is not needed since no additional construction is under consideration. River and Harbor Act of July 3, 1930, provides for reforestation of sloughs of Kentucky Peninsula and bank protection and that no expense shall be incurred by the United States for acquiring lands required for purpose of this improvement (H. Doc. 409, 69th Congr., 1st Sess.). Erosion occurs on a periodic basis depending on winter high water conditions. As erosion occurs, local cooperation may be required.

**Operations during fiscal year.** Operation and maintenance, general: Dredging was done where required to provide an adequate and dependable channel of project depth at minimum pool conditions. Dikes and revetments were maintained and routine work of maintaining navigation aids, removing snags, making channel studies, hydrographic surveys and mapping was performed as required. Channel soundings, hydrographic surveys, stream gauging operations, channel inspections and aids to navigation, and miscellaneous inspections and reports cost $1,268,628. In FY 2009 dredging by contract in the Huntington District were $281,000 cubic yards at $1,637,000 Louisville District $4,320,372, cubic yards at $2,398,611, and Pittsburgh District 3,000 cubic yards at $381,000.

### General Investigations:

#### 1. UPPER OHIO NAVIGATIONAL STUDY

Emsworth, Dashields and Montgomery (EDM) are the uppermost Lock and Dam structures on the Ohio River and are located at river miles 6.2, 13.3 and 33.7 respectively, below the “Point” in Pittsburgh, Pennsylvania. All three have dual lock chambers, 110’ x 600’ (main) and 56’ x 360’ (auxiliary). These lock chambers are smaller than the typical 110’ x 1200’ Ohio River locks and are considered undersized compared to the other downstream Ohio River navigation facilities, are 60 to 70 yeas old, have already been rehabilitated to extend their useful lives and have a critical need for structural reconstruction

or additional rehabilitation. Study of EDM will include investigation lock navigation modernization strategies.

The site-specific EDM feasibility report was Congressionally added in the FY 2003 Omnibus Act. The District has prepared a Project Management Plan (PMP) for the feasibility study. The PMP was approved by the Great Lakes and Ohio River Division Office in Cincinnati, Ohio, on August 17, 2004 and revised in July 2006. The Study is proceeding with activities associated with the "without project condition" and "with project" definition and alternative analysis, National Ecosystem Restoration planning, Environmental Impact Statement development, finalizing Alternative Formulation Briefing (AFB) documentation, performing Agency Technical Review, conducting AFB and preparing draft Feasibility Report. In FY 2009, baseline reliability analysis was completed, without project condition definition and analysis, economic data collection and modeling, economic model modifications, baseline environmental data acquisition, NEPA compliance documentation, National Ecosystem Restoration planning and "with project" alternative development and analysis continued or was initiated for a cost of $4,015,000.
ARRA funds in the amount of $514,338 were received and utilized for contracts to gather environment data and perform environmental investigations on specific sites identified in the study to be needed for construction of the recommended plan for the study. This effort is required as part of the study and NEPA compliance requirements.

## TABLE 19-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY09 | Total Cost to Sep 30, 2009 | (footnotes) |
|---|---|---|---|---|---|---|---|---|
| 1. | Construction of Locks & Dams on OH River | New Work | | | | | | |
| | | Approp. | $187,142,000 | 198,789,000 | 197,537,000 | 194,984,299 | 3,461,436,359 | 1 3 5 10 17 21 |
| | | Cost | 183,948,033 | 170,808,334 | 155,523,698 | 159,660,222 | 3,358,061,546 | 1 3 6 11 12 15 16 1 22 23 |
| | | Maint. | | | | | | |
| | | Approp. | 75,822,000 | 73,897,245 | 90,424,256 | 89,560,008 | 1,943,505,919 | 2 4 19 |
| | | Cost | 71,754,957 | 72,043,821 | 82,738,789 | 86,457,030 | 1,929,230,185 | 2 13 14 19 20 |
| | | Rehab. | | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 0 | |
| | | Cost | 0 | 0 | 0 | 0 | 0 | |
| | | Rehab.(O&M) | | | | | | |
| | | Approp. | 0 | 0 | 0 | 52,185,253 | 104,370,506 | |
| | | Cost | 211,868 | 1,699 | 0 | 38,432,932 | 72,562,450 | |
| 2. | Open Channel Work, Ohio River | New Work | | | | | | |
| | | Approp. | - | - | - | 2,931,295 | 36,845,547 | |
| | | Cost | - | - | - | 1,857,323 | 35,983,443 | |
| | | Maint. | | | | | | |
| | | Approp. | 5,631,000 | 5,077,559 | 2,579,000 | 8,552,985 | 233,568,068 | 7 9 |
| | | Cost | 5,076,387 | 6,312,422 | 708,912 | 7,793,754 | 232,393,086 | 7 9 |
| | | Rehab. | | | | | | |
| | | Approp. | - | - | - | | | |
| | | Cost | | | | | | |

1 Includes $17,003,761 for previous 6-foot canalization project.
2 Includes $36,943,217 expended from 1885 to 1937 on operation and care of work of improvement under provisions of permanent indefinite appropriations for such purposes.
3 Includes $215,812 public works acceleration, executive 1963.
4 Includes $38,766 public works acceleration, executive 1963.
5 Excludes $251,769 contributed funds for new work.
6 Excludes $250,102 contributed funds for new work.
7 Excludes $1,621,349 expended in operation of snag boats under provisions of permanent indefinite appropriation for such purposes, and $267 transferred to project without reimbursement.
8 Includes $1,040,236 Public Works funds.
9 Includes $1,000 for removal of obstructions in Licking River under authority of Section 3, R&H Act of 1930.
10 Includes $100,000 placed in FY 1971 Budget Reserve.
11 Excludes $3,899 transferred from project without reimbursement.
12 Surplus property valued at $3,553 transferred to project without reimbursement.
13 Excludes $2,140 transferred to project without reimbursement.
14 Excludes surplus property valued at $73,832 transferred to Project without reimbursement.
15 Includes $87,724,158 prior construction cost.
16 Excludes surplus property valued at $297,385 transferred to Project without reimbursement.
17 Includes $549,392 Code 710 Funds, $572,162 Code 711 Funds, $532,677 Code 712 Funds and $1,759,812 Code 713 Funds.
18 Includes $549,392 Code 710 Funds, $342,162 Code 711 Funds, $532,677 Code 712 Funds and $1,989,812 Code 713 Funds.
19 Includes $2,158,073 Funds provided from The Productive Employment Appropriations Act of 1983 (PL 98-8).
20 Includes $920,945 cost for operations & care of previous projects.
21 Includes $1,212,651,110 Inland Waterways Trust Funds.
22 Includes $1,195,174,233 Inland Waterways Trust Funds.
23 Excludes $9,525,437 settlement from the U S Treasury Dept. Judgment Fund.

**Table 19-B** **Authorizing Legislation**

| See Section in Text | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 2. | | **Open Channel Work, Ohio River** | |
| March 3, 1827 | | Project adopted by this act originally covered entire length of Ohio River from its mouth near Cairo to Pittsburgh, a distance of 981 miles. It provided for removal of all obstructions, which tend to endanger steamboat navigation. | |
| January 21, 1927 | | Construct ice piers as a part of allotted from appropriations for general open channel work. | H. Doc. 187, 67th Cong., 2nd Sess. |
| July 3, 1930 | | Reforestation of sloughs on Kentucky Peninsula near Evansville, IN, and a 200-foot strip along bank and for bank protection at an estimated cost of $200,000. | H. Doc. 409, 69th Cong., 1st Sess. |
| July 3, 1958 | | Act of March 3, 1827, modified to include maintenance of existing Licking River Channel within lower 3-mile limit of river slack water, at an estimated increase of $1,000 in cost of average annual maintenance. | H. Doc. 434, 84th Cong., 2nd Sess. |
| | | **Locks and Dams, Ohio River** | |
| December 29, 1981 | | Act of December 29, 1981, established the 1,000-acre Falls of the Ohio National Wildlife Conservation Area, at a cost not to exceed $300,000. | H.R. 2241, PL97-137, Title II, 95 Stat. 1710 |
| October 17, 1986 | | Act of October 17, 1986 authorized lock replacement, improvement, and rehabilitation at Gallipolis Lock and Dam, Ohio River, Ohio and West Virginia for 1200 –foot locks to provide a uniform lockage system thought the central reach of the Ohio River at a total cost of $285,000,000. | PL 99-622, 99th Cong |
| November 17, 1988 | | Act of November 17, 1988 authorized a replacement structure for Locks and Dams 52 and 53 at Olmsted, Illinois. | PL 100-676, 100th Cong., 2nd Sess. |
| November 17 1988 | | Act of November 17, 1988 prohibited conveyance to the state of West Virginia the land known as Lesage/Greenbottom Swamp that was acquired by he United States for mitigation purposes in connection with the Gallipolis Locks and Dam replacement project. | PL 100-676, 100th Cong.. |
| November 28, 1990 | | Act of November 28, 1990, modified PL 97-137 by authorizing an interpretive center at Falls of the Ohio National Wildlife Conservation Area, at an estimated total cost of $3,200,000. | PL 101-640, 101st Cong., 2nd Sess. |
| November 28, 1990 | | Act of November 28, 1990 authorized a modernization of the existing 110 foot x 600 foot lock at McAlpine Locks and Dam, Indiana and Kentucky at a total cost of $219,600,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund. | PL 101-640, 101st Cong., 2nd Sess. |
| October 31, 1992 | | Act of October 31, 1992 renamed the Gallipolis Locks and Dam to the Robert C. Byrd Locks and Dam. | PL 102-580, 102nd Cong., 2nd Sess. |
| October 1, 1996 | | Act of October 1, 1996 renamed the Uniontown Locks and Dam to the John T. Myers Locks and Dam. | PL 104-303, 104th Cong. |
| August 17, 1999 | | Act of August 17, 1999 authorized the Parkersburg Riverfront Park to be constructed at a total cost of $8,400,000, with an estimated Federal cost of $4,800,000 and an estimate non-Federal cost of $4,800,000, in | P.L. 106-53, 106th Cong. |

| | | |
|---|---|---|
| | accordance with a favorable report of the Chief of Engineers. | |
| October 31, 2000 | Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at John T. Myers Locks and Dam, Indiana and Kentucky at a total cost of $181,700,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund. | PL 106-541, 106th Cong. |
| October 31, 2000 | Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at Greenup Locks and Dam, Kentucky and Ohio, at a total cost of $175,500,000 with one-half appropriated from the Treasury and one-half from the Inland Waterway Trust Fund. | PL 106-541, 106th Cong. |
| October 31, 2000 | Act of October 31, 2000 authorized projects for ecosystem restoration on Ohio River Mainstem, Kentucky, Illinois, Indiana, Ohio, West Virginia and Pennsylvania at a total cost of $307,700,000 with an estimated Federal cost of $200,000,000 and an estimated non-Federal cost of $107,700,000. | PL 106-541, 106th Cong. |
| November 8, 2007 | Act of November 8, 2007 amended P.L. 100-676 to ensure the preservation and restoration of the structure known as the 'Jenkins House and the reconstruction of associated buildings and landscape features located within the Lesage/Greenbottom Swamp. Amounts made available for expenditure for the project authorized by section 301(a) of the Water Resources Development Act of 1986 shall be available for the purpose of this subsection. | P.L. 110-114, 110th Cong. 1st. Sess |
| November 8, 2007 | Act of November 8, 2007 amended P.L. 106-53 to increase authorized project cost to $12,000,000, with an estimated Federal cost of $6,000,000 and an estimated non-Federal cost of $6,000,000. Also directed Corps to limit its work on recreation features to only those elements that relate to the traditional Corps mission areas that are being built as an element of the larger waterfront and riverfront. | P.L. 110-114, 110th Cong. 1st Sess. |

## Table 19-H Construction of Locks and Dams on Ohio River Total Cost of Existing Project to September 30, 2009

**(See Section 1 of Text)**

| Funds | New Work | Operations and Maintenance General | Rehabilitation | Total |
|---|---|---|---|---|
| Regular | 9,071,935,002 | 1,542,528,186 | 1,540,707,299 | 12,155,170,487 |
| Public Works | 3,258,368 | 0 | 0 | 3,258,368 |
| Emergency Relief | 1,236,837 | 19,000 | 0 | 1,236,837 |
| Maintenance & Operation | 14,572,267 | 16,821,352 | 0 | 31,393,619 |
| Public Works Acceleration | 254,578 | 38,766 | 0 | 293,344 |
| Executive 1963 | 0 | 0 | 0 | 0 |
| Total | 9,091,257,052 | 1,559,407,304 | 1,540,707,299 | 12,191,371,655 |

[1]Excludes $36,943,217 expended from 1885 to 1937 under permanent indefinite appropriation.

[2]Excludes $920,945 cost for operation and care of previous projects.

[3]Excludes $87,724,158 prior construction cost.

[4]Includes $33,914,252 cost for O & M Rehabilitation.
Note: All other cost variations are listed in the Footnotes of Table 19-A.

## Table 19-I Federal Energy Regulatory Commission Licenses At Locks and Dams, Ohio River

| | Markland Dam | McAlpine Dam | Racine Dam | Greenup Dam | Hannibal Dam |
|---|---|---|---|---|---|
| F.E.R.C. License | 2,211 | 289:1,000 | P-2570 | P-2614 | 3,206 |
| License | Public Service Co of Indiana | .Louisville Gas and Electric Co. | AEP Co | Hamilton, OH | City of New Martinsville, WV |
| Annual Charge | $ 45,000 | $ 95,000 | $ 0 | $ 0 | 0 |
| Collections to end of Fiscal Year 2009 | $1,744,166.62 | $9,765,353.94 | $0 | $391,475.91 | $197,589.03 |

## Table 19-J

## Ohio River Locks and Dams
## (See Section 1 of Text)

| Lock And Dam | Miles Below Pittsburgh | Distance from Nearest Town | Width of Chamber (feet) | Greatest Length Available for Full Width (feet) | Lift (feet) | Upper Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills Upper (feet) | Depth on Miter Sills Lower (feet ) | Character of Foundation Lock | Character of Foundation Dam | Percent Complete | Year Opened to Navigation | Actual Cost to Date of Each Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | Replaced | - | - | - | - | - | - | - | - | - - | | $ 870,034 |
| | 6.2 | Emsworth Locks | 110 | 600 | 18.0 | 710.0 | 17.0 [1, 4] | 12.9 [3] | Rock | Rock | 100 | 1921 | 76,879,343 [2,13] |
| | | Emsworth, PA | 56 | 360 | | | 15.5 [1 ,5] | 12.9 [3] | | Piles | | | |
| 2 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 976,767 |
| 3 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,144,588 |
| | 13.3 | Dashields Locks | 110 | 600 | | | | | | | | | |
| | | and Dam 1.6 miles below Sewickley, PA | 56 | 360 | 10.0 | 692.0 | 13.4 [1] | 17.5 [3] | Rock | Rock | 100 | 1929 | 37,447,328 [14] |
| 4 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,071,472 |
| 5 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,080,132 |
| 6 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,123,442 |
| | 31.7 | Montgomery | 110 | 600 | | | | | | | | | |
| | | Locks and Dam, 1.4 miles above Industry, PA | 56 | 360 | 17.5 | 682.0 | 16.0 [1] | 14.6 [3] | Rock and Piles | Rock and Piles | 100 | 1936 | 37,754,307 [15] |
| 7 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,075,000 |
| 8 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,167,456 |
| | 54.4 | New Cumberland | 110 | 1,200 | | | | | | | | | |
| | | Locks and Dam, Stratton, OH | 110 | 600 | 20.5 | 664.5 | 7.0 [1] | 14.8 [3] | Rock | Rock | 100 | 1959 | 39,099,688 |
| 9 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,177,100 |
| 10 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,138,000 |
| 11 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,162,165 |
| | 84.3 | Pike Island Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 2 miles upstream from Warwood, WV | 110 | 600 | 21.0 | 644.0 | 17.0 [1] | 18.0 [1] | Rock | Rock | 100 | 1968 | 56,623,946 |
| 12 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,166,104 |
| 13 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,222,389 |
| 14 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,133,371 |
| | 126.4 | Hannibal Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 1.6 miles upstream from New Martinsville, WV | 110 | 600 | 21.0 | 623.0 | 38.0 | 17.0 | Rock | Rock | 99 | 1972 | 87,902,000 |
| 15 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,180,478 |



19-12

**Table 19-J (continued)**

## Ohio River Locks and Dams (See Section 1 of Text)

| Lock And Dam | Miles Below Pittsburgh | Distance from Nearest Town | Width of Chamber (feet) | Greatest Length Available for Full Width (feet) | Lift (feet) | Upper Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills Upper (feet) | Depth on Miter Sills Lower (feet) | Character of Foundation Lock | Character of Foundation Dam | Percent Complete | Year Opened to Navigation | Actual Cost to Date of Each Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,275,532 |
| | 161.7 | Willow Island | 110 | 1,200 | | | | | | | | | |
| | | Locks and Dam, 2.7 miles above Waverly, WV | 110 | 600 | 20.0 | 602.0 | 35.0 | 15.0 | Rock and Piles | Rock | 100 | 1972 | 78,173,881 |
| 17 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,362,591 |
| 18 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 927,091 |
| 19 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,213,848 |
| 20 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 936,696 |
| | 103.9 | Belleville | 110 | 1,200 | | | | | | | | | |
| | | Locks and Dam, 0.3 mile below Reedsville, OH | 110 | 600 | 22.0 | 582.0 | 37.0 | 15.0 [3] | Rock and Piles | Rock | 100 | 1968 | 62,591,255 |
| 21 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,484,562 |
| 22 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,218,798 |
| 23 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,851,488 |
| | 237.5 | Racine Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 1.5 miles below Letart Falls, OH | 110 | 600 | 22.0 | 560.0 | 18.0 | 15.0 | Rock and Piles | Rock | 100 | 1971 | 64,922,680 |
| 24 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,187,542 |
| 25 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,925,205 |
| 26 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,307,241 |
| | 279.2 | Robert C. Byrd Locks and Dam, 0.7 mile below 6 Hogsett, WV | | | | | | | | | | | |
| | | Robert C. Byrd Modernization | 110 | 1,200 | - | - | - | - | - | - | - | - | 3,452,066 |
| 27 | Rehab | Dam and New Locks | 110 | 1,200 | 23.0 | 538.0 | 18.0 | 15.0 | Rock | Rock | 100 | 1992 | 368,605,876 [16] |
| 27 | - | Replaced | | | - | - | - | - | - | - | - | - | |
| 28 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,063,133 |
| 29 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,088,802 |
| 30 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,579,618 |
| | 341.0 | Greenup Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 4.9 miles below Greenup, KY | 110 | 600 | 30.0 | 515.0 | 18.0 [1] | 13.0 | Rock | Rock | 100 | 1959 | 57,464,191 |
| 31 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,359,231 |
| 32 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 2,951,216 |
| 33 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,937,166 |

## Table 19-J (continued)

## Ohio River Locks and Dams (See Section 1 of Text)

| Lock And Dam | Miles Below Pittsburgh | Distance from Nearest Town | Width of Chamber (feet) | Greatest Length Available for Full Width (feet) | Lift (feet) | Upper Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills Upper (feet) | Depth on Miter Sills Lower (feet) | Character of Foundation Lock | Character of Foundation Dam | Percent Complete | Year Opened to Navigation | Actual Cost to Date of Each Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,437,057 |
| | 436.2 | Captain Anthony | 110 | 1,200 | | | | | | | | | |
| | | Meldahl Locks and Dam, 2.2 miles above Foster, KY | 110 | 600 | 30.0 | 485.0 | 18.0 [1] | 15.0 | Rock | Rock | 100 | 1962 | 74,188,216 |
| 35 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,894,942 |
| 36 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,704,535 |
| 37 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 1,297,924 |
| 38 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 2,857,040 |
| | 531.5 | Markland Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 1 mile above Markland, IN | 110 | 600 | 35.0 | 455.0 | 50.0 | 15.0 | Rock | Piles | 100 | 1963 | 63,019,403 |
| 39 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 2,222,448 |
| 40 | - | Eliminated | - | - | - | - | - | - | - | - | - | - | |
| 41 | - | - | - | - | - | - | - | - | - | - | - | - | 7,658,134 [6] |
| | | Falls of the Ohio, 1 mile above McAlpine | N/A | N/A | | | | | N/A | N/A | 0 | N/A | 2,367,918 |
| | 604.0 | McAlpine Locks | 110 | 1,200 | | 49.0 | 12.0 | | | | | | |
| | | and Dam | | | 37.0 | 420.0 | | 11.0 | Rock | Rock | 100 | 1961 | 470,717,433 [10.17] |
| 42 | - | Eliminated | - | - | - | - | - | - | - | - | - | - | |
| 43 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 2,592,242 |
| 44 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 2,819,930 |
| 45 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,202,890 |
| | 720.7 | Cannelton Locks | 110 | 1,200 | 25.0 | 383.0 | 38.0 | 13.0 | Rock | Rock | 100 | 1972 | 99,032,866 [9] |
| | | and Dam, 3 miles above Cannelton, IN | 110 | 600 | | | | | | | | | |
| 46 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,129,028 |
| | 776.1 | Newburgh Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 16 miles above Evansville, IN | 110 | 600 | 16.0 | 358.0 | 32.0 | 16.0 | Rock | Pile | 99 | 1975 | 104,496,840 |
| 47 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 4,415,526 |
| 48 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,062,710 |



19-14

**Table 19-J (continued)**

## Ohio River Locks and Dams (See Section 1 of Text)

| Lock And Dam | Miles Below Pittsburgh | Distance from Nearest Town | Width of Chamber (feet) | Greatest Length Available for Full Width (feet) | Lift (feet) | Upper Normal Pool Elevation (feet, mean sea level) | Depth on Miter Sills Upper (feet) | Depth on Miter Sills Lower (feet) | Character of Foundation Lock | Character of Foundation Dam | Percent Complete | Year Opened to Navigation | Actual Cost to Date of Each Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,325,964 |
| | 846.0 | John T. Myers | 110 | 1,200 | | | | | | | | | |
| | | Locks and Dam, | 110 | 600 | 22.0 | 342.0 | 34.0 | 12.0 | Rock | Rock | 99 | 1975 | 110,202,769 [19] |
| | | 3.5 miles below Uniontown, KY | | | | | | | | | | | |
| 50 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 3,571,762 |
| 51 | - | Replaced | - | - | - | - | - | - | - | - | - | - | 4,370,566 |
| | 918.5 | Smithland Locks | 110 | 1,200 | | | | | | | | | |
| | | and Dam, 2 miles above Smithland, KY | 110 | 1,200 | 22.0 | 324.0 | 34.0 | 12.0 | Rock | Rock | 99 | 1980 | 273,725,470 |
| 52 | 938.9 | 1.4 miles below Brookport, IL | 110 | 600 | 12.0 | 302.0 | 15.4 | 11.0 | Pile | Pile | 100 | 1928 | 13,337,747 [10] |
| | 938.9 | 1.4 miles below Brookport, IL (New lock) | 110 | 1,200 | 12.0 | 302.0 | 15.4 | 11.0 | Pile | Pile | 100 | 1969 | 10,197,516 |
| 53 | 962.6 | 10.8 miles above Mound City, IL | 110 | 600 | 13.4 | 290.0 | 15.4 | 9.6 [8] | Pile | Pile | 100 | 1929 | 10,004,240 [11] |
| | 962.6 | 10.8 miles above Mound City, IL (New lock) | 110 | 1,200 | 13.4 | 290.0 | 15.4 | 9.6 | Pile | - | 100 | 1982 | 38,570,920 |
| | 964.4 | Olmsted Locks & Dam at Olmsted, IL | 110 | 1,200 | 21.0 | 300.0 | 18.0 | 18.0 | Pile | Pile | 52 | 2013 | 1,079,506,748 [17] |
| | 974.2 | Mound City Lock and Dam, 1 mile below Mound City, IL | - | - | - | - | - | - | - | - | - | - | 1,539,470 [12] |
| | | TOTAL | | | | | | | | | | | $2,577,615,892 [19] |

## Table 19-J Ohio River Locks and Dams (Continued)

### Footnotes

[1] Depths are on emergency dam foundation and re-controlling depths.

[2] Change from fixed dam to lift-gate dam completed in 1938.

[3] Depths are on poiree dam foundation and are controlling depths.

[4] Land chamber.

[5] River chamber.

[6] Lock and Dam 41 completed with 110- by 600-foot lock in 1921. Completed with new dam and raised canal and lock wall in 1928. Auxiliary 56- by 360-foot lock constructed in 1929-30. Reconstruction and modernization began 1956, renamed McAlpine Locks and Dam in 1960. Operation of auxiliary lock suspended in 1971.

[7] Existing structures are complete except for deferred alteration of railroad bridge. Construction of the new 110 foot x 1,200 foot lock began in September 2002.

[8] Dam below not yet constructed. Depth on lower miter sill at lower water.

[9] Excludes $2,219,975 payment for settlement of damage to dam caused by barge accident in April 1978.

[10] Major rehabilitation ($8,876,000) initiated in FY 79 is complete.

[11] Major rehabilitation ($4,593,572) initiated in FY 79 is complete.

[12] For preconstruction planning 1965 to 1972. No longer considered authorized. (See Section 1 of Text.)

[13] Includes $37,485,870 for major rehabilitation completed in FY 84

[14] Includes $33,914,252 for major rehabilitation completed in FY 90 (O&M funds).

[15] Includes $33,016,696 for major rehabilitation completed in FY 89.

[16] Includes $207,026,141 Inland Waterways Trust Funds.

[17] I Includes $521,890,065 Inland Waterways Trust Funds. Received $4,906,000 ARRA Funds

[18] Includes $245,326,106 Inland Waterways Trust Funds.

[18] Includes $221,779,486 Inland Waterways Trust Funds.

[19] Exclusive of $7,013,405 details below.

[20] Includes $102,190,120 original construction cost, $5,205,058 PED costs and $1,730,619 Inland Waterways Trust Funds for Lock Improvement. Received $7,854,430 ARRA Funds FY 09

| Additional Features Entering into Cost of Project | |
|---|---|
| Louisville and Portland Canal and Indiana chute (under previous project). | $5,359,203 |
| Examinations, survey contingencies, plants, and miscellaneous | 966,232 |
| Waterfront Development at Huntington, WV (Greenup Pool) | 19,170 |
| Recreation facilities, pool area, Gallipolis Locks and Dam. | 668,800 |
| Total | 7,013,405 |
| Grand Total | $2,584,629,297 |



19-16

# BUFFALO, NY DISTRICT

The District comprises northern OH, northwestern PA and western and northern NY, embracing U.S. waters of Lake Erie exclusive of a small portion of the western end, Lake Ontario, and St. Lawrence River, with their tributary drainage basins from boundaries between the states of OH and MI to international boundary line east of Frontier, NY.

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# NAVIGATION

## 1. ASHTABULA HARBOR, OH

**Location.** On the south shore of Lake Erie, at mouth of Ashtabula River, 59 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14836.)

**Previous projects.** For details see pg. 1963 of Annual Report for 1915, and pg. 1593 of Annual Report for 1938.

**Existing project.** For description see pgs. 1297-1299 of the 1966 Annual Report. Federal cost of completed project is $12,240,147. Non-Federal costs of $5,743,000, including contribution of $47,000, were for construction of access roads, docks, storage and handling facilities and dockside dredging. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with. Local interests contributed $47,000 for work authorized by 1936 and 1970 Acts.

**Terminal facilities.** There are sixteen piers and wharves. Coast Guard owns one facility. Ten facilities are along banks of Ashtabula River and six are on south side of outer harbor. Eleven terminals have railroad connections and six have mechanical handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Expended $40,000 to perform Project Condition Surveys initiated Ashtabula Dredged Material Management Plan (DMMP) and completed 75% draft Preliminary Assessment at a cost of $49,596. Maintenance: A total of $445,904 was expended by the government floating plant to rebuild approximately 88 linear feet along the harbor side of the East Breakwater utilizing government plant and hired labor. This work included approximately 506 tons of concrete armor block and 360 tons of core stone used in the breakwall construction. Maintenance Dredging cost $765,174 (contract cost $565,000) to remove 70,000 cubic yards of shoaled material from the Federal channel. All dredging performed in the eastern portion of the Outer Harbor and completed to authorized depth. Expended $257,499 for Engineering and Design of the Outer Harbor to complete 35% Design Documentation Report and plans and specifications for dredging and disposal of remaining sediments not suitable for open lake placement. Evaluated alternative sediment volume estimation methods and conducted sediment sampling to perform a Tier 3 bioaccumulation study for sediments not suitable for open lake placement.

## 2. BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY

**Location.** Improvement is essentially that of upper 13.5 miles of Niagara River from its head at Lake Erie, Buffalo, NY, to and including Tonawanda Harbor, NY. It comprises improvements formerly designated by three titles; Lake Erie entrance to Black Rock Harbor and Erie Basin, NY, Black Rock Harbor and Channel, NY and Tonawanda Harbor and Niagara River, NY. (See NOAA Nautical Chart 14832.)

**Previous projects.** For details, see items 5 and 7, pg. 1970 of Annual Report for 1915, and pg. 1612 of Annual Report for 1938.

**Existing project.** For description of existing project and Federally owned Black Rock ship lock, see pg. 1548 of Annual Report for 1962. Improvement of guide pier at Black Rock Lock, as authorized by 1935 Act was de-authorized by Congress in Aug 1977. Cost for completed portion of new work is $10,457,093. Enlarging of existing 21-foot turning basin and deepening lower 1,500 feet of Tonawanda Inner Harbor from 16 to 21 feet, authorized by the 1954 Act, was de-authorized by Congress in May 1981, and is excluded from foregoing cost. Non-Federal costs are estimated at $1,540,000 for costs incurred by NY State for construction of Erie Basin and protecting breakwater, and construction and extension of Bird Island Pier, and by other local interest for relocation of utilities. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with for existing project. Contract for cost-shared recreation development at completed projects (Code 713 program) was executed by the NY State Department of Environmental Conservation, Albany, NY on Apr 16, 1985, and was approved by the Assistant Secretary of the Army and Chief of Engineers on May 3, 1985.

**Terminal facilities.** Two facilities are along the upstream end of the channel. Below Black Rock Lock and at Tonawanda Harbor there are 13 privately owned terminals. There are two state-owned barge canal terminals at Tonawanda, NY, and several marine service and supply docks for recreational and other small craft. The Corps owns a wharf adjacent to Black Rock Lock that is private. Ten terminals have railroad connections and six mechanical-handling facilities. Facilities considered adequate for existing commerce. (Port Series No. 41, revised 1971, Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Public Visitation Tracking at Bird Island Pier cost $6,158 in order to research and develop a plan of survey and purchase equipment to track

public visitation. Operation and care of the lock cost $705,517. Maintenance: A total of $123,000 was expended by contract to install new sill timbers. This work was required to allow the safe and efficient passage of commercial and recreational harbor traffic, and to prevent a safety hazard to divers when dewatering the lock for other maintenance. At a cost of $112,741, additional maintenance activities at the lock were accomplished, with minimal impact on commercial and recreational navigation interests. In addition, contract award for replacement of the water and sewer service lines for the lock was accomplished with construction scheduled for the first quarter of FY10. Compliance with National Historic Preservation Act coordination and reporting requirements cost $498. Expended $130,003 in Stimulus Funds (ARRA) to repair the Lower Gate Guard Sill. The timbers for the lower sill were replaced. The guard gates are used for periodic dewaterings of the lock in order to facilitate maintenance of the lock. Damage to the timbers caused large levels of leakage that posed a safety hazard to divers working to seal the gates. Replacement of the timbers has greatly reduced this hazard and will also increase the efficiency of lock dewatering operations. Expended $122,622 in Stimulus Funds (ARRA) to repair the Lower Operating Gate Sill. The timbers for the lower operating sill were replaced. Damage to the old timbers had caused to leakage below the bottom of the gates both impacting efficiency of operations and creating erosive flows in the area of lock gate valves and bearings. Expended $388,187 in Stimulus Funds (ARRA) for Structure Repair of the Bird Island Pier to rebuild 192 linear feet of the lake side of the Pier utilizing government plant and hired labor. This work included using 406 tons of concrete armor block, 400 tons of core stone, and 30 cubic yards of reinforced cast-in-place concrete used during construction. Maintenance Dredging cost $83,930 in Stimulus Funds (ARRA) funds (contract cost $1,173,750) to begin removal of approximately 115,000 cubic yards of shoaled material from the Federal channel [Between Station 1+00 and 135+00]. Dredging to be completed in July, FY10.

### 3. BUFFALO HARBOR, NY

**Location.** At eastern end of Lake Erie, at head of Niagara River, 176 miles easterly from Cleveland, OH. (See NOAA Nautical Charts 14820 and 14833.)

**Previous projects.** For details see pg. 1967 of Annual Report for 1915 and pg. 1606 of Annual Report for 1938.

**Existing project.** For description see pg. 1368 of Annual Report for 1963. In addition, on Dec 15, 1980, OCE authorized the removal of bridge abutments of South Michigan Avenue Bridge. New work for completed project cost $18,837,601. Estimated non-Federal costs were $9,188,000 for deepening, widening, and improving Buffalo River and ship canal, constructing piers, retaining walls, and dikes and performing dockside dredging. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** There are 27 piers, wharves, and docks of which five are on the outer harbor, nine are on the Lackawanna, Union, and Buffalo Ship Canals, and thirteen are located along the deep-draft section of the Buffalo River. Gateway Metroport, Division of Gateway Trade Center, Inc., owns and operates, for the former Bethlehem Steel Corp., wharves at Lackawanna for the receipt and shipment of general cargo and bulk commodities. Buildings of the former steel plant are utilized for transit and long-term storage of cargo as required. The Niagara Frontier Transportation Authority owns Terminals A and B in the outer harbor used for handling general cargo. Twenty terminals have railroad connections. The city of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

**Operations and results during fiscal year.** Operations: A credit of -$3,960 was received from the FY08 Sediment Sampling, Analysis and Evaluation contract that performed physical, chemical and biological analyses on sediments collected. Initiated Buffalo Dredged Material Management Plan (DMMP) and completed 75% draft Preliminary Assessment at a cost of $48,924. Maintenance: Continuation of a FY08 Maintenance Dredging cost $738,056 (contract cost $770,695) to remove 78,460 cubic yards of shoaled material from the Federal channel [river channel 583+00 – 600+00, 457+00 – 508+50, and the mouth of the ship canal 800+00 – 805+50]. All dredging was completed to the authorized depth. A total of $703,143 ($256,779 Omnibus and $446,364 Stimulus (ARRA)) funds were expended by government floating plant to rebuild 32 linear feet of the lake side of the South Breakwater utilizing government plant and hired labor. This work included 385 tons of concrete armor block and 400 tons of core stone used in the breakwall construction. Expended $99,955 in Stimulus Funds (ARRA) on the Confined Disposal Facility (CDF) #4 to make repairs to approximately 72 linear feet of the Containment Dike utilizing government plant and hired labor. This work included 450 tons of stone used in the dike repairs.

In addition to the stone repair, work performed included cutting off the top of steel sheet piling that has jacked up significantly higher than the structure crest to prevent structure damage from the prying effect of wave and ice forces on the elevated piles, and welding the seams of the sheeting in these areas to prevent further jacking.

## 4. CLEVELAND HARBOR, OH

**Location.** On south shore of Lake Erie, at mouth of Cuyahoga River, 176 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14839.)

**Previous projects.** For details see pg. 1962, Annual Report for 1915, and pg. 1585, Annual Report for 1938.

**Existing project.** For description of existing project, as authorized through the 1966 modification, see pg. 1269 of Annual Report for 1967. Further improvements in the interest of commercial navigation and recreational navigation were authorized in the 1985 Supplemental Appropriations Act (PL 99-88). For details of the commercial navigation portion of the project, see pg. 20-4 of the Annual Report for 1995. For details of the recreational navigation portion of the project, see pg. 20-3 of Annual Report for 1994. The Water Resources Development Act of 1986 (PL 99-662) and the FY 88 Energy and Water Appropriations Act (PL 100-202) authorized the recreational navigation project. These acts authorized additional undefined improvements to Cleveland Harbor. A portion of the project was de-authorized by the Inter-model Surface Transportation Efficiency Act of 1991. Estimated total Federal cost of the existing project is $33,852,100 (Oct 1991) exclusive of undefined, inactive and deferred portions of the project. The amount of $29,315,100 is for completed work and the balance of $4,537,000 is for new work. Estimated non-Federal cost is $13,740,000 (Oct 1991) of which $9,203,000 is actual cost for completed work and the balance of $4,537,000 is required for work authorized by PL 99-88, PL 99-662, and PL 100-202. Remaining work authorized by 1946 River and Harbor Act, consisting of widening and deepening the right bank of Cuyahoga River at the downstream end of Cut 4, is considered inactive and excluded from foregoing cost estimate. Estimated Federal cost (1966) of this portion is $85,600 and non-Federal cost (1966) $5,000,000. Remaining work authorized by 1958 R&H Act, consisting of planning and replacement of bridges number 19 (E.L.R.R.) and 32 (B. & O.R.R.) and widening Cuyahoga and Old River channels, and remaining work authorized by the 1960 R&H Act, consisting of deepening the remainder of the Cuyahoga River from bridge number 1 to and including the Old River to a depth of 27 feet, has been classified as deferred and is also excluded from foregoing estimate. Estimated Federal cost (Oct 1976) of this portion is $18,033,300 and estimated non-Federal cost (Oct 1976) is $21,251,000. The 1989 Energy and Water Development Appropriations Act (PL 101-101) authorized the Corps to begin a Reconnaissance study of the Cuyahoga River, to address the concerns of boat traffic congestion and related risks, accidents and safety of the public. Preliminary plans were studied to alleviate the commercial navigation problem and inadequate width and depth, in the Old and Cuyahoga Rivers. The cost of this Reconnaissance study was $250,000. The Reconnaissance Report recommended a feasibility study for one plan, which has three structural features, and the potential for yielding commercial (priority) outputs. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility phase of the study. Therefore, the study was reclassified as "inactive". (See Table 32-B for authorizing legislation.) A confined disposal facility (CDF) (Dike 10B) was constructed adjacent to the Burke Lakefront Airport for containment of dredged material from Cleveland Harbor. The rubble mound structure was designed to hold material unsuitable for open-lake disposal. The sixty-eight (68) acre site provided sufficient CDF capacity for approximately eleven years. The project was constructed with Federal O&M funds at a cost of $17,500,000 and was completed in 1998.

**Terminal facilities.** Fifty-one piers, wharves, and docks are situated in the Port of Cleveland. Eleven are located in the east and west basins of the outer harbor; 7 along the banks of the Old River and 17 and 16 along the right and left banks of the Cuyahoga River, respectively. Twenty-two terminals have both railroad connections and mechanical-handling facilities. The Corps owns a wharf at the foot of East 9th Street. The city of Cleveland owns and operates a wharf for mooring the city fireboat. U.S. Coast Guard vessels are moored east of the foot of 9th Street in the east basin. (See Port Series No. 43, revised 1989, U.S. Army Corps of Engineers.)

**Operations and results during fiscal year.**

Operations: Expended $65,000 to perform Project Condition Surveys and there was a credit of $108 to the FY08 Economic Data Collection cost. FY09 efforts related to the Dredged Material Management plan cost $249,349. Prepared the draft DMMP/EIS, including conducting Agency Technical Review, Cost Risk Analysis review and Consolidated Policy Guidance Memo. Submitted Policy Waiver Request to ASA(CW) and received approval to designate Plan 4A as the Locally Preferred Plan. Issued over 150 hard copies of the draft DMMP/EIS for public and

agency review, held the Public Information Meeting in Cleveland and coordinated comments and RFIs during the review period. Held numerous meetings with the local sponsor concerning financial self-certification and impacts of delays in CDF construction. Contracted for and started the Independent External Peer Review (IEPR) which was to be conducted by Battelle in parallel with the public/agency review period, but had to stop work when it became evident that the Port couldn't sign the self-certification. Maintenance: A total of $448,510 was expended to rebuild 40 linear feet (two sides) of the East Arrowhead Breakwater utilizing government plant and hired labor. This work included 288 tons of concrete armor block and 320 tons of core stone used in the breakwall construction. There were two credits to FY08 costs, $1,318 on the finger pier repair and $155 on the East Breakwater (Sta 84-94) projects. Activities related to the new CDF cost $269,154. Preliminary CDF designs were completed for use in the DMMP. ERDC completed extensive water quality modeling of the potential impacts of a CDF at the E. 55th St. site; the preliminary geotechnical investigation (six borings) and laboratory analyses for the E. 55th St. site were completed, and; the scope for wave modeling was evaluated by a combination of ERDC and in-house staff. Expended $1,454,055 for repair of the West Pierhead. Construction provides an interim repair of the structure by installing 130 linear feet of sheet steel piling along the most exposed and deteriorated lake-ward face of the pierhead, replacing the affected concrete cap, and stabilizing the supported historic lighthouse through subsurface grouting. Coordination with SHPO continued to mitigate adverse effects on to the fog signal building, the other historic structure on the pierhead. A total of $44,962 was expended to remove debris that has accumulated in the Cleveland Harbor and Cuyahoga River utilizing government plant and hired labor. The work is required to allow the safe passage of commercial and recreational harbor traffic. Maintenance Dredging cost $2,475,446 (contract cost $1,428,739) to remove 129,074 cubic yards of shoaled material from the Cuyahoga River [Dredged 96,927 CY from the Upper River Channel – Station 799+92 to 749+00. Dredged 32,147 CY from Lower River Channel – Station 749+00 to 499+34]. Expended $6,492 to close out FY08 Dike 10B project. Expended $264,967 for work on the CDF 9 Fill Management Plan. All activities were performed in preparation for the planned berm raising activities at the site. Tasks included geotechnical investigation, and testing program, surveys, and other pre-design efforts including coordination and participation in FAA studies necessitated by the adjacent airport. Expended $76,959 for work on the CDF 12 Fill Management Plan. All activities were performed to prepare the site for planned excavation activities. Tasks included the development of bid documents, contract award and dewatering activities. Additional work to be performed in following FY(s). Expended $154,058 in Stimulus Funds (ARRA) on the Disposal of Dredged Material Operation (DMMO) project. Held sources sought meeting onsite. Evaluated qualifications of prospective service disabled veteran owned small businesses and decided on a set aside for same. Prepared plans and specifications for excavating up to 400,000 CY of dredged sediment from CDF 10B. Conducted all necessary reviews and prepared the independent government estimate. This first of its kind contract in Cleveland calls for the contractor to obtain all necessary permits and approvals for the site receiving the sediment for disposal or re-use. Supplied information and answers to questions raised during the bid phase. Awarded the contract to the lowest bidder on 18 Sep 09 and coordinated the government response to subsequent protests of the winning bidder's eligibility. Expended $19,813 in Stimulus Funds (ARRA) for interim CDF measures to allow for placement of dredged material unsuitable for open lake disposal.

## 5. CONNEAUT HARBOR, OH

**Location.** On the south shore of Lake Erie, at mouth of Conneaut River, 73 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14824.)

**Previous projects.** For details see pg. 1964, Annual Report for 1915.

**Existing project.** For description see pg. 1274 of Annual Report for 1967. Actual costs for new work for completed portion of the project were $7,541,369. For completed work, non-Federal costs were $200,000 for dockside dredging and removal of existing dolphins. The most southerly 300 feet of the 1,670-foot long shore arm, authorized by the R&H Act of 1910, was de-authorized Oct. 96. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with for completed portion of project.

**Terminal facilities.** There are seven piers and wharves. Six are privately owned and operated and located in inner harbor. Remaining facility is city owned on the south side of outer harbor. Six terminals have railroad connections and four mechanical-handling facilities. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Maintenance: A credit of -$16,076 was received from the FY08 Dredging contract. A total of $335,004

was expended by government floating plant to rebuild 40 linear feet (two sides) of the East Breakwater utilizing government plant and hired labor. This work included 420 tons of concrete armor block and 135 tons of core stone used in the breakwall construction.

### 6. DUNKIRK HARBOR, NY

**Location.** On south shore of Lake Erie, 37 miles southwesterly from Buffalo, NY. (See NOAA Nautical Chart 14823.)

**Previous projects.** For details see pg. 1966 of Annual Report for 1915, and pg. 1604 of Annual Report for 1938.

**Existing project.** For description of completed portion of existing project see pg. 32-8 of Annual Report for 1976. For description of small boat harbor project as authorized under Section 201 of Flood Control Act of 1965, see pg. 32-8 of Annual Report for 1978. Actual costs for completed work are $3,010,024. Actual non-Federal costs are $1,961,000. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** Maintenance: Dredging cost $280,050 [Omnibus $242,349/Stimulus (ARRA) $37,701], including contract cost of $979,397, to remove approximately 105,367 cubic yards of shoaled material from the Federal channel [Dredging 14,525 CY from the recreation channels, 22,182 CY from the Lake Approach Channel and 68,660 from the Outer Harbor]. Dredging to be completed in FY10.

### 7. ERIE HARBOR, PA

**Location.** On southerly side of bay formed by Presque Isle Peninsula, on south shore of Lake Erie, 78 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14835.)

**Previous projects.** For details see pg. 1965 of Annual Report for 1915 and pg. 1600 of Annual Report for 1938.

**Existing projects.** For description see pgs. 1363-64 of the Annual Report for 1963. The FY 93 Appropriations Act (PL102-377) authorized the planning, design and dredging of an access channel and berthing area. Entire project modification authorized by 1945 River and Harbor Act, providing for deepening channel and basin, both 23 feet deep, to Penn Central Company coal docks at westerly end of harbor, was de-authorized by Congress in Aug 1977. Actual costs for new work for completed portion of project were $2,860,906. Extension of north pier portion, authorized by 1899 Act was de-authorized in Nov 1981. A portion of work authorized by 1960 Act, deepening strips adjacent to north and south piers, was de-authorized in Aug 1982. Non-Federal costs for completed work were $51,000 for providing ore dock and dredging slip adjacent thereto. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Sixteen piers and wharves, of which twelve are privately owned and operated. Erie International Marine Terminal No. 1 owned by Port Commission, city of Erie, is along main waterfront on south side of Presque Isle Bay and Coast Guard facilities are on north side. Two offshore oil docks are on Lake Erie. Eight terminals have railroad connections and six mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

### 8. FAIRPORT HARBOR, OH

**Location.** On south shore of Lake Erie at mouth of Grand River, 33 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14837.)

**Previous projects.** For details see pg. 1963 of Annual Report for 1915, and pg. 1590 of Annual Report for 1938.

**Existing project.** For description of existing project, see pg. 1526 of Annual Report for 1962. Total Federal cost of $2,591,000 is actual cost for completed portion of project. Total non-Federal cost is $101,000 for bulkheads and dockside dredging for completed portion of project. (See Table 20-B for authorizing legislation.)

**Local cooperation.** See pg. 32-11 of 1976 Annual Report regarding assurances of local cooperation for work authorized by R&H Act of 1927.

**Terminal facilities.** Sixteen piers and wharves, all along banks of Grand River. Coast Guard owns one facility. Nine terminals have railroad connections and ten mechanical-handling facilities. Facilities considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Expended $26,000 to perform Project Condition Surveys. Maintenance: Dredging cost $2,246,936 [Omnibus $1,869,610/Stimulus (ARRA) $377,326], of which the contract cost was

$1,672,304, to remove 188,166 cubic yards of shoaled material from the Federal channel [Dredged 101,079 CY from the Outer Harbor and River Channel. Dredged 87,087 CY from the Lake Approach Channel]. All dredging was completed to the authorized depth. Expended $567,249 in Stimulus Funds (ARRA) on the East Breakwater to rebuild 64 linear feet (two sides) of the East Breakwater utilizing government plant and hired labor. This work included 821 tons of concrete armor block and 250 tons of core stone used in the breakwall construction.

## 9. GREAT SODUS BAY HARBOR, NY

**Location.** On Sodus Bay, which is a nearly land-locked indentation on south shore of Lake Ontario, 29 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14814.)

**Previous project.** For details, see pg. 1972 of Annual Report for 1915, and pg. 1526 of Annual Report for 1938.

**Existing project.** For description, see pg. 1380 of Annual Report for 1963. Improvements authorized by 1962 Act, consisting of deepening lake approach channel, entrance channel and inner approach channel were deauthorized by Congress in Aug 1977. Actual costs of new work for completed portion of project were $249,187. Costs incurred by local interests are not available. (See Table 20-B for authorization legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 10. HURON HARBOR, OH

**Location.** On south shore of Lake Erie at mouth of Huron River, 47 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14843.)

**Previous project.** For details, see pg. 1961 of Annual Report for 1915, and pg. 1576 of Annual Report for 1938.

**Existing project.** For description, see pg. 1347 of Annual Report for 1963 and pg. 32-12 of Annual Report for 1978. Cost of completed portion of existing project was $4,834,006. Construction of detached breakwater as authorized by 1962 R&H Act was de-authorized Jan 1, 1990. Non-Federal costs of $163,000 were incurred by local interests in 1963 for dockside dredging of areas between Federal improvement and terminal facilities. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Six privately owned wharves and docks, one along left bank of Huron River and remainder along right bank. Four terminals have railroad connections and four mechanical-handling facilities. Facilities are regarded as adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Expended $30,000 to perform Project Condition Surveys. Maintenance: Dredging cost $648,199 [Omnibus $591,755/Stimulus Funds (ARRA) $56,444], of which the contract cost was $1,923,820, to remove 303,000 cubic yards of shoaled material from the Federal channel [Total quantities and contract amount are preliminary due to ongoing closeout negotiations. All dredging performed between stations 72+00 and 110+00]. A total of $225,942 [Omnibus $75,968/Stimulus Funds (ARRA) $149,974] was expended on the Confined Disposal Facility (CDF) Exterior Repair by the government floating plant to make repairs to approximately 24 linear feet utilizing government plant and hired labor. This work included approximately 50 tons of tons of concrete block used in the repairs. Additionally, the wooden stop logs of the CDF weir were replaced and welding repairs were made to the structural steel frame of the weir.

## 11. IRONDEQUOIT BAY, NY

**Location.** On south shore of Lake Ontario, 4 miles east of Rochester, NY at mouth of Irondequoit Creek, Monroe County, NY. (See NOAA Nautical Charts 14804 and 14815).

**Existing project.** For details of existing project, see pg. 32-7 of Annual Report for FY 87. Total estimated project cost is $15,363,000 (Oct 1994) including $3,582,000 Federal (which includes the COE $3,536,000 and the USCG $46,000) and $11,781,000 non-Federal, including a cash contribution of $2,661,000, lands and damages $290,000 and the cost of a movable highway bridge $8,830,000. Existing project was authorized by 1958 River and Harbor Act (H. Doc. 332, 84th Cong., 2nd sess.).

**Local cooperation.** The Buffalo District has a Local Cooperation Agreement with New York State, executed April 20, 1983.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** Maintenance: Finalization of the FY08 Maintenance Dredging contract cost $49,196. All dredging was completed to the authorized depth

## 12. LITTLE SODUS BAY HARBOR, NY

**Location.** Little Sodus Bay, on south shore of Lake Ontario, 15 miles west of Oswego, NY. (See NOAA Nautical Chart 14803.)

**Previous projects.** For details see page 1973 of Annual Report for 1915, and page 1628 of Annual Report for 1938.

**Existing project.** For description see page 1378 of Annual Report for 1958. New work for completed project cost $69,066. Non-Federal costs of $6,000 were incurred for channel dredging. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Not required.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** Operations: Public Visitation Tracking cost $11,987 to research and develop a plan to survey and purchase equipment to track public visitation. Maintenance: $6,086 was expended to initiate a congressional add for Maintenance Dredging, however the funding available was deemed inadequate to perform required work. Instead, a project for structure repair was initiated at a cost of $30,754. An assessment of East and West pier structural problems was conducted, with the East Pier given highest priority. A Scope of Work with detailed design was developed for concrete cap repairs to the end portion of the East Pier. A contract in the amount of $227,551 was awarded in FY09, with construction to commence in the Spring of FY10.

## 13. LORAIN HARBOR, OH

**Location.** On south shore of Lake Erie at mouth of Black River, 25 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14841.)

**Previous projects.** For details, see pg. 1961 of Annual Report for 1915, and pg. 1580 of Annual Report for 1938.

**Existing project.** For description see pgs. 1319-22 of the Annual Report for 1966. Federal cost of new work is $20,475,000. Deepening and widening remainder of Black River Channel at Cut 1 and construction of bank stabilization, authorized by 1960 Act and modified by 1965 Act was de-authorized Jan 1, 1990. A portion of work authorized by 1960 Act, dredging of 15-to-25 foot wide strips adjacent to the U.S. East and West Piers were also de-authorized Jan 1, 1990. Total non-Federal cost is $3,000 contributed by local interests towards construction of west shore arm. (See Table 20-B for authorizing legislation.) The Water Resources Development Act (WRDA) of 1986 (PL 99-662) authorized construction of commercial navigation improvements consisting of two bend cuts on the Black River to widen and straighten the channel between the Norfolk and Western Railroad Bridge and the 21st Street Bridge. These cuts are to be excavated to the existing channel depth of 27 feet. The authorized plan also includes widening the Upper Turning Basin at the existing depth of 21 feet. Estimated costs for this work are $2,290,000 Federal and $1,510,000 non-Federal (Oct 1989). This portion of the project has been classified deferred. On Mar 12, 1986, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbors Act, as amended, authorized construction of a small boat harbor that was completed in Jul 1987. The project consists of a 225-foot detached rubble mound breakwater and an 800-foot long rubble mound breakwater attached to the east breakwater shorearm in the east basin of the outer harbor. Construction costs for this project, including supervision and administration, were $775,025 Federal and $775,025 non-Federal.

**Local cooperation.** For completed work, local interests contributed $3,000. Work authorized by 1960 Act (and modified by 1965 Act) is de-authorized. All other conditions fully complied with. On Mar 25, 1986, the city of Lorain, OH signed the Local Cooperation Agreement (LCA), for the Section 107 project. For details see pg. 32-7 of Annual Report for 1986. For details of LCA for deferred project authorized by the 1986 WRDA, see pgs. 32-9 of the Annual Report for FY 87.

**Terminal facilities.** There are 23 piers and wharves, of which three are on the outer harbor and the remainder is along banks of Black River. Two are owned by the city. Eight terminals have railroad connections and 15 mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Costs for continuing the Dredged Material Management Plan (DMMP) were $127,275. The comments on the draft were incorporated in the final DMMP/EIS and issued for a 30-day public comment period. The document was finalized and the District Commander's transmittal to MG Peabody was prepared and included the draft ROD, study issue checklist, Planning Chief's and Counsel's certification, PGM compliance memo, ITR comments and certification and the sponsor's letter of support

for the plan. The ROD was signed by MG Peabody and distributed to stakeholders. Expended $52,502 to perform Project Condition Surveys. Maintenance: Confined Disposal Facility (CDF) Maintenance cost $125,887 to prepare plans and specifications to raise the entire containment berm to a +12 LWD elevation, providing approximately 180,000 CY of additional airspace. Conducted ATR and prepared independent government estimate. Solicited bids and awarded contract under MATOC. Conducted a pre-bid meeting onsite and coordinated pre-construction submittals. Amended the contract to include additional filling of a low area outside the containment berm using approximately 7,500 CY taken from within the CDF. A total of $602,441 was expended to rebuild 54 linear feet (two sides) of the East Breakwater utilizing government plant and hired labor. This work included 720 tons of concrete armor block and 370 tons of core stone used in the breakwall construction. A total of $44,457 was expended to remove debris that has accumulated in the harbor utilizing government plant and hired labor. The work is required to allow the safe passage of commercial and recreational harbor traffic. Dredging cost $689,005 [Omnibus $667,997/Stimulus Funds (ARRA) $21,008], of which the contract cost was $1,083,900, to remove 156,000 cubic yards of shoaled material from the Federal channel [All dredging completed in the River Channel between Station 143+47 and 40+00]. All dredging was completed to the authorized depth.

## 14. OAK ORCHARD, NY

**Location.** On south shore of Lake Ontario, at mouth of Oak Orchard Creek, 33 miles westerly of Rochester, NY. (See NOAA Nautical Chart 14805.)

**Previous project.** For details see pg. 628 of Annual Report for 1905.

**Existing project.** For description of completed existing project see pg. 32-14 of 1975 Annual Report. Actual Federal cost for completed project was $1,613,500. Estimated non-Federal cost is $270,000 (Jul 1971) including cash contribution of $170,700 and $54,002 for recreational facilities and remainder for lands and construction of wharf. Existing project was authorized by the 1945 River and Harbor Act (H. Doc. 446, 78th Cong., 2nd sess.).

**Local cooperation.** Fully complied with. Local interests contributed $224,702.

**Terminal facilities.** There is no commercial navigation at Oak Orchard Harbor. Terminal facilities consist of private docks for recreational craft.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 15. OLCOTT HARBOR, NY

**Location.** On south shore of Lake Ontario at mouth of Eighteen Mile Creek about 18 miles east of mouth of Niagara River and 63 miles by water west of Rochester, N.Y. (See NOAA Nautical Chart 14806.)

**Previous project.** For details see page 1971 of Annual Report for 1915 and page 1621 of Annual Report for 1938.

**Existing project.** For description see page 1555 of Annual Report for 1962. Cost of new work for completed project was $1,500 exclusive of amount expended on previous projects, all of which was contributed by local interests. (See Table 20-B for authorizing legislation.) The authorized modification to the existing project consists of breakwaters to provide optimum harbor protection a stone jetty and recreational fishing facilities including a footbridge, walkways and guardrails, access facilities, sanitary facilities and parking areas. The estimated cost of the authorized modification is $17,000,000 (Oct. 1990) of which $8,500,000 is Federal and $8,500,000 is non-Federal. Modification of the existing project was authorized by the 1986 Water Resources Development Act (WRDA) (PL 99-662).

**Local cooperation.** Fully complied with for completed project. Local interests contributed $1,500. Modifications authorized by the 1986 WRDA will require local interests to pay 50% of project cost including lands easements, right-of-way and dredge disposal areas. They are also responsible for construction of necessary docks and berthing spaces, construction of launching ramp, parking areas, sanitary facilities, and necessary access roads. After construction, non-Federal responsibilities would include fishing facility maintenance, except for the aids to navigation.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 16. OSWEGO HARBOR, NY

**Locations.** On South shore of Lake Ontario, at mouth of Oswego River, 59 miles easterly from Rochester, NY. (See NOAA Nautical Chart 14813.)

**Previous projects.** For details see pg. 1973 of Annual Report for 1915, and pg. 1630 of Annual Report for 1938.

**Existing project.** For description see pgs. 1383-84 of the Annual Report for 1963. Completed portion of project cost $7,242,039 and non-Federal costs for completed work were $4,440,000 for lands, dockside dredging, construction of terminal wharves, and cargo handling facilities. Deepening a 200-foot wide strip along harbor line east of mouth of Oswego River, remaining feature of work authorized by the 1930 Act, was de-authorized Jan 1, 1990. Deepening to 22 feet a 150-foot wide strip along harbor line in west outer harbor, remaining feature of work authorized by 1940 Act, was de-authorized in May 1981. The portion of the Federal Channel from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of Lake Street Bridge authorized by the 1910 R&H Act as amended by the 1935 R&H Act was de-authorized Oct 96. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** There are seven piers and wharves in the harbor and along the river channel. The Port of Oswego owns and operates a general cargo terminal at the mouth of the Oswego River. The Port Authority also operates a grain elevator west of the mouth of the river. The U.S. Coast Guard moors patrol and environmental research vessels west of the mouth of the river.

**Operations and results during fiscal year.** Maintenance: Finalization of the FY08 Maintenance Dredging contract cost $12,626. All dredging was completed to the authorized depth

## 17. OTTAWA RIVER, MI & OH

**Location.** At westerly end of Lake Erie, at Toledo, OH 99 miles westerly from Cleveland, OH (See NOAA Nautical Chart 14847).

**Existing project.** The project was found to have benefits which are 100% recreational in nature. Therefore, it has a low national priority for budgetary purposes and was not funded in FY06. A public hearing was held on 12 April 2005 by Ohio Environmental Protection Agency on the Corps' application for a Section 401 Water Quality Certification and there was tremendous local support. Since more than one year elapsed without a response from the State of Ohio, the Corps considered the request for certification to be waived. The Michigan Department of Environmental Quality expressed their opposition to the project for environmental reasons. Ongoing work included coordination with the Ottawa River Remediation Team and interested members of Congress. The project, originally authorized under provisions of Section 201 of the Rivers & Harbors Act, (PL 89-298) by the House and Senate Committees on Public Works Resolutions, dated December 15 and 17, 1970, respectively, was continued by the 1990 Water Resources Development Act (PL 101-640).

**Local cooperation.** The potential local sponsor is the city of Toledo, OH. The local sponsor must provide 50% of the total project cost that includes lands, easements, rights-of-way, and relocations.

**Operations and results during fiscal year.** No funds were appropriated or spent during FY09.

## 18. PORT CLINTON HARBOR, OH

**Location.** Comprises lower half-mile of Portage River. River empties into Lake Erie 72 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14820.)

**Existing project.** Provides for parallel jetties at river mouth and a channel in Lake Erie and Portage River with a project depth of 10 feet. For additional details, see pg. 1899 of Annual Report for 1951. (See Table 20-B for authorizing legislation.)

**Terminal facilities.** A total of 11 docks exist; one public fish dock, one private sand dock, one private fuel dock, one lumber dock, one coal dock and five private docks. The village of Port Clinton owns a dock at the foot of Madison Avenue that is open to the public. A shipyard builds small boats. Terminal facilities are adequate for existing commerce.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 19. ROCHESTER HARBOR, NY

**Location.** On south shore of Lake Ontario, at mouth of Genesee River, 59 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14815.)

**Previous project.** For details see pg. 1471 of Annual Report for 1915, and pg. 1623 of Annual Report for 1938.

**Existing project.** For description see pg. 1556 of Annual Report for 1962. Actual cost for new work for completed project is $2,191,514. Non-Federal costs are estimated at $2,260,000, all for 1960 Act, for lands, relocation of submarine cable crossing, relocations of small docks and boathouses, dockside dredging, structure modifications, and replacement of Baltimore & OH coal loader. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Complied with except provision for replacement of coal loading facility as required by River and Harbor Act of Jul 14, 1960.

**Terminal facilities.** There are 3 docks at Rochester Harbor. The city of Rochester owns an 830-foot long wharf at the entrance to the Genesee River. Three storage buildings at the terminal, formerly used as transit sheds, have approximately 100,000 square feet of storage space. Approximately 3 acres of open storage area is located at the upper end of the facility. The facility has not been used for handling cargo for over 10 years. The U.S. Coast Guard moors search and rescue vessels at the mouth of the Genesee River. Another private facility is located 1.6 miles above the Stutson Street Bridge.

**Operations and results during fiscal year.** Operations: Public Visitation Tracking cost $12,298 to research and develop a plan to survey and purchase equipment to track public visitation, and expended $35,000 to perform Project Condition Surveys. Maintenance: Maintenance Dredging cost $1,288,106 (contract cost $949,463 to remove 153,325 cubic yards of shoaled material from the Federal channel [Dredging completed throughout the Federal Channel (Station 201+00) to the lake]. Completed repairs to the West Pier at a cost of $131,689. Work performed consisted of a variety of structural and public safety improvements, including installation of 11,248 feet of new cable handrail and straightening of 6 metal posts, replacing damaged grab bars at 21 egress ladders with new low-profile bars, filling concrete voids at outer edges of the pier, repairing 800 square feet of deck concrete patch under warranty from 2008 and installing 500 square feet of new patch to provide a smoother walking surface, painting all West (and East) Pier egress ladders, removing tripping hazards throughout the pier, cleaning and sealing concrete joints, and installing permanent project ID signs at the entrance to the pier.

## 20. ROCKY RIVER, OH

**Location.** At mouth the of the Rocky River which empties into Lake Erie seven miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

**Existing project.** For description see pg. 1329 of Annual Report for 1966. Federal cost for completed project was $343.494 and non-Federal cost was a cash contribution of $249,346. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with. Local interests contributed $249,346 for new work.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 21. SANDUSKY HARBOR, OH

**Location.** On south shore of Lake Erie, in southeastern portion of Sandusky Bay, 50 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14845.)

**Previous project.** For description see pgs. 1511-12 of Annual Report for 1962. Actual costs for new work for completed project were $6,250,121, excluding $325,000 contributed by local interests. Non-Federal costs for completed project are estimated at $675,000, including $325,000 cash contribution and the remaining $350,000 is for dockside dredging adjacent to deepening channels authorized by 1960 Act. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with. Local interests contributed $325,000 for new work.

**Terminal facilities.** Fourteen piers and wharves, three at west end of harbor and remainder along dock channel. One is a base for state-owned fish research and patrol boats. One publicly owned and six privately owned used for mooring fishing boats and recreational craft and for ferry service. Five terminals have railroad connections and five mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

**Operations and results during fiscal year.** Maintenance: Dredging cost $2,044,344 [Omnibus $960,574/Stimulus Funds (ARRA) $1,083,770], of which the contract cost was $999,998 to remove 119,617 cubic yards of shoaled material from the Federal channel [All dredging performed in the Upper Bay Channel]. All dredging was completed to the authorized depth.

## 22. STURGEON POINT, NY

**Location.** On south shore of Lake Erie, 17 miles southwest of Buffalo, NY and 22 miles northeast of Dunkirk, NY. (See Geological Survey map of Angola, NY.)

**Existing project.** For description of existing project, see pg. 20-11 of Annual Report for 1991. Federal project cost is $ 1,460,000. Non-Federal project cost is $1,475,000. In addition, the local sponsor provided associated costs for upland development of $1,000,000.

**Local cooperation.** The Buffalo District has a properly executed Local Cooperation Agreement with the Town of Evans, NY, signed Oct 26, 1987.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 23. TOLEDO HARBOR, OH

**Location.** Comprises lower seven miles of Maumee River and channel through Maumee Bay to Lake Erie. Maumee River has its source in northern Indiana and empties into Lake Erie. Harbor is at the westerly end of Lake Erie, 99 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14847.)

**Previous projects.** For details see pg. 1959 of Annual Report for 1915, and pg. 1565 of Annual Report for 1938.

**Existing project.** For description of existing project see pgs. 32-18 and 32-19 of the Annual Report for 1978. Cost of completed existing project was $15,567,147. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Thirty-five piers, wharves and docks are located in the Port of Toledo. Seven are located on Maumee River; and 28 are equally divided along the right and left banks of the lower seven miles of the Maumee River. The Toledo-Lucas County Port Authority Facility No. 1 Wharf handles conventional and containerized general cargo as well as an increasing amount of miscellaneous bulk materials. Fifteen of the terminals have railroad connections and mechanical handling facilities. (See Port Series No. 44, revised 1989, U.S. Army Corps of Engineers.)

**Operations and results during fiscal year.** Operations: Expended $125,000 to perform Project Condition Surveys. Maintenance: Dredging cost $2,232,236 to remove 539,000 cubic yards of shoaled material from the Maumee Bay [All dredging performed in the Lake Approach Channel between Station 400+00 and 664+00]. Dredging of the Maumee River cost $1,727,682 [Omnibus $1,078,079/Stimulus Funds (ARRA) $649,603], of which the contract cost was $1,479,600 to remove 181,000 cubic yards of shoaled material from the Federal channel [All dredging performed in the Lake Approach Channel between Station 600+00 and 810+00]. All dredging was completed to the authorized depth. Expended $109,513 in Stimulus Funds (ARRA) on Fill Management Activities. Efforts included preparing a scope of work and awarding a contract for trenching to dry out Confined Disposal Facility #3 to increase capacity for dredged material, repair of gravel roads, clearing of vegetation and a survey to determine remaining capacity of the confined disposal facility. Contractor mobilized to the site, and contract work is scheduled for completion by 30 November 2009.

## 24. TOUSSAINT RIVER, OH

**Location.** At westerly end of Lake Erie, 8 miles west of Port Clinton and 22 miles east of Toledo, Ohio. (See NOAA Nautical Chart 14847.)

**Existing project.** For description of existing project, pg 20-12 of Annual Report for 1991. (See Table 20-B for authorizing legislation.) Project is deferred due to discovery of unexploded ordnance in the dredging area.

**Local cooperation.** The Buffalo District has a properly executed Local Cooperation Agreement with Carroll Township, OH, signed Apr 3, 1991.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 25. VERMILION HARBOR, OH

**Location.** On south shore of Lake Erie at mouth of Vermilion River, 37 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

**Existing project.** For description of existing project see pgs. 32-17 and 32-18 of the Annual Report for 1975. Actual Federal cost for the completed existing project was $1,156,118. Estimated non-Federal cost for new work is $754,679 including cash contribution of $740,679 and remainder for relocation of submarine cable and construction of public wharf. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with. Local interests contributed $740,679.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. A reconnaissance study to alleviate the ice-jam and free-flow flooding of the river was completed in 1986 at a cost of $180,000. The proposed project was an ice-retention structure. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility study; the project was therefore reclassified as "inactive".

**Operations and results during fiscal year.** Maintenance: A total of $21,000 was expended for a dive inspection and survey work in preparation for structure repair activities in FY10.

## 26. WEST HARBOR, OH

**Location.** On the southwest shore of Lake Erie, 13 miles northeast of Port Clinton, OH. (See NOAA Nautical Chart 14847.)

**Existing project.** For description of existing project, see pg. 32-10 of Annual Report for 1983. Total Federal cost for new work was $3,303,898. Total non-Federal cost for new work was $3,922,000 including cash contribution of $3,795,000. Existing project was authorized by 1965 River and Harbor Act (H. Doc. 245, 88th Cong., 2nd sess.).

**Local cooperation.** See pg. 32-20 of 1978 Annual Report for requirements of local cooperation. By letter dated Jan 31, 1978, state of OH stated its intent to furnish assurances of local cooperation, and executed LCA was received on Mar 9, 1981.

**Terminal facilities.** Commerce at the harbor presently consists of recreational boating and affiliated activities.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 27. WILSON HARBOR, NY

**Location.** At mouth of east branch of Twelve-Mile Creek, which enters Lake Ontario 12 miles easterly of mouth of Niagara River, and 67 miles westerly of Rochester Harbor, NY. (See NOAA Nautical Chart 14806.)

**Previous projects.** For details see pg. 2395 of Annual Report for 1889, and pg. 628 of Annual Report for 1905.

**Existing project.** For description of existing project see pg. 32-18 of Annual Report for 1975. Actual Federal cost for completed existing project was $477,904. Estimated non-Federal costs are $774,000 that includes cost of $16,000 for previously completed work. Remainder of non-Federal costs is for work required for 1968 R&H Act including cash contribution of $166,988. (See Table 20-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. Facilities are considered adequate for existing commerce.

**Operations and results during fiscal year.** There were no Operations or Maintenance activities conducted in the harbor this FY.

## 28. PROJECT CONDITION SURVEYS: NY, OH & PA

The Buffalo District crew cost $601,585 in FY09 to perform hydrographic and topographic surveys in the following commercial and recreational harbors on Lakes Erie and Ontario in the states of New York, Ohio and Pennsylvania.

| Project | Date of Survey |
|---|---|
| Barcelona | November 2008 |
| Black Rock | May and Sept 2009 |
| Buffalo Harbor | June and July 2009 |
| Cattaraugus Creek | August 2009 |
| Dunkirk Harbor | April 2009 |
| Great Sodus Bay | Dec 2008 |
| Little Sodus Bay | April and May 2009 |
| Oak Orchard Harbor | Nov 2008 |
| Ogdensburg Harbor | Nov 2008 |
| Olcott Harbor | Nov 2008 |
| Oswego Harbor | April 2009 |
| Wilson Harbor | Nov 2008 |
| Conneaut | December 2008 |
| Cooley Canal | October 2008 |
| Cuyahoga River | March and May 2009 |
| Lorain Harbor | March 2009 |
| Port Clinton | Oct 2008 |
| Put-in-Bay | August 2009 |
| Port Ontario | May 2009 |
| Rocky River | Oct and Dec 2008 |
| Sandusky Harbor | June and July 2009 |
| Toussaint River | Oct 2008 |
| Vermilion Harbor | March and July 2009 |
| West Harbor | Oct 2008 |
| Erie Harbor | August 2009 |
| Ogdensburg | November 2008 |

Surveys provide data that is used to compare authorized depth of Federal navigation channels and the design of navigation infrastructure, such as locks, breakwater, piers and jetties, to actual current conditions. In addition they are also used to communicate the condition of Federal channels to navigation interests and determine maintenance requirements.

## 29. GREAT LAKES SEDIMENT TRANSPORT MODEL PROGRAM

The ultimate goal of the Great Lakes Tributary Modeling Program is to support state and local measures that will reduce the loading of sediments and pollutants to navigation channels and Area of Concerns, and thereby reduce costs for navigation maintenance and promote the restoration of

beneficial uses. FY09 activities are broken out as follows:

| | |
|---|---|
| Blanchard River | 138,772 |
| Coordination Account | 84,467 |
| Genesee River | 49,961 |
| NOAA Lake Erie Partnership | 59,915 |
| Oak Orchard | 56,545 |
| Swan Creek | -1,899 |
| Total GLSTMP | $387,761 |

## NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

### 30. NEW YORK STATE CANAL SYSTEM

**Location.** The New York State Canal System runs primarily east-west through New York State. It consists of four components: Erie Canal, Oswego Canal, Cayuga/Seneca Canal, and Champlain Canal.

**Existing Project.** Reimburse the state of New York 50% of non-Federal operation, maintenance and rehabilitation costs as well as make capital improvements. Sec. 1105, WRDA 1986 and Sec. 553, WRDA 1996 and Sec 341, WRDA 1999 authorized the existing project.

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Numerous piers, wharves and locks used for recreational craft.

**Operations and Results during fiscal year.** No funds were appropriated or spent during FY09.

## SHORE PROTECTION

### 31. PRESQUE ISLE PENINSULA, ERIE, PA

**Location.** At Erie, PA, on south shore of Lake Erie, 78 miles southwest of Buffalo, NY and 102 miles east-northeast of Cleveland, OH. (See NOAA Nautical Charts 14824 and 14835.)

**Existing Project.** For description of completed portion of existing project see pg. 1393 of Annual Report for 1963. For details of project authorized by the 1974 Water Resources Development Act (WRDA), 1976 WRDA and 1986 WRDA, see pg. 32-14 of Annual Report for FY 87. Actual Federal cost for the authorized beach nourishment project modifications through FY 92 is $16,879,000 which includes $5,646,000 for completed work authorized by the 1954 and 1960 R&H Acts and 1974 WRDA Act and $11,233,000 for completed work authorized by the 1976 WRDA Act. Actual non-Federal cost for the authorized project and modifications through FY 92 is $8,798,000 which includes $3,983,000 for completed work authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act and $4,815,000 for completed work authorized by the 1976 WRDA Act. Beach nourishment as authorized by the 1976 WRDA was completed in FY 91. The estimated Federal cost (June 2003) for the 55 breakwaters project is $56,310,000. This estimate includes $13,435,000 for the initial construction and $42,875,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project is also $56,310,000. (See Table 20-B for authorizing legislation.)

**Local Cooperation.** Fully complied with for completed project as authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act. An agreement between the United States of America and the Commonwealth of Pennsylvania, acting through the Department of Environmental Resources was entered into on Feb 21, 1979 for the annual nourishment which was extended by the 1976 WRDA Act.

**Operations and Results during fiscal year.**

New Work: Work performed in FY09 included activities necessary to meet project goals of controlling coastal erosion throughout the Presque Isle Peninsula, and promoting the continued growth of a critical habitat for endangered species. Specifically, work in FY09 included general engineering support, site inspections, coordination of site activities with regulatory agencies (US Fish and Wildlife Service), and the design, bidding, administration and oversight of a sand placement contract designed to nourish eroded beaches/shoreline. The sand placement contract included the placement of 3,830 cubic yards of stockpiled sand, the purchase and placement of 3,462 cubic yards of sand, the relocation (excavation and placement) of 18,315 cubic yards of sand from areas within the peninsula, and stockpiling of an additional 9,932 tons of sand for future nourishment. Project costs are shared 50/50 with a local cost share sponsor. The Federal costs or FY09 were $951,346. The non-Federal costs or FY09 were $903,907.

## FLOOD CONTROL

### 32. MT. MORRIS LAKE, GENESEE RIVER, NY

**Location.** Dam is on Genesee River 66.9 miles above river mouth and about 32 miles southwesterly of Rochester, NY. Reservoir is in Livingston and Wyoming Counties, NY. (See Ecological Survey maps of Nunda and Portage, NY).

**Existing Project.** For description of existing project, as authorized by 1944 Flood Control Act, see pg. 1575 of Annual Report for 1962. New work for

completed project cost $23,365,559. In addition, $5,000 contributed funds were expended for new work.

**Local Cooperation.** None required. Local interests contributed $5,000 for new work.

**Operations and results during fiscal year.** Operations: Federal funds for the Operation of the Dam, Reservoir and Service facilities were expended by hired labor resulting in a cost of $670,287 with an additional $7,271 for facility security operations. Cost for Environmental Management System Maintenance and Improvement was $14,331. Cost for Cooperative Stream Gauging Program was $179,117 with an additional cost of $223,421 for Water Control Management and $6,358 for watershed calibration. Seismic Instrumentation Support cost $12,997. Cost to review and maintain the Flood Emergency Action Plan totaled $39,581. An environmental compliance site assessment was performed at a cost of $96,042. Cost for Operation of the Visitor Center and Recreation Facilities totaled $184,087. Upgrades to the Interpretive Exhibits were made at a cost $42,384. Compliance with National Historic Preservation Act requirements cost $32,407. Data Collection Platforms cost $37,320. The Dam Safety Program cost $75,006. Maintenance: Cost for Debris Removal at the face of the Dam to insure that debris would not block the culverts in the dam and/or prevent culvert gate closing to continue to provide flood damage reduction totaled $272,107. Construction of the South Training Wall revetment was performed at a cost of $442,884. The construction included the removal of debris, trees, and brush from the south training wall. Maintenance and Repair of the Dam, Recreation Features and Facility Security Maintenance cost $608,153. Boundary monumentation was placed at a cost of $12,123. A Hydraulic Replacement Study, started in FY06, awarded construction of Phase II work in order to provide remote operation of the slide gates. Engineering & Design plus project management costs were $54,948. Construction is scheduled for FY10. Instrumentation to improve the collection of data regarding the stability of the dam and also automate the data collection and make it available electronically was performed at a cost of $96,466. The portion of the debris retention boom upstream of the on the south slope was replaced at a cost of $35,956 with replacement of the northern portion scheduled for FY10. The main operating cylinders for the slide gates were inspected and repairs made at a cost of $55,287. Engineering studies were performed to analyze the Slope Stability of the Service Road for the dam at a cost of $21,148 and to study Sediment Transport and develop an updated Capacity Curve for the impoundment area of the dam at a cost of $100,838. The Operations & Maintenance manual was updated to include new features at a cost of $18,402.

Expended $215,769 in Stimulus Funds (ARRA) for Debris Removal. This allowed for the clearing of an ongoing maintenance backlog need for removing floating debris and the buildup of silt from the front of the dam to design conditions. This work is done in order to prevent the blockage of the culverts that allow water to pass through the dam. Expended $27,255 in Stimulus Funds (ARRA) for surveying, planning and design for the Partner Road portion of the overall access road improvements at Mt. Morris Dam, with construction to take place in Spring/Summer 2010.

### 33. SURVEILLANCE OF NORTHERN BOUNDARY WATERS: NY, OH & PA

Cost for providing consulting engineering services to the following International Joint Commission Boards and Committees: International St. Lawrence River Board of Control, it's Working Committee and its Operations Advisory Group; International St. Lawrence River Committee on River Gauging; International Niagara River Board of Control and its Working Committee; and International Niagara Committee totaled $740,711 for FY09. Buffalo District also supports the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data, and the International Lake Ontario-St. Lawrence Study.

## ENVIRONMENTAL RESTORATION

### 34. OHIO AND NORTH DAKOTA ENVIRONMENTAL INFRASTRUCTURE

**Location.** The program is applicable to the entire state of Ohio and falls within the Buffalo District boundary and includes at present, a total of 22 project sites. These sites are Concord (05), Jenera (05), Benton Ridge (06), Cuyahoga River-Green Bulkheads Design (06), Cuyahoga River – Green Bulkheads – Construction (06), Elyria (06), Lake County (06), Summit County (06), Defiance County (08), Euclid Creek (08), Painesville (08), Put-in-Bay (08), Stow (08),Fremont (09), Toledo (09), East Banks (09), Austinburg (09), Thompson(09), Streetsboro(09), Madison-Lake County (09), Brunswick (09), and Cuyahoga 2(09). During 2009, five projects were completed (Benton Ridge, Jenera, Cuyahoga-Design, Elyria, and Fulton County).

**Existing Project.** The Ohio Environmental Infrastructure Program was authorized under Section 594 of Water Resources Development Act of 1999

(PL 106-53) for the purpose of providing Federal assistance for design and/or construction of water related environmental infrastructure, resource protection and development projects. Projects implemented as parts of this program typically address combined sewer overflows, sewer treatment plants and sewer line extensions. In FY09, the Federal cost was approximately $2,892,111(75%) and the non-Federal share was approximately $723,028(25%).

**Local Cooperation**. The projects are cost-shared 75% Federal and 25% non-Federal. The current authorized Federal appropriation limit is $240 million.

**Operations and results during fiscal year.** Ongoing: Project management for five design (Cuyahoga River-Green Bulkheads, Elyria, Fremont, Toledo and East Banks), two construction projects (Cuyahoga River-Green Bulkheads and Defiance County), and 15 design/construction projects (Benton Ridge, Concord Township, Euclid Creek, Jenera, Lake County, Painesville, Put-in-Bay, Stow, Summit County, Austinburg, Thompson, Streetsboro, Cuyahoga 2, Madison-Lake County, and Brunswick). The total expenditures in FY09 were $1,636,085.

## 35. ONONDAGA LAKE, NY

**Location.** The project area is located in the Onondaga Lake watershed in Onondaga County, NY and includes the city of Syracuse. Onondaga Lake is part of the Oswego River basin, which is tributary to Lake Ontario. It is also part of the New York State Canal System.

**Existing Project.** The Onondaga Lake Partnership project (OLP) involves two major efforts: a) USACE leadership of the OLP and watershed-scale planning through General Investigation (GI) appropriations and b) USACE implementation of cost-shared planning, design and construction projects and grants in the Onondaga Lake watershed through Construction General (CG) appropriations. Projects implemented as part of this program typically address combined sewer overflows (CSOs), hydrogeology, habitat restoration, non-point source pollution, and related water resource impairments. The total project cost for USACE leadership of the OLP and completion of a comprehensive watershed study through General Investigation appropriations is estimated to be $7.6 million, which is 100 percent Federal expense. The total project cost for planning, design and construction of cost-shared OLP projects and grants through Construction General appropriations is estimated to be $32.0 million, with the Federal costs anticipated to be $22.4 million (70%) and the non-Federal share of $9.6 million (30%).

**Local Cooperation.** The Construction General projects are cost-shared 70% Federal and 30% non-Federal. The current authorized Federal appropriation limit is $30 million.

**Operations and results during fiscal year.** On going: USACE leadership and program management of the Onondaga Lake Partnership and Onondaga Lake watershed study cost $414,112 (Federal), including $2,183 in ARRA funds for development of a 2009 State of Onondaga Lake report and the Onondaga Lake Watershed Progress Assessment and Action Strategies Supplement. Project Management and grant reimbursements for five cost share projects cost a total of $3,216,375. Total Federal expenditures were $411,929 (GI), $2,183 (GI ARRA), and $3,216,375 (CG).

## 36. GREAT LAKES FISHERY & ECOSYSTEM RESTORATION

**Location.** The program is applicable to the Great Lakes basin; specifically Lake Superior, Lake Michigan, Lake Huron (including Lake St. Clair), Lake Erie, Lake Ontario (including the St. Lawrence River to the 45th parallel of latitude), connecting channels, and historically connected tributaries. Lakes Erie, Ontario and the Niagara and St. Lawrence rivers are generally with in the Buffalo District boundary. Projects within the Buffalo District include Cattaraugus Creek, NY; Chautauqua Creek, NY; Ballville Dam, OH; Irondequoit Creek, NY; Harpersfield Dam, Grand River, OH; and Conneaut Creek, PA.

**Existing Project**. The Great Lakes Fisheries and Ecosystem Restoration program is authorized under Section 506 of Water Resources Development Act of 2000 (PL 106-541, 114 STAT. 2645) for the purpose of a variety of ecosystem restoration projects including riparian habitat and wetland restoration, dam removal to reestablish free flowing tributaries, construction of fish passage over exiting structures, improving spawning and nursery habitat, erosion and sedimentation control, and construction of facilities to preserve historic fish stocks.

**Local Cooperation.** The projects are cost-shared 65% Federal and 35% non-Federal. The current authorized Federal appropriation limit is $100 million.

**Operations and results during fiscal year.** Continued feasibility studies at Cattaraugus Creek, NY and Ballville Dam, OH; initiated new projects at Conneaut Creek, PA, Irondequoit Creek, NY, and Grand River, OH; completed planning and design activities for Chautauqua Creek, NY; total FY09

Expenditures $177,462. Estimate construction of Chautauqua Creek project in FY10 .

**Operations and results during fiscal year.** Completion of Preliminary Restoration Plans and initiated feasibility studies for Cattaraugus Creek, NY, Chautauqua Creek, NY, and Ballville Dam, OH, at a cost of $162,805.

## MISCELLANEOUS

### 37. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

| | |
|---|---|
| Local Preparedness | $ 21,284 |
| National Emergency Facilities | $281 |
| Total NEPP | $21,565 |

### 38. REGULATORY FUNCTIONS PROGRAM

| | |
|---|---|
| Permit Evaluation | $3,538,774 |
| Enforcement | 446,064 |
| Administrative Appeals | 2,282 |
| Compliance | 490,186 |
| Total Regulatory | $4,477,306 |

### 39. FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

Buffalo District began work in FUSRAP in October 1997 when Congress transferred this Program from the Department of Energy (DOE) to the Corps. Total Omnibus FUSRAP expenditures for FY09 were $28,217,543. Total ARRA expenditures for FY09 were $131,459. The accomplishments for these sites are briefly stated in the following paragraphs.

**Niagara Falls Storage Site, Lewiston, NY** – FY09 Omnibus funds were used to continue the Remedial Investigation (RI) Addendum and Feasibility Study (FS), continue the site maintenance, monitoring, and security program, and continue environmental outreach and public participation activities with local stakeholders. In addition, these funds were used to prepare scopes of work and independent government estimates for Records Management, Demolition of Building 401, and Security upgrade contracts. Total FY09 expenditures were $2,885,174.

**Rattlesnake Creek (Ashland 1), Tonawanda, NY** Responsibility for the Ashland sites was assumed by the US Department of Energy in 2008. Total FY09 expenditures were $4,739.

**Linde Site, Tonawanda, NY** – FY09 Omnibus funds were used to continue the Soils Operable Unit Remedial Action (RA), prepare a Scope of Work (SOW), Government Estimate, and award a delivery order to a Buffalo District Multiple Awards Remedial Action Contractor (MARC) for remediation of the balance of contaminated materials at the site. Total FY09 expenditures were $19,212,483.

**Seaway Industrial Park, Tonawanda, NY** – FY09 funds were used to complete a statistical analysis of potential cost and schedule risks and impacts to the site cleanup, and complete the Record of Decision (ROD), which documented the final Selected Remedy for the site. Total FY09 expenditures were $270,935
.

**Tonawanda Landfill, Tonawanda, NY** – FY09 funds were used to complete the scope of work and award the contract for additional sampling in the Tonawanda Landfill Operable Unit (OU). Funds for the additional sampling were provided by the American Recovery and Reinvestment Act of 2009 (ARRA). Total Omnibus FY09 expenditures were $385,472. Total FY09 ARRA expenditures were $38,657.

**Luckey Site, Luckey, OH** – FY 2009 funds were used to initiate the remedial design, conduct annual groundwater sampling and reporting, and prepare work plans to investigate remediation soil volumes. Funds for field investigations were provided by the American Recovery and Reinvestment Act of 2009. Total Omnibus FY09 expenditures were $501,956. Total FY09 ARRA expenditures were $92,802.

**Painesville Site, Painesville, OH** – FY09 funds were used to transport and dispose of stockpiled contaminated soil from the site, conduct volume uncertainty sampling, update the contaminated soil volume estimate, complete a statistical analysis of potential cost and schedule risks and impacts to the site cleanup, and prepare the scope of work and award the contract for remaining site remediation. Funds for the site remediation were provided by the American Recovery and Reinvestment Act of 2009 (ARRA). Total Omnibus FY09 expenditures were $2,864,946. Total FY09 ARRA expenditures were $0.

**Former Harshaw Chemical Co., Cleveland,** OH – FY09 funds were used to complete the revised Remedial Investigation Report, draft a Proposed Plan for Investigation Area 06 (IA-06), scope and award an A/E contract for Feasibility Study services, and conduct annual groundwater sampling and testing. Total FY09 expenditures were $1,300,548.

**Scioto Laboratory Complex, Marion, OH –** Funds were used to respond to Headquarters comments on the Preliminary Assessment. Total FY09 expenditures were $1,974.

**Guterl Specialty Steel Corp., Lockport, NY** – Funds were used to develop the draft Remedial Investigation Report and perform annual groundwater monitoring. A scope of work for groundwater modeling and the Feasibility Study were drafted. Total FY09 expenditures were $788,642.

**Joslyn Manufacturing and Supply Site, Fort Wayne, IN –** Joslyn Manufacturing and Supply Site, Fort Wayne, IN – FY09 funds were used by the Office of Counsel at the USACE Environment and Munitions Center of Expertise (EM CX) to coordinate with USACE HQ regarding the site's inclusion into FUSRAP, which occurred on July 22, 2009. Total FY09 expenditures were $672.

## TABLE 20-ACOST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| **NAVIGATION** | | | | | | | |
| | **1. Ashtabula Harbor, OH** | New Work Approp. | | | | | 12,805,339 [1] |
| | | New Work Cost | | | | | 12,805,339 [1] |
| | | Maint. Approp. | 1,020,600 | 13,321,000 | 3,771,000 | 1,682,660 | 46,217,616 |
| | | Maint. Cost | 1,004,870 | 2,845,719 | 14,246,400 | 1,558,173 | 46,075,921 |
| | | Rehab. Approp. | | | | | 6,077,000 |
| | | Rehab. Cost | | | | | 6,077,000 |
| | (Contributed Funds) | New Work Contrib. | | | | | 175,000 |
| | | New Work Cost | | | | | 128,349 |
| | **2. Black Rock Channel Tonawanda Harbor, NY** | New Work Approp. | | | | | 11,135,120 [2] |
| | | New Work Cost | | | | | 11,135,120 [2] |
| | | Maint. Approp. | 1,252,000 | 972,545 | 1,265,000 | 3,613,080 | 83,895,810 [3] |
| | | Maint. Cost | 1,242,898 | 979,430 | 1,117,409 | 1,672,656 | 81,812,360 [3] |
| | (Contributed Funds) | New Work Contrib. | | | | | 620,000 |
| | | New Work Cost | | | | | 620,000 |
| | **3. Buffalo Harbor, NY** | New Work Approp. | | | | | 23,115,187 [4] |
| | | New Work Cost | | | | | 23,115,187 [4] |
| | | Maint. Approp. | 825,000 | 307,740 | 1,986,000 | 646,360 | 73,594,220 [5] |
| | | Maint. Cost | 818,092 | 168,684 | 1,132,283 | 1,586,118 | 72,485,806 [5] |
| | | Rehab. Approp. | | | | | 295,457 |
| | | Rehab. Cost. | | | | | 295,457 |

[1] Includes $565 for previous projects. Excludes $47,000 contributed funds.
[2] Includes $58,027 for previous projects.
[3] Includes $4,922 emergency relief authority administrative costs transferred for new work to maintenance upon conversion to programming & budgeting system Jul 1, 1953 by direction of Office, Chief of Engineers. Also includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
[4] Includes $4,277,586 for previous projects. Excludes expenditures of $239,305 for work authorized by Sec. 107.
[5] Includes $1,883,647 for previous projects. Excludes $446,805 contributed funds.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | **4. Cleveland Harbor, OH** | New Work Approp. | | | | | 36,550,299 [1] |
| | | New Work Cost | | | | | 36,550,299 [6] |
| | | Maint. Approp. | 3,846,000 | 5,036,354 | 8,247,532 | 13,504,420 | 269,340,010 [2] |
| | | Maint. Cost | 3,823,190 | 5,048,172 | 6,533,267 | 5,527,185 | 259,637,196 [7] |
| | | Rehab. Approp. | | | | | 16,404,903 |
| | | Rehab. Cost | | | | | 16,404,903 |
| | (Contributed Funds) | New Work Contrib. | | | | | 1,083,178 |
| | | New Work Cost | | | | | 1,083,178 |
| | | Maint. Contrib. | | | | | 7,750,725 |
| | | Maint. Cost | | | | | 7,660,723 |
| | **5. Conneaut Harbor, OH** | New Work Approp. | | | | | 8,346,641 [3] |
| | | New Work Cost | | | | | 8,346,641 [1] |
| | | Maint. Approp. | 1,463,000 | 720,492 | 777,000 | 303,500 | 20,643,658 [4] |
| | | Maint. Cost | 1,462,432 | 675,483 | 806,175 | 318,927 | 20,642,685 [2] |
| | | Rehab. Approp. | | | | | 651,850 |
| | | Rehab. Cost | | | | | 651,850 |
| | **6. Dunkirk Harbor, NY** | New Work Approp. | | | | | 3,010,024 [5] |
| | | New Work Cost | | | | | 3,010,024 [3] |
| | | Maint. Approp. | | 3,000 | | 1,188,480 | 7,877,520 |
| | | Maint. Cost | | 3,000 | | 280,050 | 6,969,089 |
| | | Rehab. Approp. | | | | | 1,950,000 [6] |
| | | Rehab. Cost | | | | | 1,950,000 [4] |
| | **7. Erie Harbor, PA** | New Work Approp. | | | | | 3,597,873 [7] |
| | | New Work Cost | | | | | 3,597,873 [5] |
| | | Maint. Approp. | | 3,000 | | | 24,259,466 [8] |
| | | Maint. Cost | | 3,112 | | | 24,259,577 [6] |
| | | Rehab. Approp. | | | | | 1,154 |
| | | Rehab. Cost | | | | | 1,154 |

[1] Includes $1,564,154 for previous projects. & appropriation & cost of $16,596 for modification authorized for construction under authority of Sec. 107, 1960 R&H Act.
[2] Includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operations of Dams and Other Improvements of Navigable Waters. Excludes $201,960 contributed funds.
[3] Includes $805,272 for previous projects.
[4] Includes $39,784 for previous projects.
[5] Includes $811,250 for previous projects. Excludes $11,000 contributed funds.
[6] Includes $176,520 for previous projects.
[7] Includes $736,967 for previous projects.
[8] Includes $104,900 for previous projects. Excludes $154,500 contributed funds.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | **8. Fairport Harbor, NY** | New Work Approp. | | | | | 2,959,611 [1] |
| | | New Work Cost | | | | | 2,959,611 [7] |
| | | Maint. Approp. | | 65,612 | 952,000 | 2,833,380 | 33,793,956 |
| | | Maint. Cost | 501 | 66,094 | 808,721 | 2,840,186 | 33,557,483 |
| | **29. Great Lakes Sediment Transport Model** | New Work Approp. | | | | | |
| | | New Work Cost | | | | | |
| | | Maint. Approp. | | | | | |
| | | Maint. Cost | 283,000 | 350,000 | 370,000 | 323,400 | 1,646,400 |
| | | Rehab. Approp. | 278,959 | 331,440 | 342,526 | 387,762 | 1,630,865 |
| | | Rehab. Cost | | | | | |
| | | New Work Approp. | | | | | |
| | **9. Great Sodus Bay Harbor, NY** | New Work Cost | | | | | |
| | | Maint. Approp. | | | | | 3,773,288 |
| | | Maint. Cost | | | | | 3,773,288 |
| | | Rehab. Approp. | | | | | |
| | | Rehab. Cost | | | | | |
| | **10. Huron Harbor, OH** | New Work Approp. | | | | | 5,103,795 [2] |
| | | New Work Cost | | | | | 5,103,795 [1] |
| | | Maint. Approp. | 94,000 | 105,846 | 1,388,000 | 2,637,900 | 30,516,137 |
| | | Maint. Cost | 93,270 | 106,657 | 1,060,977 | 904,141 | 27,394,377 |
| | | Rehab. Approp. | | | | | 247,030 |
| | | Rehab. Cost | | | | | 247,030 |
| | (Contributed Funds) | New Work Approp. | | | | | 63,079 |
| | | New Work Cost | | | | | 63,079 |
| | **11. Irondequoit Bay, NY** | New Work Approp. | | | | | 3,535,651 |
| | | New Work Cost | | | | | 3,535,651 |
| | | Maint. Approp. | | | 394,000 | | 1,440,495 |
| | | Maint. Cost | | | 344,804 | 49,196 | 1,440,459 |
| | | Rehab. Approp. | | | | | |
| | | Rehab. Cost | | | | | |
| | | | | | | | [3] |
| | **12. Little Sodus Bay Harbor, NY** | New Work Approp. | | | | | 301,394 |
| | | New Work Cost | | | | | 301,394 [2] |
| | | Maint. Approp. | | | 9,000 | 301,840 | 6,386,432 |
| | | Maint. Cost | | | 6,857 | 48,826 | 6,131,274 |

[1] Includes $368,940 for previous projects.
[2] Includes $269,789 for previous projects.
[3] Includes $232,328 for previous projects.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | | Rehab. Approp. | | | | | 742,822 |
| | | Rehab. Cost | | | | | 742,822 |
| **13.** | **Lorain Harbor, OH** | New Work Approp. | | | | | 22,240,670 [1] |
| | | New Work Cost | | | | | 22,240,670 [3] |
| | | Maint. Approp. | 798,000 | 1,173,000 | 1,064,000 | 2,739,020 | 58,259,131 |
| | | Maint. Cost | 797,681 | 1,162,440 | 1,049,527 | 1,641,567 | 57,136,230 |
| | (Contributed Funds) | New Work Contrib. | | | | | 845,551 |
| | | New Work Cost | | | | | 845,551 |
| **14.** | **Oak Orchard, NY** | New Work Approp. | | | | | 1,586,996 [2] |
| | | New Work Cost | | | | | 1,586,996 [4] |
| | | Maint. Approp. | | | | | 976,544 |
| | | Maint. Cost | | | | | 976,545 |
| **15.** | **Olcott Harbor, NY** | New Work Approp. | | | | | 2,025,210 [3] |
| | | New Work Cost | | | | | 1,754,694 [1] |
| | | Maint. Approp. | | | | | 696,604 [4] |
| | | Maint. Cost | | | | | 704,735 [2] |
| | | Rehab. Approp. | | | | | 14,447 [5] |
| | | Rehab. Cost | | | | | 14,477 [3] |
| **16.** | **Oswego Harbor, NY** | New Work Approp. | | | | | 8,430,016 [6] |
| | | New Work Cost | | | | | 8,430,016 [4] |
| | | Maint. Approp. | | 130,269 | 610,000 | | 13,157,675 [7] |
| | | Maint. Cost | 3,345 | 130,420 | 597,374 | 12,626 | 13,154,328 [5] |
| | | Rehab. Approp. | | | | | 307,590 |
| | | Rehab. Cost | | | | | 307,590 |
| **17.** | **Ottawa River, MI & OH** | New Work Approp. | | | | | 670,000 |
| | | New Work Cost | 18 | | | | 604,715 |
| **18.** | **Port Clinton Harbor, OH** | New Work Approp. | | | | | |
| | | New Work Cost | | | | | |
| | | Maint. Approp. | | | | | 1,391,454 |
| | | Maint. Cost | | 146 | | | 1,391,742 |

[1] Includes $292,203 for new work for previous projects. Excludes $3,000 contributed funds. Also excludes appropriation and cost of 29,570 under authority of Sec. 197, 1960 R&H Act.
[2] Excludes $224,702 contributed funds.

[3] Includes $140,210 for previous projects. Excludes $1,500 contributed funds.
[4] Includes $38,959 for previous projects. Excludes $5,000 contributed funds.
[5] Excludes $186,000 Public Works Acceleration Act.
[6] Includes $1,187,977 for previous projects.
[7] Includes $945,684 for previous projects.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT (Continued)

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | | Rehab. Approp. | | | | | |
| | | Rehab. Cost | | | | | |
| | **Port Ontario, NY** | New Work Approp. | | | | | 2,369,621 [1] |
| | | New Work Cost | | | | | 2,368,989 [6] |
| | | Maint. Approp. | | | | | 34,235 |
| | | Maint. Cost | | | | | 34,235 |
| | (Contributed Funds) | New Work Contrib. | | | | | 1,361,335 |
| | | New Work Cost | | | | | 1,361,335 |
| | **19. Rochester Harbor, NY** | New Work Approp. | | | | | 2,439,308 [2] |
| | | New Work Cost | | | | | 2,439,308 [7] |
| | | Maint. Approp. | | 63,685 | 1,486,000 | 1,460,200 | 29,219,671 |
| | | Maint. Cost | | 63,685 | 1,433,283 | 1,467,094 | 29,173,827 |
| | | Rehab. Approp. | | | | | - |
| | | Rehab. Cost | | | | | - |
| | **20. Rocky River, OH** | New Work Approp. | | | | | 343,494 |
| | | New Work Cost | | | | | 343,494 |
| | | Maint. Approp. | | | | | 5,497,116 |
| | | Maint. Cost | | | | | 5,482,237 |
| | **21. Sandusky Harbor, OH** | New Work Approp. | | | | | 6,727,270 [3] |
| | | New Work Cost | | | | | 6,727,270 [1] |
| | | Maint. Approp. | 787,000 | 21,977 | 1,121,000 | 1,100,000 | 30,076,237 |
| | | Maint. Cost | 785,793 | 23,265 | 157,385 | 2,044,344 | 30,056,358 |
| | | Rehab. Approp. | | | | | 675,606 |
| | | Rehab. Cost | | | | | 675,606 |
| | (Contributed Funds) | Maint. Contrib. | | | | | 15,445 |
| | | Maint. Cost | | | | | 15,445 |
| | **22. Sturgeon Point, NY** | New Work Approp. | | | | | 1,718,700 [4] |
| | | New Work Cost | | | | | 1,718,140 [2] |
| | | Maint. Approp. | | | | | 180,792 |
| | | Maint. Cost | 100 | | | | 180,790 |

[1] Includes $50,000 for previous projects.
[2] Includes $247,794 for previous projects.
[3] Includes $477,149 for previous projects. Excludes $325,000 contributed funds.
[4] Excludes $5,000 contributed funds.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | (Contributed Funds) | New Work Contrib. | | | | | 1,299,008 |
| | | New Work Cost | | | | | 1,299,008 |
| | **23. Toledo Harbor, OH** | New Work Approp. | | | | | 17,191,842 [1] |
| | | New Work Cost | | | | | 17,191,842 [3] |
| | | Maint. Approp. | 3,034,400 | 3,293,000 | 3,482,468 | 5,835,800 | 156,987,509 |
| | | Maint. Cost | 2,814,216 | 3,065,581 | 3,910,609 | 4,194,431 | 152,326,643 |
| | **24. Toussaint River, OH** | Maint. Approp. | | | | | 1,162,372 |
| | | Maint. Cost | | | | | 1,189,370 |
| | (Contributed Funds) | Maint. Contrib. | | | | | 254,368 |
| | | Maint. Cost | | | | | 254,367 |
| | **25. Vermilion Harbor, OH** | New Work Approp. | | | | | 1,156,118 [2] |
| | | New Work Cost | | | | | 1,156,118 [4] |
| | | Maint. Approp. | | | | 400,000 | 4,561,413 |
| | | Maint. Cost | | | | 21,000 | 4,182,413 |
| | | Rehab. Approp. | | | | | 139,775 |
| | | Rehab. Cost | | | | | 139,775 |
| | **26. West Harbor, OH** | New Work Approp. | | | | | 3,303,898 |
| | | New Work Cost | | | | | 3,303,863 |
| | | Maint. Approp. | | | | | 2,358,250 |
| | | Maint. Cost | | | | | 2,358,250 |
| | (Contributed Funds) | New Work Contrib. | | | | | 3,795,000 |
| | | New Work Cost | | | | | 3,795,000 |
| | **27. Wilson Harbor, NY** | New Work Approp. | | | | | 535,246 [3] |
| | | New Work Cost | | | | | 535,246 [1] |
| | | Maint. Approp. | | | | | 1,370,282 |
| | | Maint. Cost | | | | | 1,370,282 |
| | **30. New York State Canal System, NY** | New Work Approp | | | | | 8,587,000 |
| | | New Work Cost | 7,326 | | | | 8,579,674 |

[1] Includes $1,624,695 for previous projects
[2] Excludes $740,679 contributed funds.
[3] Includes $57,342 for previous projects. Excludes $166,998 contributed funds.

## TABLE 20-A(continued) COST AND FINANCIAL STATEMENT

| See Sect. In Text | Project | Funding | FY 06 | FY07 | FY08 | FY09 (Includes ARRA) | Total Cost to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| **SHORE PROTECTION** | | | | | | | |
| | **31. Presque Isle Peninsula, Erie, PA** | New Work Approp. | 459,000 | 90,000 | 672,000 | 933,000 | 38,952,049 |
| | | New Work Cost | 456,897 | 91,839 | 656,416 | 951,346 | 38,949,899 |
| | | Maint. Approp. | | | | | 4,978 |
| | | Maint. Cost | | | | | 4,978 |
| | (Contributed Funds) | New Work Contrib. | 620,000 | 90,000 | 672,000 | 933,000 | 30,345,369 |
| | | New Work Cost | 623,231 | 93,378 | 620,124 | 903,907 | 29,549,650 |
| **FLOOD CONTROL** | | | | | | | |
| | **32. Mount Morris Lake, Genesee River, NY** | New Work Approp. | | | | | 23,365,559 [1] |
| | | New Work Cost | | | | | 23,365,559 [2] |
| | | Maint. Approp. | 2,923,000 | 2,729,481 | 3,686,000 | 6,424,060 | 58,249,434 |
| | | Maint. Cost | 2,546,854 | 3,074,380 | 3,019,214 | 3,591,946 | 55,013,600 |
| **ENVIRONMENTAL RESTORATION** | | | | | | | |
| | **34. Ohio Environmental Infrastructure** | New Work Approp. | 3,906,400 | 1,929,552 | 6,936,000 | 7,575,000 | 26,708,952 |
| | | New Work Cost | 1,355,765 | 3,071,405 | 3,312,638 | 1,636,084 | 14,916,978 |
| | **35. Onondaga Lake, NY** | New Work Approp. | 3,134,000 | 0 | 984,000 | 5,000,000 | 22,402,762 |
| | | New Work Cost | 1,767,402 | 2,516,344 | 2,726,743 | 1,580,290 | 17,089,997 |
| | (Contributed Funds) | New Work Contrib. | (193) | (11,262) | 57,534 | | 4,768,814 |
| | | New Work Cost | 102,450 | 163,038 | 144 | | 4,679,831 |
| | **36. Great Lakes Fishery & Ecosystem Restoration** | New Work Approp. | 29,000 | 224,000 | | 465,000 | 803,000 |
| | | New Work Cost | 67,130 | 162,805 | | 177,462 | 427,092 |
| | (Contributed Funds) | New Work Contrib. | | | | | |
| | | New Work Cost | | | | | |

[1] Includes study cost of $117,000 under authority Sec 205, 1948 Flood Control Act. Excludes $17,493 in contributed cost.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| 1 | | **ASHTABULA HARBOR, OH** | |
| | Jun 3, 1896 | Construction of breakwater. | Annual Report, 1895, p. 2132 |
| | Mar 3, 1905<br>Jun 25, 1910 | Enlarge outer harbor by extending west breakwater and constructing new east breakwater pier heads on lakeward ends of breakwaters; remove part of old east breakwater. | H. Doc. 654. 61st Cong., 2nd sess. |
| | Mar 2, 1919 | Extend west breakwater to shore; dredge outer harbor to a depth of 20 feet. | H. Doc. 997, 64th Cong., 1st sess. |
| | Aug 30, 1935 | Remove portion of east breakwater to extend breakwaters to present dimensions and dredging restrictions in portion of west basin. | H. Doc. 43, 73rd Cong., 1st sess. |
| | Aug 26, 1937 | Dredge channel through outer harbor, channel of approach to Penn Central Co. slip, channel Ashtabula River, to and in turning basin all to present project dimensions; remove portion of old east inner breakwater and Maintenance to 24-foot depth of portion of outer harbor. | Rivers and Harbors Committee Doc. 78, 74th Cong., 2nd sess. |
| | Mar 2, 1945 | Extend river channel to present project limit. | H. Doc. 321, 77th Cong., 1st sess. R & H Act of 1945, PL 79-14 |
| | Sep 3, 1954 | Dredging approach channel and turning basin in east outer harbor to 25-foot depth. | H. Doc. 486, 83rd Cong., 2nd sess. R & H Act of 1954, PL 83-780 |
| | Jul 14, 1960 | A depth of 29 feet in soft and 30 feet in hard material in entrance channel to just inside outer ends of Breakwaters, thence 28 feet in soft and 29 feet in hard material in a channel to inner breakwater, thence 27 feet in soft and 28 feet in hard materials in a channel extending to Penn Central Co. slip and extending 2000 feet up Ashtabula River, 22 feet in hard material in turning area; and 28 feet in soft and 29 feet in hard material in areas adjacent to 250-foot section of inner breakwater when that section is removed as now authorized. | H. Doc. 148, 86th Cong., 1st sess. R & H Act of 1960, PL 86-645 |
| | Oct 27, 1965 | Dredging approach channel and turning basin in east outer harbor to 28 feet in soft material and 29 feet in hard material. | H. Doc. 269, 89th Cong., 1st sess.[1] R & H Act of 1965, PL 87-874 |

[1] Contains latest published map.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | | **ASHTABULA RIVER, OH ENVIRONMENTAL DREDGING** | |
| | Nov 28, 1990 as amended, Aug 17, 1999, Dec 11, 2000 | The Secretary may remove and remediate, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel. The Secretary may remove and remediate contaminated sediments from the waters of the United States, in general, for the purpose of environmental enhancement and water quality improvement if such removal is requested by a non-Federal sponsor and the sponsor agrees to pay 65% of the cost of the removal and remediation. | PL 101-640; PL 106–53; PL 106–541 |
| | Oct 12, 1996 | Amended PL 101-640 to include Ashtabula River, OH as priority work. | PL 104-303 |
| **2** | | **BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY** | |
| | Aug 11, 1888 Jun 3, 1896 | Dredging channel through horseshoe reef at outlet of Lake Erie and Tonawanda Inner Harbor to 16 feet. | H. Ex. Doc. 83, 50th Cong., 1st sess., Annual Report. 1888, p. 206 and Annual Report, 1897., pp.3116-3120 |
| | Jun 13, 1902 | Deepening Tonawanda Creek to 16 feet. | H. Doc. 143, 56th Cong., 1st sess. and Annual Report, 1900 p. 4152 |
| | Jun 13, 1902 Aug 8, 1917 | Dredging channel from Buffalo outer harbor to foot of Maryland St., Buffalo, to 21 feet. | H. Doc. 125, 56th Cong., 2nd sess., and Annual Report 1901, p. 3343 |
| | Mar 3, 1905 | Dredging channel from foot of Maryland St., Buffalo, to natural deep water pool upstream from Tonawanda Harbor to 21 feet; construction of ship lock and bridge; and repair of Bird Island pier towpath wall. | H. Doc. 428, 58th Cong., 2nd sess. |
| | Jul 27, 1916 | Dredging channel along Tonawanda Island, with turning basin at its downstream end at the foot of the Island, to 21 feet. | H. Doc. 658, 63rd Cong., 2nd sess. |
| | Mar 2, 1919 Mar 2, 1945 | Dredging triangular area at junction with Buffalo north Entrance channel. | H. Doc. 1004, 65th Cong., 2nd sess. & H. Doc. 92, 79th Cong., 1st sess. H. Doc. 981, 66th Cong., 2nd sess. R & H Act of 1945, PL 79-14 |
| | Sep 22, 1922 | Widening channel at foot of Maryland St., Buffalo. | H. Doc. 289, 68th Cong., 1st sess. |
| | Mar 3, 1925 | Widening canal south of International Bridge and removal of westerly end of Rattlesnake Island shoal. | H. Doc. 981, 66th Cong., 3d sess. |

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Jun 26, 1934[1] | Operation and care of improvements provided for with funds from War Department appropriations for rivers and harbors. | H Doc. 28, 73d Cong., 1st sess. |
| | Aug 30, 1935[2] | Removal of rock shoals in Lake Erie entrance to canal, and in canal south of Ferry Street Bridge, to 22 feet; enlargement of North Tonawanda turning basin; extension of Bird Island Pier; improvement of guide pier at the lock; and elimination of upper 150 feet of Tonawanda Creek channel from the project.[3] | H. Doc. 28, 73rd Cong., 1st sess. |
| | Mar 2, 1945 | Widening Lake Erie entrance to canal. | H. Doc. 92, 79th Cong., 1st sess.[4] R & H Act of 1945, PL 79-14 |
| | Sep 3, 1954 | Deepen lower 1,500 feet of Tonawanda inner harbor and enlarge turning basin. | H. Doc. 423, 83rd Cong., 2nd sess.[5 6] R & H Act of 1954, PL 83-780 |
| **3** | | **BUFFALO HARBOR, NY** | |
| | May 20, 1826 | Construction of south pier (extended in 1868).[7] | Annual Report, 1868, pp. 222 –232 |
| | Jun 23, 1866 | Construction of old breakwater.[3] | Annual Report, 1868, pp. 232 –236 |
| | Jun 23, 1874 | Extension of old breakwater.[3] | Annual Report, 1876, pt. 2, pp. 569 and 573 |
| | Jun 3, 1896 | Stony Point and south breakwater.[3] | Annual Report, 1895, p. 3153. H. Doc. 72, 55th Cong., 1st sess., and Annual Report, 1897, p. 3245 |
| | Mar 3, 1899<br>Mar 3, 1909 | North breakwater.[3] | |
| | Jun 6, 1900<br>Jun 18, 1902 | Deepening entrance channel to inner harbor and removing rock shoal therein. | Specified in acts. |
| | Mar 2, 1907[8] | Dredging at entrance to canals at South Buffalo in outer harbor.[3] | Specified in act. |
| | Mar 2, 1907 | South entrance breakwater.[3] | H. Doc. 240, 59th Cong., 1st sess. |
| | Jun 25, 1910 | Extension of Federal project to Commercial St. and removal of Watson elevator site. | H. Doc. 298, Rivers and Harbors Committee Doc. 2, 61st Cong., 2nd sess. |

[1] Permanent Appropriations Repeal Act.
[2] Authorized May 28, 1935 by Emergency Relief Administration Act of 1935.
[3] Improvement of guide pier at Black Rock Lock was de-authorized by Congress in Aug 1977.
[4] Contains latest published map.
[5] Classified deferred.
[6] Contains latest published map.
[7] Completed under previous projects.
[8] Also Sundry Civil Act of Mar 3, 1905.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Jul 25, 1912 | Deepening areas A, B, D, in outer harbor to 21 feet, C in North entrance to 23 feet. | H. Doc. 550, 62nd Cong., 2nd sess. |
| | Mar 2, 1919 | Deepening areas F and G in outer harbor to 21 feet. | H. Doc. 1139, 64th Cong., 1st sess. |
| | Jan 21, 1927 | Removal of shoal between entrance channel to Buffalo River and Erie Basin to 21 feet. | H.Doc. 481, 68th Cong., 2nd sess. |
| | Jul 3, 1930 | Deepening areas H, I, and K in outer harbor 21 feet. | Rivers and Harbors Committee Doc. 1, 71st Cong., 1st sess. |
| | Aug 30, 1935[1] | Extension of south entrance and south breakwaters, deepening outer harbor to present project dimensions, and removal of shoals on approach to south entrance. | H. Doc. 46, 73rd Cong., 1st sess. |
| | Aug 30, 1935<br>Mar 2, 1945[41] | Maintenance of channels in Buffalo River and Buffalo Ship Canal to 21 feet in cooperation with city of Buffalo. | R & H Committee Doc. 54, 74th Cong., 1st sess. |
| | Jul 14, 1960 | Deepening North and Buffalo River entrance channels, and deepening and maintaining Buffalo River and Buffalo Ship Canal to present project dimensions. | H. Doc. 352, 78th Cong., 1st sess. R & H Act of 1960, PL 86-645 |
| | Oct 23, 1962 | Deepening approach to south entrance channels, and deepen to 30 feet in outer area and 29 feet in inner area of southerly part of outer harbor. | H. Doc. 151, 86th Cong., 1st sess. R & H Act of 1962, PL 87-874 |
| | 1962 | Deepening portion of outer harbor to 27 feet over a width of 500 feet for 2,500 feet northward from 28-foot project area, widening within 1,700 feet to limits within 150 feet of breakwater axis and 75 feet from harbor line and continuing within these limits for 7,000 feet. Elimination of 25-foot wide strip between presently authorized and proposed easterly dredging limits easterly 50 foot wide undredged strip in existing 23-foot depth project area, extending northerly from 27-foot depth to Buffalo River entrance channel. Previously authorized but uncompleted portions or work authorized by 1935 Act, combined within this act as a single improvement. | H. Doc. 451, 87th Cong., 2nd sess. |
| | Jul 14, 1960 as amended | Removal of abandoned abutments of South Michigan Bridge. | Sec. 107 of R & H Act of 1960, PL 86-645. Authorized Chief of Engineers Dec 15, 1980 |
| | Jan 4, 2007 | Modifies navigation project authorized by Section 101 of the R & H Act of 1962 to provide measures for enhancement of public access at a maximum Federal cost of $500k. | Section 3119 of WRDA 2007, PL 110-114 which amends Section 204 of WRDA of 1992 |
| | | **BUFFALO HARBOR and RIVER, NY ENVIRONMENTAL DREDGING** | |

[1] Authorized in part by Public Works Administration, Sep 6, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Nov 28, 1990 as amended, Aug 17, 1999, Dec 11, 2000 | The Secretary may remove and remediate, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel. The Secretary may remove and remediate contaminated sediments from the waters of the United States, in general, for the purpose of environmental enhancement and water quality improvement if such removal is requested by a non-Federal sponsor and the sponsor agrees to pay 65% of the cost of the removal and remediation. | PL 101-640; PL 106–53; PL 106–541 |
| | Oct 12, 1996 | Amended PL 101-640 to include Buffalo Harbor and River, NY as priority work. | PL 104-303 |
| **4** | | **CLEVELAND HARBOR, OH** | |
| | Mar 3, 1875 | West breakwater. | Annual Report, 1876, p. 558 |
| | Aug 5, 1886 | Part of east breakwater.[1] | H. Ex. Doc. 116, 48th Cong., 2nd Sess., and Annual Report, 1886, p. 1865 |
| | Aug 11, 1888 | Extension of east breakwater. | H. Ex. Doc. 189, 50th Cong., 2nd sess., and Annual Report, 1888, p. 2005 |
| | Jun 3, 1896 | Reconstruction of piers.[2] | H. Doc. 326, 54th Cong., 1st sess., and Annual Report, 1896, p. 2949 |
| | Mar 3, 1899 | Dredging channel between piers and outer harbor to depth of 19 feet; dredging to depth of 23 feet in any portion of harbor is discretion of Secretary of War. | H. Doc. 156, 55th Cong., 2nd sess., and Annual Report, 1899, pp. 3075 and 3078 |
| | Jun 13, 1902 | Arrowhead breakwater and extension of east breakwater. | H. Doc 118, 56th Cong., 2nd sess. |
| | Mar 2, 1907<br>Jun 25, 1910 | Removal of deflecting arm of old east breakwater and closure of gap between old and new east breakwaters. | No printed report. |
| | Jul 27, 1916 | Pierhead at easterly end of east breakwater. | H. Doc 891, 63rd Cong., 2nd sess. |
| | Aug 8, 1917<br>Aug 29, 1937 | Maintenance and improvement of channels in Cuyahoga and Old Rivers to a depth of 21 feet to a point 2,000 feet upstream from Clark Ave. viaduct and 18-foot turning basin. | H. Doc. 707, 63rd Cong., 2nd sess., & R &H Committee Doc. 84, 74th Cong., 2nd sess. |
| | Aug 30, 1935[3] | Deepening outer harbor and channel between piers to present project dimensions, construction of 400-foot spur breakwater at gap in shore arm of west breakwater, removal of easterly 150 feet of west breakwater, elimination from project of a 298-foot southerly extension on west pier, and abandonment of inner 932 feet of shore arm of west breakwater. | H. Doc. 477, 72nd Cong., 2nd sess. |

[1] Completed under previous projects.
[2] Completed under previous projects.
[3] Authorized by Public Works Administration, Sep 6, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Aug 30, 1935[1] | Maintenance dredging in Cuyahoga and Old Rivers for one year as an emergency measure. | R & H Committee Doc. 39, 74th Cong., 1st sess. |
| | Mar 2, 1945[2] | Maintenance extension of Cuyahoga River channel. Extension, maintenance, and improvement to a depth of 21 feet of Cuyahoga River channel to present project limit.[3] [4] | Specified in act. H. Doc. 95, 79th Cong., 1st sess. R & H Act of 1945, PL 79-14 |
| | Jul 24, 1946 | Improvement of Cuyahoga and Old Rivers to a depth of 23 feet and replacement or pier construction of 7 railroad bridges.[5] | H. Doc. 629, 79th Cong., 2nd sess. R & H Act of 1946, PL 79-525 |
| | Jul 3, 1958 | Deepening channel 25 feet through east basin of outer harbor; replacement of Erie-Lackawanna Railroad bridge over Cuyahoga River at mile 4.1 and widening of channel at that point, with elimination of reconstruction of east pier of bridge as previously authorized; and replacement of Baltimore and Ohio Railroad Bridge over Old River near its mouth and Willow Avenue Highway Bridge about 800 feet above mouth and widening channel at four locations along lower, 2,000 feet of river.[6] | H. Doc. 107, 85th Cong., 1st sess. R & H Act of 1958, PL 85-500 |
| | Jul 14, 1960 | Depth of 29 feet in lake approach to main entrance; 28 feet in entrance channel to lakeward ends of piers at mouth of Cuyahoga River; 27 feet in river to a point just above its junction with Old River, and in Old River to upstream limit of present 23-foot project; 28 feet in west basin within existing project limits as modified to eliminate a triangular area at west end and to extend limits to a line parallel to and 75 feet from harbor line; and 28 feet in westerly 800 feet of east basin.[7] | H. Doc. 152, 86th Cong., 1st sess.[8] R & H Act of 1960, PL 86-645 |
| | Oct 23, 1962 | An area in east basin 27 feet deep extending 3,800 feet easterly of 28-foot area with project limits 380 feet from east breakwater and on landward side generally by a line 75 feet lakeward of and parallel to harbor line. A dock channel to Nicholson Cleveland easterly end of east basin, from 25-foot contour to a limit Terminal Co. pier, at 75 feet north of pierhead line, 400 feet wide at shoreward end and flared toward the lake. | H. Doc. 527, 87th Cong., 2nd sess. R & H Act of 1962, PL 87-874 |
| | Jul 14, 1960 as amended | Deepening upper end of Old River channel from 21 to 27 feet. | Sec. 107 of the R & H Act of 1960, PL 86-645. Authorized by Chief of Engineers Dec 6, 1966 |
| | Oct 22, 1976 | Preparation of Phase I design memorandum for improvements consisting of removal of portions of entrance breakwater; construction of breakwater; construction of breakwater extension of east entrance; deepening approach and entrance channels; | Sec. 175 of the WRDA 1976, PL 94-587 |

[1] Authorized in part by Public Works Administration, Sep 6, 1933.
[2] First Deficiency Appropriations Act approved Apr 1, 1944.
[3] Deepening left half of channel extension was eliminated from project by 1962 R&H Act.
[4] Authorized by Defense Plant Corp. May 19, 1942.
[5] Widening Cuyahoga River downstream at end of Cut 4 classified inactive.
[6] Replacement of bridges 19 and 32, widening Cuyahoga and Old River Channels, classified deferred.
[7] Deepening remainder of Cuyahoga River from Bridge 1 to and including Old River, classified deferred.
[8] Contains latest published map.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | | construction of diked disposal area; and installation of recreational fishing facilities on west breakwater. | |
| | Aug 15, 1985 | Deepening and widening east entrance and approach channels, deepening the east basin channel and disposing of dredge material in an existing disposal site, as described in the Report to the Board of Engineers for Rivers and Harbors Jan 22, 1985, including bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient vessels in the area south of Pier 34 and including such modifications as may be recommended by the Chief of Engineers at a cost not to exceed $36,000,000. | PL 99-88 |
| | Nov 17, 1986 | Bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient wells in the area south of Pier 34. | Section 202 of WRDA 1986, PL 99-662; and PL 100-202 |
| | Dec 21, 1987 | Appropriates and directs the Secretary of the Army to use the sum of $11,000,000 which is to remain available until expended to carry out the provisions for the harbor modifications contained in PL 99-662. | Doc. 653, 61st Cong., 2nd sess. |
| **5** | | **CONNEAUT HARBOR, OH** | |
| | Jun 25, 1910 | Extension of east breakwater, construction of new west breakwater, removal of portion of old west breakwater, and dredging of outer harbor to 19 feet. | H. Doc. 653, 61st Cong., 2d sess. |
| | Aug 8, 1917[1] | Realignment of west breakwater, removal of remainder of old west breakwater, and deepening outer harbor to 20 feet. Removal of Bessemer & Lake Erie R.R. Co. of inner 635 feet of west pier. | H. Doc. 983, 64th Cong., 1st sess. |
| | Aug 30, 1935[2] | Removal of portion of west breakwater, extension of breakwaters to present project dimensions, construction of pierheads on outer ends of breakwaters, deepening outer harbor to present project dimensions; removal of portions of river pier, and elimination from project of a 255-foot shoreward extension of west breakwater. | H. Doc. 48, 73rd Cong., 1st sess. |
| | Oct 23, 1962 | Deepening easterly part of outer harbor to 28 feet in soft material and 29 feet in hard material; deepening remaining triangular area of outer harbor to 22 feet in soft material and 23 feet in hard material; deepening inner harbor for 2,450 feet upstream of outer end of west pier to 27 feet in soft material and 28 feet in hard material; removal of east pier, extension of east breakwater to shore; and an access channel 8 feet deep in outer harbor to city dock. Previously authorized, but uncompleted portion of work authorized by 1917 and 1935 Acts combined with this act for accomplishment as a single improvement. | H. Doc. 415, 87th Cong., 2nd sess. R & H Act of 1962, PL 87-874 |
| | Oct 12, 1996 | De-authorized the most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910. | WRDA, PL 104-303 |
| **6** | | **DUNKIRK HARBOR, NY** | |

[1] Permit of Secretary of War, Aug 5, 1927.
[2] Authorized in part by Public Works Administration, Sep 6, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Mar 2, 1827 | Construction of west pier.[1] [2] | S. Ex. Doc. 42, 35th Cong., 1st sess. and Annual Report 1866 pt. IV, p. 155 |
| | Mar 2, 1867 | Breakwater and evacuation of entrance channel to 13 feet.[3] | Annual Report, 1871, p. 214 |
| | Jun 3, 1896 | Deepening of entrance channel and harbor basin to a depth of suitable for vessels of 16-foot draft. | H. Doc. 63, 54th Cong., 1st sess. |
| | Jun 25, 1910 | Removal of rock reef bordering the inner entrance channel. | H. Doc. 720, 61st Cong., 2nd sess. |
| | Jun 30, 1948 | Deepening outer entrance channel to present project depths; removal of rock shoal on the west side of the entrance channel to a depth of 17 feet, and changed limits of the inner entrance channel and basin to present project dimensions. | H. Doc. 632, 80th Cong., 2nd sess.[3] R & H Act of 1948, PL 80-858 |
| | Dec 15, 1970<br>Jun 22, 1971 | Construction of small-boat harbor. | H. Doc. 91-423, 91st Cong., 2nd sess.<br>(House Public Works Committee), (Senate Public Works Committee), Sec. 201 of Flood Control Act of 1965;R & H Act of 1970 PL 91-611 |
| **7** | | **ERIE HARBOR, PA** | |
| | May 26, 1824 | Breakwaters and piers; dredging entrance channel and brushwood protection of beach of Presque Isle peninsula.[4] | Annual Report, 1915, p. 1965 |
| | Mar 3, 1899 | Deepening channel and harbor basin 18 feet, repair and extension of piers; and plant growth and emergency protection of work on peninsula. | H.Doc.70, 55th Cong., 1st sess. and Annual Report, 1896, p. 3237[5] |
| | Jun 15, 1910 | Deepening channel and part of harbor to 20 feet. | Rivers and Harbors Committee Doc. 26, 61st Cong., 2nd sess. |
| | Nov 28, 1920[6] | Re-conveyed Presque Isle peninsula to the state of Pennsylvania for park purposes. | |
| | Aug 30, 1935 | Deepening, widening, and straightening entrance channel; dredging channel at easterly end of harbor basin, all too present project dimensions; elimination of north breakwater from project; and limitation of south breakwater to a length of 1,200 feet. | H. Doc. 52, 73rd Cong., 1st sess. |
| | Mar 2, 1945 | Protection of the peninsula south of the waterworks settling basin. | R & H Act of 1945, PL 79-14 |

[1] Completed under previous projects.
[2] Modified 1828 and 1852.
[3] Contains latest published map.
[4] Completed under previous projects.
[5] Extension of north pier portion of this modification was deauthorized Nov 1981.
[6] Public Law 366.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Sep 3, 1954 | Widen 25-foot deep approach channel to ore dock. | H. Doc. 345, 83rd Cong., 2nd sess. R & H Act of 1954, PL 83-780 |
| | Jul 14, 1960 | Depth of 29 feet in the entrance channel to a point opposite the inner end of the north pier, thence 28 feet in soft material and 29 feet in hard material in the remainder of the entrance channel, within the general limits of the 25-foot basin and inner channel opposite the ore dock except as modified to eliminate from the project a triangular area along the easterly side; and a depth of 28 feet over 300-foot westward extension of the 25-foot basin.[1] | H. Doc. 199, 86th Cong., 1st sess. R & H Act of 1960, PL 86-645 |
| | Oct 23, 1962 | Depth of 27 feet in soft material and 28 feet in hard material in approach area to Duquesne Marine Terminal. Previously authorized but uncompleted portion of work authorized by 1935 Act is combined with this act as a single improvement. | H. Doc. 340, 87th Cong., 2nd sess.[32] R & H Act of 1962, PL 87-874 |
| **8** | | **FAIRPORT HARBOR, OH** | |
| | Mar 3, 1825[2] | Construction of piers. | Annual Report, 1889, pp. 2147-2153 |
| | Jun 3, 1896<br>Mar 3, 1905 | Breakwaters and dredging outer harbor to a depth of 18 feet. | H. Doc. 347, 54th Cong., 1st sess. and Annual Reports, 1896, p. 2956; 1903, p. 2084. 1905, p. 2349 |
| | Mar 2, 1919 | 1,400-foot extension of east breakwater, present project dimension of east pier, and deepening to 19 feet. | H. Doc. 206, 63rd Cong., 1st sess. |
| | Jan 21, 1927<br>Jul 3, 1930 | 4,000-foot extension of east breakwater at limit of cost to the United States of $715,000. | H. Doc. 592, 69th Cong., 2nd sess. R & H Committee Doc 13, 70th Cong., 1st sess. |
| | Aug 30, 1935[3] | Deepening of outer harbor and entrance channel to present dimensions; extending the west breakwater to present project dimensions with pierhead at its outer end; removal of west pier, and construction of bulkhead on west side of river channel. | H. Doc. 472, 72nd Cong., 2nd sess. |
| | Aug 26, 1937 | Dredging of 21 and 24-foot river channels and turning basin in Grand River to present project dimensions. | R & H Committee Doc. 79, 74th Cong., 2nd sess. |
| | Jul 24, 1946 | Dredging of 8-foot river channel. | H. Doc. 706, 79th Cong., 2nd sess.[32]<br>R & H Act of 1946, PL 79-525 |
| **9** | | **GREAT SODUS BAY HARBOR, NY** | |
| | Mar 2, 1829 | Construction of piers and breakwater. | Annual Report, 1876 pt. II p. 589 |

[1] Deepening strips adjacent to north and south piers was deauthorized Aug 1982.
[2] Modified 1830, 1881, and 1890. New work completed under previous projects.
[3] Partly included in Public Works Administration Program, Nov 15, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Aug 2, 1882 | Extension of piers to 15-foot contour in the lake. | Annual Report, 1881, p. 2442 |
| | Mar 3, 1925 | Deepening and widening of channel to 180 foot depth and 150 foot width. | H. Doc. 192, 68th Cong., 1st sess. |
| | Jul 3, 1930 | Widening channel lakeward of piers to 250 feet. | R & H Committee Doc. 17, 70th Cong., 1st sess. |
| | Aug 30, 1935 | Dredging channel to present project dimensions. | R & H Committee Doc. 23, 72nd Cong., 1st sess. |
| **36** | | **GREAT LAKES FISHERY & ECOSYSTEM RESTORATION** | |
| | Dec 11, 2000 | Provides $100M of authority of plan, design, & construct individual projects that support the restoration of the fishery, ecosystem and beneficial uses of the GL. GLFER is an existing Federal program that is specific to the GL & can respond to the recommendations of the Strategy of the GL Regional Collaboration for wetlands & aquatic habitat protection & restoration. Projects will also support state/local efforts to implement Remedial Action Plans to restore beneficial use impairments at GL AOC. | Section 506 of WRDA, PL 106-541 |
| | Jan 4, 2007 | Directs the Secretary to conduct reconnaissance studies at 100% Federal cost. | Section 5011 of WRDA 2007, PL 110-114 |
| **10** | | **HURON HARBOR, OH** | |
| | Mar 2, 1905 | Extension of west pier, construction of east breakwater, removal of part of old east pier; deepening of channel to 19 feet; and dredging of sheltered area. | H. Doc. 122, 58th Cong., 2nd sess. |
| | Mar 2, 1919 | Widening river to 200 feet; removal of remainder of old east pier, construction of new spur pier, enlargement of sheltered area; and closure of beach at shore end of west pier. | H. Doc. 5, 63rd Cong., 1st sess. |
| | Aug 30, 1935[1] | Extension of west pierhead at its outer end; removal of outer end of east breakwater and construction pierhead on new outer end; widening and deepening channel to present project dimensions; enlargement of turning basin at head of channel; shore protection west of west pier, and elimination from project construction of spur pier and dredging sheltered area outside channel limits. | H. Doc. 478, 72nd Cong., 2nd sess. |
| | Oct 23, 1962 | Depths of 29 feet in approach channel, 28 feet in entrance channel, 27 feet in river channel, 21 feet in turning basin and abandonment of lakeward end of existing approach channel. | H. Doc. 165, 87th Cong., 1st sess.[32] R & H Act of 1962, PL 87-874 |
| **11** | | **IRONDEQUOIT BAY, NY** | |
| | Jul 3, 1958 | Construction entrance channel 9 feet deep and 100 feet wide, extending from 9-foot depth in Lake Ontario to junction with inner bay channels, a distance of about 1,300 feet; inner channel, 8 feet deep and 100 feet wide, from entrance channel to deep water in bay, a distance of about 3,035 feet, access channel 8 feet deep, 100 feet | H. Doc. 332, 84th Cong., 2nd sess. |

[1] Partly included in Public Works Administration Program, Nov 15, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | | wide and 500 feet in length from the inner bay channel to the west; two stone rubble-mound structures 1,350 feet and 750 in length at the natural entrance; and recreational facilities. | |
| **12** | | **LITTLE SODUS BAY HARBOR, NY** | |
| | Aug 30, 1852 | West entrance pier. | Annual Report, 1874, p. 256 |
| | Jun 23, 1866 | Extension of west pier and construction of west breakwater, and dredging channel to 12 feet deep, 400 feet wide. | Annual Report, 1874, p. 256 |
| | Mar 3, 1871 | East pier and east breakwater. | Annual Report, 1871, p. 234 |
| | Mar 3, 1881 | Extension of piers lakeward to 15.5-foot contour, and dredging channel to 15.5 feet. | Annual Report, 1881, pp. 2444 and 2446 |
| | Jun 13, 1902 | Extension of east pier 300 feet lakeward. | Annual Report, 1901, p. 3364 |
| **13** | | **LORAIN HARBOR, OH** | |
| | Mar 3, 1899 | Breakwaters and extension of piers to present dimensions. | H. Doc. 131, 55th Cong., 2nd sess., and Annual Report 1898, p. 2718. |
| | Mar 2, 1907 | Extend 18-foot channel from inner end of piers to Erie Avenue Bridge. | H. Doc. 560, 60th Cong., 1st sess. |
| | Jun 25, 1910 | Extend breakwaters and dredge to depth of 19 feet in outer harbor. | H. Doc. 644, 61st Cong., 2nd sess. |
| | Aug 8, 1917 | Extend breakwaters to present dimensions. | H. Doc. 980, 64th Cong., 1st sess. |
| | Aug 8, 1917 | Deepen outer harbor and river channel of Erie Avenue Bridge to 20 feet. | H. Doc. 985, 64th Cong., 1st sess. |
| | Jul 3, 1930 | Extend 20-foot channel to American Shipbuilding Co. Drydock. | H. Doc. 587, 69th Cong., 2nd sess. |
| | Aug 30, 1935 | Widen 2 bends in river and enlarge turning basin opposite National Tube Co. dock.[1] | H. Doc. 469, 72nd Cong., 2nd sess. |
| | Aug 30, 1935 | Approach channel to municipal pier. | Senate Committee print, 73rd Cong., 2nd sess. |
| | Aug 30, 1935 | Deepen outer harbor and river channel to American Shipbuilding Co. Drydock 2 present project dimensions and extension of river channel to upper end of National Tube Co. dock with turning basin opposite that dock. Maintenance dredging in Black River from American Shipbuilding Co. Drydock 2. Upper end of National Tube Co. dock was authorized Apr 7, 1934, by Public Works Administration. | Doc. 51, 74th Cong., 1st sess. R & H Committee |
| | Aug 30, 1935 | Enlarging turning basin opposite National Tube Co. Dock to present project dimensions. | Specified in act. |

[1] Authorized by Public Works Administration, Sep 6, 1933.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Mar 2, 1945 | Turning basin in bend of Black River immediately upstream from Baltimore & Ohio RR coal dock. | H. Doc. 161, 77th Cong., 1st sess. R & H Act of 1945, PL 79-14 |
| | Jul 14, 1960 | Replace Norfolk and Western Railway swing bridge with a vertical lift bridge; construct two detached arrowhead breakwaters lakeward of existing breakwaters; construct extension of east breakwater, to shore; remove 300 feet of lakeward end of west breakwater; remove outer 1,100 feet east pier; deepen lake approach to 29 feet, 800-foot wide outer harbor channel to 27 feet; widen river channel at bends; and construct a new turning basin 21 feet deep near upstream limit of existing project.[1] | H. Doc. 166, 86th Cong., 1st. sess. R & H Act of 1960, PL 86-645 |
| | Jul 14, 1960 As amended | Construction of a 225 foot detached rubble mound breakwater and an 800 foot long rubble mound breakwater attached to the east breakwater shore arm I in the east basin of the outer harbor. | R & H Act of 1960, PL 86-645. Authorized Chief of Engineers Mar 12, 1986 |
| | Nov 17, 1986 | Two bed cuts on Black River between the Norfolk and Western Railroad Bridge and 21st Street Bridge, excavated to existing channel depth of 27 feet. Widening Upper Turning Basin at existing authorized depth of 21 feet.[2] | H. Doc. 124, 99th Cong., 1st sess. WRDA 1986, PL 99-662 |
| **32** | | **MT. MORRIS LAKE, GENESEE RIVER, NY** | |
| | Dec 22, 1944 | Construction of a concrete gravity dam and reservoir. | H. Doc. 615, 78th Cong., 2nd sess. Flood Control Act of 1944, PL 78-534 |
| | Jan 3, 1992 | Construct a visitor center at Mt. Morris Dam to be known as the "William B. Hoyt II Visitor Center." | Section 103 of WRDA 1992, PL 102-580 |
| | Jan 4, 2007 | Authorizes the Secretary to make improvements to the access road to Mt. Morris Dam as part of the O&M project. | Section 5110 of WRDA 2007, PL 110-114 |
| **30** | | **NEW YORK STATE BARGE CANAL, NY** | |
| | Nov 17, 1986 | Authorizes the Secretary to reimburse the state of New York for 50% of the cost of operating, maintaining and rehabilitating the New York State Barge Canal. The Federal contribution shall be limited in any fiscal year to $5,000,000, or 50% of the expenditures in that fiscal year, whichever is the lesser.[37] | Section 1105 of WRDA 1996, PL 99-662 |
| | Oct 12, 1996 | The Secretary may make capital improvements to the New York State Canal System for the purposes of rehabilitation, renovation, preservation, and maintenance of the New York State Canal System and its related facilities. The Federal share of the cost of capital improvements shall be 50%, up to a limit of $8,000,000. | Section 553 of WRDA 1996, PL 104-303 as amended by Section 341 of WRDA 1996, PL 104-303 |
| | Jan 4, 2007 | Defines the NYS Canal System as the 524 miles of Erie, Cayuga-Seneca, Oswego and Champlain Canals and the historic alignments of these canals, including the cities of Albany, Rochester and Buffalo, NY. | Section 3124 of WRDA 2007, PL 110-114 |

[1] Deepening and widening remainder of Black River Channel at Cut 1 has been de-authorized.
[2] Classified deferred.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| **34** | | **OHIO ENVIRONMENTAL INFRASTRUCTURE, OH** | |
| | Aug 17, 1999 | Multiple projects for providing Federal assistance for design and/or construction of water related environmental infrastructure, resource protection and development projects often by reimbursement to non-Federal sponsor. | Section 594 of WRDA 1999, PL 106-53 |
| | Jan 4, 2007 | Allows non-Profit entities to act as the non-Federal sponsor to Section 594 Ohio Environmental Infrastructure projects with the consent of the affected local government. | Section 3124 of WRDA 2007, PL 110-114 |
| **15** | | **OLCOTT HARBOR, NY** | |
| | Mar 2, 1867 | Dredging a channel 11 feet deep between parallel piers. | Annual Report, 1866, pt. III, p. 15 pt. IV, p. 158 |
| | Mar 4, 1913 | Deepening channel to 12 feet and maintenance of west pier. | H. Doc. 780, 62nd Cong., 2d sess. |
| | Nov 17, 1986 | Construct the project for Navigation, Report of the Chief of Engineers | Section 601 of WRDA 1986, PL 99-662 |
| **35** | | **ONONDAGA LAKE, NY** | |
| | Nov 16, 1990 | The Assistant Secretary of the Army for Civil Works, the administrator of the Environmental Protection Agency, and the Governor of the State of New York, acting jointly, shall convene a management conference for the restoration and management of Onondaga Lake and develop a management plan. Repealed by Section 573 of Water Resources Development Act of 1999, PL 106-53. | Title IV of the Great Lakes Critical Programs Act of 1990, PL 101-596 |
| | Nov 28, 1990 | The Assistant Secretary of the Army for Civil Works, the administrator of the Environmental Protection Agency, and the Governor of the State of New York, acting jointly, shall convene a management conference for the restoration and management of Onondaga Lake and develop a management plan. This is a Reaffirmation of PL 101-596. Repealed by Section 573 of Water Resources Development Act of 1999, PL 106-53. | Section 411 of the WRDA 1990, PL 101-640 |
| | Oct 31, 1992 | The Secretary is authorized to design and construct projects to address water quality problems associated with storm water discharges from large storm events for the watershed areas of Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions, which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal. Project physically complete in FY03, financially complete in FY04. | WRDA 1992, PL 102-580 |

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Aug 17, 1999 | Secretary of the Army to lead Partnership for the development and implementation of Onondaga Lake improvement projects. Repeals Title IV of the Great Lakes Critical Programs Act of 1990 and section 411 of the Water Resources Development Act of 1990. | Section 573 of WRDA 1999, PL 106-53 |
| **16** | | **OSWEGO HARBOR, NY** | |
| | Jul 11, 1870 | Construction of outer west breakwater.[1] | Annual Report, 1870, pp. 54, 220 and 221 |
| | Mar 2, 1907 | Repair of outer west breakwater under Plan (A).[2] | H. Doc. 55, 58th Cong., 2nd sess. |
| | Jul 3, 1930 | Construction of arrowhead breakwaters; deepening outer harbor between arrowhead breakwaters; west outer harbor east of Erie-Lackawanna coal dock, and Oswego River north of Seneca St., to 21 feet; and deepening west outer harbor, west of Erie-Lackawanna coal dock, to 16 feet.[3] | R & H Committee Doc. 24, 71st Cong., 2nd sess. |
| | Aug 30, 1935 | Widening channel to harbor line in Oswego River north of Seneca Street. | R & H Committee Doc. 7, 74th Cong., 1st sess. |
| | Oct 17, 1940 | Closing gap in west breakwater; deepening west outer harbor, west of east line of Erie-Lackawanna coal dock, to project depth.[4] | H. Doc. 96, 76th Cong., 1st sess. |
| | Jun 30, 1948 | Construction of east outer breakwater; removal of the inner end of east arrowhead breakwater; and dredging channel and basin in east outer harbor.[5] | H. Doc. 722, 80th Cong., 2nd sess. R & H Act of 1948, PL 80-858 |
| | Sep 3, 1954 | Construction of detached breakwater at harbor entrance and removal of shoals in approach to harbor entrance to 25 feet deep. | H. Doc. 487, 81st Cong., 2nd sess. R & H Act of 1948, PL 83-780 |
| | Oct 23, 1962 | Depth of 27 feet in lake approach channel; 25 feet deep in outer harbor channel 800 feet wide from entrance gap to a turning basin 25 feet deep about 750 by 1,100 feet, at mouth of Oswego River; depth of 24 feet in earth and 25 feet in hard material in river channel from turning basin to upstream end of Port of Oswego Authority's east side terminal, a distance of about 1,600 feet; relocation of Federal project limits in Oswego River upstream of 24-foot channel to Federal project limit at north line of West Seneca St., on lines parallel to 50 feet channel ward of established harbor lines; elimination of maintenance of inner west breakwater and elimination of modification authorized by River and Harbor Act of 1948. | H. Doc. 471, 87th Cong., 2nd sess. R & H Act of 1962, PL 87-874 |
| | Oct 12, 1996 | De-authorized the portion of the Federal Channel authorized by the R&H Act of 1910 as amended by the R&H Act of 1935, from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of the Lake St. Bridge. | WRDA 1996, PL 104-303 |
| **17** | | **OTTAWA RIVER HARBOR, MI, OH** | |
| | Dec 17, 1970 | 6-foot deep, 16,500 foot long channel in Ottawa River and 8-foot | H. Doc. 396, 91st Cong., 2d |

[1] Completed under previous projects.
[2] Replacement of bridges 19 and 32, widening Cuyahoga and Old River Channels, classified deferred.
[3] Deepening a 200-foot strip along harbor line east of mouth of Oswego River is de-authorized.
[4] Deepening to 22 feet a 150-foot wide strip in west outer harbor de-authorized in May 1981.
[5] Modification eliminated by River and Harbor Act of Oct 26, 1962.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | | deep, 15,000-foot channel in Maumee Bay. | sess. House and Senate Committees on Public Works Resolutions |
| | Nov. 28, 1990 | Continuation of authorization | Section 107 of WRDA 1990, 1990, PL 101-640. |
| **18** | | **PORT CLINTON HARBOR, OH** | |
| | Jun 10, 1872 | Parallel stone and pile jetties at mouth of river, east jetty 2,200 feet long and west jetty 1,980 feet long extending to 10-foot contour in lake channel 10 feet deep and 100 feet wide for outer 4,200 foot length and 200 feet wide for inner 800 foot length to Highway Bridge. | Annual Report, 1875, p. 295 |
| | | **PORT ONTARIO, NY** | |
| | Mar 2, 1945 | Construct harbor of refuge. | H. Doc. 446, 78th Cong., 2d sess. R & H Act of 1945, PL 79-14 |
| | Nov 17, 1986 | Maintain harbor of refuge. | Section 615 of WRDA 1986, PL 99-662 |
| **31** | | **PRESQUE ISLE PENINSULA, ERIE, PA** | |
| | Sep 3, 1954 | Construction of groin system, seawall, bulkhead, placement of beach material at waterworks reservation and along remainder of peninsula; removal of portions of existing structures. | H. Doc. 231, 81st Cong., 1st sess. Flood Control Act of 1954, PL 83-780 |
| | Jul 14, 1960 | Periodic nourishment of shores for a 10-year period. | H. Doc. 397, 86th Cong., 2nd sess. Flood Control Act of 1960, PL 86-645 |
| | Mar 7, 1974 | Periodic nourishment of shore for a 5-year period. | H. Doc. 796, 93rd Cong., 2nd sess. WRDA 1974, PL 93-251 |
| | Oct 22, 1976 | Preparation of Phase I design memorandum for improvements consisting of construction of five sections of spaced offshore breakwaters and replenishment of beach area with sand fill. | Section 101 of WRDA 1976, PL 94-587 |
| | Nov 17, 1986 | Construct offshore breakwaters and restore beaches. | Section 501 of WRDA 1986, PL 99-662 |
| **19** | | **ROCHESTER, HARBOR, NY** | |
| | Mar 2, 1829 | Construction of piers.[1] | Annual Report, 1874, p. 247 |
| | Aug 2, 1882 | Extension of piers to 15 foot contour in the lake. Concrete superstructure on piers.[1] | Annual Report, 1881, p. 2437; Annual Report, 1905, p. 2383 |
| | Jun 25, 1910 | Deepening channel to 20 feet. | H. Doc. 342, 61st Cong., 2nd sess. |

[1] Completed under previous projects.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Aug 30, 1935[1] | Dredging of the entrance channel and turning basin, and the elimination of the inner ends of the east and west piers, all too present project dimensions. | H.Doc. 484, 72nd Cong., 2nd sess. |
| | Mar 2, 1945 | Maintenance of existing channel upstream of the Penn Central Co. Bridge. | H. Doc. 139, 76th Cong., 1st sess. R & H Act of 1945, PL 79-14 |
| | Jul 14, 1960 | Depth of 24 feet in the channel from the lake to the west pier, depth of 23 feet between the piers and in the lower river to the Penn Central Co. Bridge, including the existing turning basin; depth of 21 feet from the bridge to the upstream project limit, with suitable widening at the bends; and turning basin 21 feet deep and 650 feet wide adjacent to the improved channel, with two mooring dolphins. | H. Doc. 409, 86th Cong., 2nd sess.[2] R & H Act of 1960, PL 86-645 |
| | Jul 14, 1960<br>Nov 28, 1990 | A navigation project for the mouth of the Genesee River in Rochester, New York, by development and implementation of wave surge control measures. | Section 107 R & H Act of 1960, PL 86-645; WRDA 1990, PL 101-640 |
| **20** | | **ROCKY RIVER HARBOR, OH** | |
| | Jun 10, 1872 | East pier and dredging of channel. | Annual Report 1871, p. 211 |
| | Aug 26, 1937 | Extension of east pier and deepening channel to present project dimensions. | H. Doc. 70, 75th Cong., 1st sess. |
| | Oct 27, 1965 | Realign and extend channel and construct an anchorage basin. | H. Doc. 352, 88th Cong., 2nd sess. R & H Act of 1965, PL 89-298 |
| | | **SACKETS HARBOR, NY** | |
| | Aug 2 1882 | Deepening harbor area to 12 feet. | Sen. Ex. Doc. 29, 47th Cong., 1st sess. |
| | Aug 13, 1888 | Construct timber crib mooring place, and brush and stone jetty. | Annual Report, 1888 pt. III, p. 2086 |
| | | Build 2 stone groins (OCE-June 8, 1896) | Annual Report, 1896, pt. III, p. 3160 |
| | Mar 2, 1945 | Deepening to project dimensions. | H. Doc. 732, 79th Cong., 2d sess. R & H Act of 1945, PL 79-14 |
| **21** | | **SANDUSKY HARBOR, OH** | |
| | Mar 3, 1899 | Construction of channel protection works. | H. Doc. 362, 55th Cong., 2nd sess. and Annual Report 1898, p. 2708 |
| | Jun 13, 1902 | Widening of Straight and Dock channels and deepening to 19 feet. | H. Doc. 120, 56th Cong., 2nd sess. |

[1] Authorized May 28, 1935 by Emergency Relief Administration Act of 1935.
[2] Contains latest published map.

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Mar 2, 1919 | Extension of east jetty to total length of 6,000 feet, with pierhead on outer end; deepening of the outer, straight, and easterly portion of dock channel to 20 feet. | H. Doc. 982, 64th Cong., 1st sess. |
| | Jan 21, 1927 | Deepening of dock channel to 22 feet. | H. Doc. 584, 69th Cong., 2nd sess. |
| | Aug 30, 1935 | Enlargement of turning basin and construction rock dike. | R & H Committee Doc. 2, 73rd Cong., 1st sess. |
| | Mar 2, 1945 | Maintenance of bay channel to 22 feet; and elimination from project of portion of turning basin and rock dike. | H. Doc. 328, 76th Cong., 1st sess. R & H Act of 1945, PL 79-14 |
| | Jul 14, 1960 | Extending Moseley channel and deepening that channel and the outer end of Straight channel to 26 feet, from deep water in the lake to the vicinity of Cedar Point dock; widening the bend at the junction of the Moseley and Straight channels to 25 feet from the vicinity of Cedar Point dock to Junction Bay channel; deepening the Bay channel from the junction with the Straight channel to the outer end of the Pennsylvania Coal dock no. 3 to 24 feet, thence from outer end of the coal dock to the turning basin to 24 feet in removal of approximately 300 feet of the rock dike, and deepening to 24 feet in soft material and 25 feet in hard. | H. Doc. 144, 85th Cong., 1st Sess. R & H Act of 1960, PL 86-645 |
| **22** | | **STURGEON POINT, NY** | |
| | Jul 14, 1960 | Rehabilitate existing breakwater, construct rubble mound, west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging. | Section 107 R & H Act of 1960, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987. |
| **23** | | **TOLEDO HARBOR, OH** | |
| | Mar 3, 1899 | A channel 400 feet wide and 21 feet deep from 25-foot contour in Maumee Bay to Fassett Street Bridge, 200 feet wide and 19 feet deep above that point and a 500-foot turning basin at upper end. A stone re-vetted earth dike in Maumee Bay channel. | H. Doc. 198, 55th Cong., 2nd sess. and Annual Report 1898, p. 2693 |
| | Jun 25, 1910 | Act 1899 modified to insure a navigable channel to 21 feet from Fassett Street Bridge to lake. | H. Doc. 865, 60th Cong., 1st sess. |
| | Aug 30, 1935 | Channel 25 feet deep and 500 feet wide from 25-foot contour to mouth of Maumee River (300 feet wide on each side of center dike in bay channel), thence 400 feet wide to Fassett Street Bridge, 200 feet wide above that point and a turning basin at upper end 18 feet deep. | R & H Committee Doc. 21, 72nd Cong., 1st sess. |
| | May 17, 1950 | Widening at bend of mouth of River opposite Chesapeake and Ohio Railway Dock. | H. Doc. 189, 81st Cong., 1st sess. R & H Act of 1950, PL 81-516 |
| | Sep 3, 1954 | Removal of center dike in Maumee Bay channel. | H. Doc. 620, 81st Cong., 2nd sess. R & H Act of 1954, PL 83-780 |

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | Jul 3, 1958 | Enlarge widening at bend opposite Chesapeake and Ohio dock and turning basin opposite American Shipbuilding Co. dock. | H. Doc. 436, 84th Cong., 2nd sess. R & H Act of 1958, PL 85-500 |
| | Jul 14, 1960 | Deepening Bay channel including widening to 28 feet, deepen river channels to NY Central Railroad bridge to 27 feet and construct new turning basin below Anthony Wayne Bridge. | H. Doc. 153, 86th Cong., 1st sess.[32] R & H Act of 1960, PL 86-645 |
| | Jan 4, 2007 | Establishes Regional Sediment Management as a priority in the Section 204 Program (CG CAP). Specifically names Toledo Harbor, OH as a priority area. | Section 2037 of WRDA 2007, PL 110-114 which amends Section 204 of WRDA of 1992 |
| | | Directs the Secretary to conduct a study of the feasibility of removing dredged materials from the CDF's at Toledo and moving the dredged material to abandoned mine sites in SE Ohio. | Section 4071 of WRDA 2007, PL 110-114 |
| | | Directs the Secretary to conduct a study of channel and turning basin realignment at Toledo Harbor. | Section 4072 of WRDA 2007, PL 110-114 |
| **24** | | **TOUSSAINT RIVER, CARROLL TOWNSHIP, OH** | |
| | Jul 14, 1960 | Dredged channel from the mouth of the Toussaint River, 2,100 feet into Lake Erie, 4 feet below LWD, 150 feet wide in Lake Erie and tapered to 100 feet at the river mouth. | Section 107 of the R & H Act of 1960, PL 86-645. Authorized by Chief of Engineers Sep 29, 1990. |
| | Jan 4, 2007 | Directs that the O&M costs associated with unexploded ordnance at the Toussaint River project be carried out at 100% Federal expense. | Section 5118 of WRDA 2007, PL 110-114 |
| **25** | | **VERMILION HARBOR, OH** | |
| | Jul 4, 1836 | Parallel piers and dredging channel to 8 feet deep. | Annual Report, 1880 |
| | Mar 3, 1875 | Deepening of channel to 12 feet. | Annual Report, 1874, p. 219 |
| | Mar 3, 1905 | Reconstruction of piers. | H. Doc. 252, 58th Cong., 2nd sess. |
| | Jul 3, 1958 | New entrance formed by two overlapping arrowhead breakwaters and extension of existing river channel upstream to Liberty St. Bridge. | H. Doc. 231, 85th Cong., 1st sess. R & H Act of 1958, PL 85-500. |
| **26** | | **WEST HARBOR, OH** | |
| | Oct 27, 1965 | Construction of arrowhead breakwaters, entrance channel and access channel. | H. Doc. 245, 88th Cong., 2nd sess. R & H Act of 1965, PL 89-298. |
| **27** | | **WILSON HARBOR, NY** | |
| | Mar 2, 1945 | Entrance channel 80 feet wide and 8 feet deep; and restore east and west piers. | H. Doc. 679, 76th Cong., 2nd sess. R & H Act of 1945, PL 79-14. |
| | Aug 13, 1968 | Extend existing channel 300 feet; and construct new channel 3,800 feet long through Tuscarora Bay. | H. Doc. 112, 90th Cong., 1st sess. |

## Table 20-B AUTHORIZING LEGISLATION

| See Section | Acts | Work Authorized | Documents |
|---|---|---|---|
| | | Rehabilitate existing breakwater, construct rubble mound west breakwater extension, construct rubble mound east Breakwater, a shore revetment and dredging. | Section 107 of R & H Act of 1960, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987. |

## TABLE 20-C OTHER AUTHORIZED NAVIGATION PROJECTS

| Project | Status | For Last Full Report See annual Report For | Construction | Cost to Sep 30, 2009 Operations & Maintenance |
|---|---|---|---|---|
| Barcelona Harbor, NY | Active | 2001 | $1,185,853 | $2,480,775 |
| Big (Cunningham) Creek, OH | Completed | -[1] | 19,763 [2] | - |
| Black River Harbor, NY | Completed | -[1] | 42,401 | - |
| Buffalo Small Boat Harbor, NY | Completed | 1994 | 602,016 [3] | - |
| Cattaraugus Harbor, NY | Active | 2000 | 4,804,060 [4] | 378,578 |
| Cattaraugus Creek, NY | Completed | -[2] | 57,410 | - |
| Cooley Canal, OH | Active | - | 2,311,289 | 264,128 |
| Geneva-on-the Lake, OH | Active | 1990 | 3,145,176 [5] | 10,168 |
| Grasse River Massena, NY | Completed | 1891 | 9,000 [2] | - |
| Kelleys Island, OH | Active | 1974[5] | 129,874 | - |
| Little River at Cayuga Island, NY | Active | 1969 | 46,804 [6] | 6,580 |
| Morristown Harbor, NY | Active | 1949 | 6,221 | 13,218 |
| Niagara Remedial Works, NY[7] | Completed | 1966 | 6,069,395 | 510,819 |
| Niagara River, NY[8] | Active | 1964 | 559,457 [9] | 311,840 |
| Ogdensburg Harbor, NY | Active | 1987 | 1,720,466 [10] | 1,436,688 [11] |
| Pultneyville Harbor, NY[13] | Completed | 1934 | 68,219 | 20,087 |
| Rochester Harbor Wave Surge, NY | Completed | 2001 | 1,800,769 | 1,713,189 |
| Sandusky River, OH[14] | Completed | 1894 | 58,000 [2] | 557 |

[1] Only information available is in index to reports of Chief of Engineers.
[2] Amount includes maintenance; not separable.
[3] Excludes $593,216 contributed funds.
[4] Excludes $2,566,529 contributed funds.
[5] Excludes $3,261,375 contributed funds.
[6] Annual Report for Detroit District.
[7] Includes local interest's contribution of $25,742.
[8] Cost of operation and maintenance of this project will be settled directly by concerned power agencies. No further appropriations will be made to this project.
[9] Construction of compensating works as authorized by 1930 R&H Act was authorized by Congress in Aug 1977.
[10] Includes local interest contribution of $27,563.
[11] Includes $271,380 for previous projects. Excludes $57,000 contributed funds.
[12] Includes $130,512 for previous projects.
[13] Abandonment recommended in H. Doc. 275, 64th Cong., 1st sess.
[14] Abandonment recommended in Ex. Doc. 16, 35th Cong., 1st sess.

## Table 20-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

| Project | Status | For Last Full Report See Annual Report For | Construction | Cost to Sep 30, 2009 Operations & Maintenance |
|---|---|---|---|---|
| Hamlin Beach State Park, NY | Completed | 1976 | $1,769,600 | - |
| Lakeview Park, Lorain, OH | Completed | 1987 | 1,741,125 [1] | - |
| Maumee Bay State Park, OH | Completed | 1995 | 2,780,975 [2] | - |
| Selkirk Shore State Park, Lake Ontario, NY[3] | Completed | 1963 | 58,978 | $307 |

[1] Federal participation was limited to one-third of first cost when project was authorized by 1954 River and Harbor Act. Federal participation was changed from one-third to 70 percent of remaining work under Public Law 87-874.
[2] Does not include $739,700 contributed funds.
[3] Does not include $199,845 contributed funds.

## Table 20-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

| Project | Status | For Last Full Report See Annual Report For | Construction | Cost To Sep 30, 2009 Operations & Maintenance |
|---|---|---|---|---|
| Auburn, NY, Owasco Outlet | Completed | 1962 | $ 371,985 [1] | - |
| Batavia and Vicinity, Tonawanda Creek, NY | Completed | 1957 | 335,385 | - |
| Camp Perry, OH | Completed | 1967[2] | 275,000 [3] | - |
| Cayuga Creek, Cheektowaga, NY[4] | Completed | 1984 | 1,404,500 | - |
| Cuyahoga River Basin, OH | Active | 1985 | 1,117,000 | - |
| Dansville and Vicinity, Canaserga Creek, NY | Active | 1985 | 490,300 | - |
| Fremont, OH, Sandusky River | Completed | 1976 | 8,589,824 [5] | - |
| Ithaca, Cayuga Inlet, NY | Completed | 1978 | 3,929,300 [6] | - |
| Lackawanna, NY, Smokes Creek | Completed | 1971 | 3,542,068 [7] | - |
| Lancaster, Cayuga Creek, NY | Completed | 1954 | 79,730 | - |
| Marsh Creek, Geneva, NY | Completed | - | 226,429 | - |
| Montour Falls, Oswego River Basin, NY | Completed | 1954 | 1,681,785 | - |
| Onondaga Creek, Nedrow, NY[4] | Completed | 1964 | 330,231 | - |
| Ottawa, OH | Deferred | 1989 | 374,000 | - |
| Owasco Inlet and Outlet, Montiville And Dry Creek, State Ditch and Crane Brook, NY[8] | Deferred | 1950 | 281,559 | - |
| Point Place, Toledo, OH | Completed | 1990 | 9,885,733 [9] | - |
| Reno Beach-Howard Farms, OH | Completed | 1997 | 5,483,192 [10] | - |
| Scajaquada Creek, NY | Completed | 1985 | 4,944,852 | - |
| Syracuse, Oswego River Basin, NY | Completed | 1954 | 3,349,248 | - |
| Warsaw, NY Oatka Creek[4] | Completed | 1969 | 558,317 [11] | - |
| Wellsville, NY, Genesee River | Completed | 1978 | 3,145,303 [12] | - |

[1] Excludes cost of $188,732 under Public Law 88-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[2] Annual Report for Detroit District.
[3] Includes local interest contribution of $125,000.
[4] Project authorized by Chief of Engineers.
[5] Includes local interest contribution of $6,944. Excludes cost of $383,786 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, for emergency restoration of levees damaged during 1973.
[6] Includes local interest contribution of $99,999. Excludes cost of $104,005 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[7] Includes local interest contribution of $50,000.
[8] In-active portion of work for State Ditch has been done by local interest and work on Crane Brooks has been deferred at the request of local interests.
[9] Excludes $1,871,631 in contributed funds.
[10] Excludes $475,994 in contributed funds.
[11] Excludes cost of $26, 807 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.
[12] Includes local interest contribution of $50,000. Excludes cost of $374,042 under Public Law 84-99, Flood Control and Coastal Emergency Appropriation, incurred for project rehabilitation as a result of damages due to storms.

## TABLE 20-G DEAUTHORIZED PROJECTS

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Black Rock Channel and Tonawanda Harbor, NY 1935 R&H Act[1] | 1962 | Aug-77 | - | - |
| Black Rock Channel and Tonawanda Harbor, NY 1954 R&H Act | 1962 | May-81 | - | |
| Buffalo Harbor Drift Removal, NY | - | Dec-92 | - | - |
| Buffalo Ship Canal, Buffalo, NY | - | Dec-92 | - | - |
| Caledonia, Genesee River, NY 1950 FC Act | 1950 | Jan-90 | - | - |
| Cape Vincent Harbor, NY 1945 R&H Act | 1962 | Nov-86 | - | |
| Chittenango Creek and Tributaries, NY 1944 FC Act | 1948 | Jan-90 | 12,464 | - |
| Conneaut Harbor, OH R&H Act, 1910 (southerly 300 feet of shorearm) | 1997 | Oct-96 | - | - |
| Conneaut Harbor, OH 1966 R&H Act, 1990 WRDA | 1995 | Nov-95 | - | - |
| Crane Creek State Park, OH 1962 R&H Act | 1968[2] | Nov-79 | - | - |
| Cuyahoga River Basin 1970 FC Act | - | Apr-99 | - | - |
| Dansville & Vicinity 1948 FC Act | - | Apr 98 | - | |
| Dunkirk Harbor, NY WRDA 1986 | - | Dec-92 | - | - |
| Eastlake, Chagrin River, OH 1965 FC Act | 1976 | Jan-90 | 506,344 | - |
| Edgewater Park, OH 1954 R&H Act | - | Jan-90 | - | - |
| Elk Creek Harbor, PA 1966 R&H Act | 1978 | Dec-92 | 101,500 | - |
| Erie Harbor, PA 1899 R&H Act | 1963 | Nov-81 | - | - |
| Erie Harbor, PA 1945 R&H Act | 1963 | Aug-77 | - | - |
| Erie Harbor, PA 1960 R&H Act | 1963 | Aug-82 | - | - |
| Fairhaven Beach State Park, NY 1958 R&H Act | - | Jan-90 | - | - |
| Fairport Harbor, OH 1960 R&H Act | 1995 | Nov-95 | 67,000 | - |
| Fairport Harbor, OH Sec. 201 1965 FC Act | 1995 | Nov-95 | - | - |
| Fort Niagara State Park, NY Sec. 201 1965 FC Act | - | Jan-90 | - | - |
| Grandview Bay Harbor, NY 1945 R&H Act | 1948 | Aug-77 | 1,524 | - |
| Great Sodus Bay Harbor, NY 1941 R&H Act | 1963 | Aug-77 | - | - |
| Hamlin Beach Harbor, NY 1968 R&H Act | 1973 | Jan-90 | 72,052 | - |
| Hammondsport, Oswego River Basin, NY 1941 FC Act | 1951 | Nov-83 | 29,000 | - |
| Huron Harbor, NY 1962 R&H Act[3] | 1963 | Jan-90 | - | - |
| Ithaca, NY – Cascadilla Creek 1941 FC Act | 1950 | Aug-77 | 8,159 | - |
| Ithaca, NY – Fall Creek 1941 FC Act | 1950 | Aug-77 | 12,300 | |
| Lorain Harbor, OH – Sec. 107, R&H Act 1960 (Portion of small boat basin) | 1998 | Oct-96 | - | - |
| Lorain Harbor, OH 1960 R&H Act, modified by 1965 R&H Act[4] | 1966 | Jan-90 | - | |
| Maumee River, above Toledo, OH 1872 Act | 1971[102] | Nov-77 | 12,000 | - |
| Ottawa River, OH (Blanchard) | - | Apr –02 | | |
| Morristown Harbor, NY 1927 R&H Act (Portion north of northern boundary of Morris St. extended. | 1949 | Oct-96 | - | - |
| Niagara River, Compensating Works, 1930 R&H Act | 1964 | Aug-77 | - | - |

[1] Extension of guide pier only: other improvements completed.
[2] Annual Report For Detroit District.
[3] Breakwater.
[4] Uncompleted portion.

## TABLE 20-G DEAUTHORIZED PROJECTS

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Ogdensburg Harbor, NY 1935 R&H Act | 1986 | Nov-86 | - | |
| Ogdensburg Harbor, NY R&H Acts 1910, 1935 (Portion from southernmost alignment of Rte 68 Bridge upstream to northern alignment of Lake St. Bridge) | 1987 | Oct-96 | - | - |
| Oswego Harbor, NY 1930 R&H Act | 1963 | Jan-90 | - | - |
| Oswego Harbor, NY 1940 R&H Act[1] | 1963 | May-81 | - | |
| Port Bay, NY 1950 R&H Act | - | Jan-90 | - | |
| Red Creek, NY 1966 FC Act | 1975 | Nov-86 | 361,241 | |
| Sackets Harbor, NY 1945 R&H Act | 1948 | May-81 | 19,010 | |
| Selkirk Shores State Park, OH 1954 R&H Act[2] | 1963 | Jan-90 | - | - |
| Sheffield Lake Community Park, Oh 1962 R&H Act | - | Aug-77 | - | - |
| Watkins Glenn, NY 1941 FC Act | 1958 | Aug-77 | 43,182 | - |
| White City Park, OH 1954 R&H Act | - | Jan-90 | - | - |

[1] Deepening of west outer harbor, other improvements completed.
[2] Breakwater

## TABLE 20-H FLOOD CONTROL AND COASTAL EMERGENCIES

| ACTIVITY | FEDERAL COST | CONTRIBUTED COST |
|---|---|---|
| Disaster Preparedness | 300,836 | |
| Emergency Operations | 14,533 | |
| Total FCCE | 315,369 | |

## TABLE 20-I GENERAL INVESTIGATIONS

| | GENERAL INVESTIGATIONS | OPERATIONS & MAINTENANCE | NON-FEDERAL |
|---|---|---|---|
| **SURVEYS** | | | |
| **NAVIGATION STUDIES** | | | |
| Cuyahoga River Bulkhead Study | 237,064 | | |
| **SPECIAL STUDIES** | | | |
| Buffalo River Environmental Dredging, NY | 114,046 | | |
| Buffalo River Environmental Dredging, NY ARRA | 32,760 | | |
| Western Lake Erie Basin, OH | 526,284 | | |
| Western Lake Erie Basin, OH ARRA | 10,805 | | |
| Niagara River Watershed, NY | 48,357 | | |
| John Glen Great Lakes Basin Strategic Plan ARRA | 5,243 | | |
| **MISCELLANEOUS ACTIVITIES** | | | |
| Special Investigations | 19,058 | | |
| Review of FERC Licenses | 511 | | |
| Interagency Water Resource Development | 22,341 | | |
| Great Lakes Regional Collaboration | 56,475 | | |
| National Estuary Studies | 2,836 | | |
| North American Waterfowl Management Plan | 984 | | |
| **COORDINATION WITH OTHER GOVERNMENT AGENCIES AND NON-FEDERAL INTERESTS** | | | |
| Cooperation with Other Water Agencies | 2,979 | | |
| PAS – Negotiation Funds | 19,427 | | |
| PAS – Amherst Soil Study, NY | 57,537 | | |
| PAS – Rochester Environmental | 28,498 | | 7,310 |
| PAS – Harpersfield Dam | 6,295 | | |
| Great Lakes Remedial Action Program (Coordination) | 6,304 | | |
| Great Lakes Remedial Action (Project Specific) | 245,570 | | |
| **COLLECTION AND STUDY OF BASIC DATA** | | | |
| **INTERNATIONAL WATER STUDIES** | | | |
| International Water Studies | 44,834 | | |
| **FLOOD PLAIN MANAGEMENT SERVICES** | | | |
| Flood Plain Management Services | 74,687 | | |
| Technical Services | 24,592 | | |
| Quick Responses | 4,950 | | |

## TABLE 20-J WORK UNDER SPECIAL AUTHORITIES

| | FEDERAL COST | NON-FEDERAL COST |
|---|---|---|
| **NAVIGATION PROJECTS** | | |
| **PROJECTS NOT SPEC AUTH BY CONGRESS SECTION 107** | | |
| Section 107 Coordination Account | 1,925 | |
| Cooley Canal Harbor, OH | 11,525 | |
| **PROJECTS NOT SPEC AUTH BY CONGRESS SECTION 111** | | |
| 111 Vermilion, OH | 12,952 | |
| 111 Fairport Harbor, OH | 15,309 | |
| Section 111 Coordination Account | 10,139 | |
| **BEACH EROSION CONTROL PROJECTS** | | |
| **PROJECTS NOT SPEC AUTH BY CONGRESS SECTION 103** | | |
| Lake Erie at Painesville, OH | 21,418 | |
| LaSalle Park, Buffalo NY | 10,694 | |
| **FLOOD CONTROL PROJECTS** | | |
| **PROJECTS NOT SPEC AUTH BY CONGRESS SECTION 205** | | |
| Section 205 Coordination Account | 14,171 | |
| Cazenovia Creek, Buffalo, NY | 6,106 | |
| Keshequa Creek, Nunda | -57 | |
| CAP 205 Cuyahoga River, IND | 32,458 | |
| CAP 205 Cuyahoga River, Valley View | 34,071 | |
| CAP 205 Walton Hills, OH | -57 | |
| CAP 205 Brooklyn Heights, OH | 9,516 | |
| Cuyahoga River, Brecksville, OH | 2,872 | |
| CAP 205 Chagrin River, Eastlake | 21,430 | |
| Blanchard River, Findlay, OH | 437,063 | 6,171 |
| Blanchard River, Ottawa, OH | 397,774 | 204 |
| Baldwin Creek, North Royalton, OH | 4,661 | |
| **EMERGENCY STREAMBANK & SHORELINE PROTECTION (SECTION 14-46 ACT MOD) (SECTION 27 – 1974 WRDA)** | | |
| Section 14 Coordination Account | 5,164 | |
| Old Fort Niagara, NY | 11,328 | |
| Tonawanda Creek, RD, NY | 9,972 | |
| Tonawanda Creek, Newstead, NY | 40,676 | |
| Graycliff House, Evans, NY | 29,984 | |
| Keuka Lake, Hammondsport, NY | 4,969 | |
| East Valley Creek, Andover, NY | 20,811 | |

## TABLE 20-J WORK UNDER SPECIAL AUTHORITIES (Continued)

| | FEDERAL COST | NON-FEDERAL COST |
|---|---|---|
| **EMERGENCY STREAMBANK & SHORELINE PROTECTION (SECTION 14-46 ACT MOD) (SECTION 27 – 1974 WRDA)** | | |
| Swan Creek, South Toledo, OH | 24,283 | |
| Cayuga Creek, Depew, NY | 15,000 | |
| Lake Ontario, Albion Water | 227,775 | 191,957 |
| Spring Brook, Springville, NY | 18,723 | |
| City of Brunswick, OH | 18,326 | |
| Minnick Road, Tonawanda Creek | 23,274 | 221,639 |
| Sewerline, Canadaway Creek – Fredonia, NY | 108,706 | |
| Ottawa River, Shoreland Drive, Toledo, OH | 72,763 | -66,033 |
| Ransom Creek, Hopkins Road, Amherst, NY | | 32,735 |
| **MISCELLANEOUS** | | |
| **PROJECT MODIFICATION TO IMPROVE ENVIRONMENT SECTION 1135** | | |
| Section 1135 Coordination Account | 14,698 | |
| Sheldon's Marsh Lake Erie | 23,813 | |
| Smokes Creek, Erie County, NY | 36,661 | |
| **AQUATIC ECOSYSTEM RESTORATION SECTION 206** | | |
| Section 206 Coordination Account | 13,656 | |
| Arcola Creek, Madison, OH | 13,112 | |
| Johnson Pond, Lyndonville, NY | 13.309 | |
| Syracuse Lakefront, Onondaga Lake, NY | 12,544 | |
| Cuyahoga River Stream Project, Akron, OH | 12,281 | |
| Little Cuyahoga River, Akron, OH | 12,749 | |
| **ESTUARY HABITAT RESTORATION PROGRAM** | | |
| Euclid Creek, OH | 3,736 | |
| **WETLAND/OTHER AQUATIC HABITAT RESTORATION, OH** | | |
| Maumee Bay Habitat Restoration, OH | 606,272 | |
| Ottawa River, OH | 48,755 | |
| Buffalo River, NY | 156,996 | |
| Ashtabula RSM, OH | 157,647 | |
| Presque Isle, RSM, PA | 189,137 | |
| Section 204 Coordination Account | 5,386 | |
| 792 Wynn Road, Oregon, OH | 327,261 | |

## TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| No. | Project Name | Body of Water | City | State | Date Inspected |
|---|---|---|---|---|---|
| **NEW YORK** | | | | | |
| 1 | Albion Sewage Treatment Plant | Lake Ontario | Carlton | NY | Not Inspected |
| 2 | Back River Road | Genesee River | Amity | NY | Not Inspected |
| 3 | Bird Island Pier Rehabilitation | Niagara River | Buffalo | NY | Not Inspected |
| 4 | Blasdell Creek | Blasdell Creek | Hamburg | NY | 1 Oct 2009 |
| 5 | Block Church Road | Tonawanda Creek | Royalton | NY | Not Inspected |
| 6 | Caneadea Sewage Treatment Plant | Genesee River | Houghton | NY | Not Inspected |
| 7 | Catherine and Shequaga Creeks | Catherine/ Shequaga Creeks | Montour Falls | NY | 9 Jul 2009 |
| 8 | Cattaraugus Creek | Cattaraugus Creek | Arcade | NY | Not Inspected |
| 9 | Cattaraugus Creek Harbor | Lake Erie | Irving | NY | 13 Aug 2009 |
| 10 | Cayuga Creek (Cheektowaga) | Cayuga Creek | Cheektowaga | NY | 28 Sep 2009 |
| 11 | Cayuga Creek (Lancaster) | Cayuga Creek | Lancaster | NY | 1 Oct 2009 |
| 12 | Cayuga Inlet | Off Cayuga Lake | Ithaca | NY | 4 Aug 2009 |
| 13 | Cazenovia Creek Clearing and Snagging | Cazenovia Creek | West Seneca | NY | 17 Sep 2009 |
| 14 | Cazenovia Creek Ice Control Structure | Cazenovia Creek | West Seneca | NY | 17 Sep 2009 |
| 15 | Cold Spring and Putnam Brooks | Cold Spring Brook and Putnam Brooks | Weedsport | NY | 13 May 2009 |
| 16 | Conesus Lake Outlet | Off Conesus Lake | Livonia | NY | 17 Jun 2009 |
| 17 | Dunkirk Harbor | Lake Erie | Dunkirk | NY | 13 Aug 2009 |
| 18 | Ellicott Creek | Ellicott Creek | Amherst/Tonawanda | NY | 20 Sep 2009 |
| 19 | Ellicott Creek Clearing and Snagging | Ellicott Creek | Amherst/Tonawanda | NY | 20 Sep 2009 |
| 20 | Fredonia Sewage Treatment Plant | Lake Erie | Dunkirk | NY | 13 Aug 2009 |
| 21 | Fredonia Sewage Treatment Plant Sewerline | Canadaway Creek | Dunkirk | NY | 13 Aug 2009 |
| 22 | Glen Brook Clearing and Snagging | Glen Brook | Hammondsport | NY | 10 Jul 2009 |
| 23 | Glen Brook Concrete Flume | Off Keuka Lake | Hammondsport | NY | 10 Jul 2009 |
| 24 | Irondequoit Bay | Irondequoit Bay/ Lake Ontario | Irondequoit | NY | Not Inspected |
| 25 | Kashong Creek | Kashong Creek | Geneva | NY | Not Inspected |
| 26 | Keshequa Creek - Emerg. Streambank Protection | Keshequa Creek | Nunda | NY | Not Inspected |

## TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| No. | Project Name | Body of Water | City | State | Date Inspected |
|---|---|---|---|---|---|
| **NEW YORK (continued)** | | | | | |
| 27 | Keshequa Creek Clearing and Snagging | Keshequa Creek | Nunda | NY | 17 Jun 2009 |
| 28 | Keuka Lake Outlet Clearing and Snagging | Keuka Lake | Penn Yan | NY | 10 Jul 2009 |
| 29 | Keuka Lake Outlet Control Structure | Keuka Lake Outlet | Penn Yan | NY | 10 Jul 2009 |
| 30 | Lake Erie State Park | Lake Erie | Brocton | NY | 13 Aug 2009 |
| 31 | Marsh Creek | Marsh Creek | Geneva | NY | 9 Jul 2009 |
| 32 | Minnick Road Bank Stabilization | Tonawanda Creek | Rapids | NY | Not Inspected |
| 33 | New York State Thruway Bridge | Cattaraugus Creek | Irving | NY | 13 Aug 2009 |
| 34 | NFTA Small Boat Harbor | Lake Erie | Buffalo | NY | Not Inspected |
| 35 | Niagara River Retaining Wall | Niagara River | Tonawanda | NY | Not Inspected |
| 36 | Ninemile Creek (Amboy) | Ninemile Creek | Amboy | NY | 12 May 2009 |
| 37 | Ninemile Creek (Camillus) | Ninemile Creek | Camillus | NY | 12 May 2009 |
| 38 | Oak Orchard Beach Lake Ontario State Parkway | Lake Ontario | Kendall | NY | Not Inspected |
| 39 | Oatka Creek | Oatka Creek | Warsaw | NY | 30 Sep 2009 |
| 40 | Onondaga Creek (Nedrow) | Onondaga Creek | Nedrow | NY | 6 Aug 2009 |
| 41 | Onondaga Creek (Syracuse) | Onondaga Creek | Syracuse | NY | 6 Aug 2009 |
| 42 | Onondaga Lake Dam and Reservoir | Onondaga Creek | Syracuse | NY | Not Inspected |
| 43 | Owasco Inlet | Off Owasco Lake | Moravia | NY | 5 Aug 2009 |
| 44 | Owasco Outlet (Auburn) | Off Owasco Lake | Auburn | NY | 5 Aug 2009 |
| 45 | Owasco Outlet (Port Byron) | Owasco Outlet | Port Byron | NY | 12 May 2009 |
| 46 | Port Ontario Harbor | Lake Ontario | Port Ontario | NY | Not Inspected |
| 47 | Rochester Harbor Wave Surge Reduction Project | Lake Ontario | Rochester | NY | Not Inspected |
| 48 | Rogers Cemetery | Genesee River | Amity | NY | Not Inspected |
| 49 | Route 20A Bridge | Genesee River | Geneseo | NY | Not Inspected |
| 50 | Salmon River Town/Village | Salmon River | Malone | NY | Not Inspected |
| 51 | Scajaquada Creek | Scajaquada Creek | Cheektowaga | NY | 28 Sep 2009 |
| 52 | Seneca Falls Sewage Treatment Plant | Seneca River | Seneca Falls | NY | Not Inspected |

## TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| No. | Project Name | Body of Water | City | State | Date Inspected |
|---|---|---|---|---|---|
| **NEW YORK (continued)** | | | | | |
| 53 | Seneca Lake Wastewater Treatment Plant | Seneca Lake | Watkins Glen | NY | Not Inspected |
| 54 | Skaneateles Creek | Skaneateles Creek | Jordan | NY | 13 May 2009 |
| 55 | Smokes Creek | Smokes Creek | Lackawanna | NY | Not Inspected |
| 56 | Sodus Point Lighthouse | Lake Ontario | Great Sodus | NY | Not Inspected |
| 57 | St. Columbans on the Lake | Lake Erie | Silver Creek | NY | Not Inspected |
| 58 | Sturgeon Point Small Boat Harbor | Lake Erie | Evans | NY | 13 Aug 2009 |
| 59 | Tonawanda Creek | Tonawanda Creek | Batavia | NY | 17 Jun 2009 |
| 60 | Trinity Episcopal Church | Seneca River | Seneca Falls | NY | Not Inspected |
| 61 | Van Buren Point | Lake Erie | Portland | NY | 13 Aug 2009 |
| 62 | Van Campen Creek | Van Campen Creek | Friendship | NY | Not Inspected |
| 63 | Wellsville | Genesee River | Wellsville | NY | 30 Sep 2009 |
| 64 | Wendt Beach Park | Lake Erie | Evans | NY | 13 Aug 2009 |

| | | | | | |
|---|---|---|---|---|---|
| **OHIO** | | | | | |
| 65 | Akron Main Sanitary Sewer Line | Cuyahoga River | Akron | OH | Not Inspected |
| 66 | Baldwin Road | Chagrin River | Kirtland Hills | OH | Not Inspected |
| 67 | Bayview | Sandusky Bay | Bayview | OH | Not Inspected |
| 68 | Brecksville Road | Hemlock Creek | Independence | OH | Not Inspected |
| 698 | Century Park | Lake Erie | Lorain | OH | Not Inspected |
| 70 | Chillicothe Road | Chagrin River | Kirtland | OH | Not Inspected |
| 71 | Cleveland Harbor CDF #12 Stone Dike | Lake Erie | Cleveland | OH | Not Inspected |
| 72 | Cuyahoga Street | Cuyahoga River | Akron | OH | Not Inspected |
| 73 | Deist Road | Lake Erie | Middle Bass Island | OH | Not Inspected |
| 74 | Domonkas Library | Lake Erie | Sheffield Lake | OH | Not Inspected |
| 75 | Eastlake | Lake Erie | Eastlake | OH | Not Inspected |
| 76 | Euclid Creek | Euclid Creek | Cleveland | OH | Not Inspected |

## TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| No. | Project Name | Body of Water | City | State | Date Inspected |
|---|---|---|---|---|---|
| **OHIO (continued)** | | | | | |
| 77 | Euclid Creek Emerg. Rehab | Euclid Creek | Cleveland | OH | Not Inspected |
| 78 | Euclid General Hospital | Lake Erie | Euclid | OH | Not Inspected |
| 79 | Fremont | Sandusky River | Fremont | OH | 24 Sep 2009 |
| 80 | Geneva-on-the-Lake Small Boat Harbor | Lake Erie | Geneva | OH | Not Inspected |
| 81 | Hospice of the Western Reserve | Lake Erie | Cleveland | OH | Not Inspected |
| 82 | Lakeshore Park | Lake Erie | Ashtabula | OH | Not Inspected |
| 83 | Lakeview Park | Lake Erie | Lorain | OH | Not Inspected |
| 84 | Linwood Park | Lake Erie | Vermilion | OH | Not Inspected |
| 85 | Lorain Small Boat Harbor | Lake Erie | Lorain | OH | Not Inspected |
| 86 | Maumee Bay State Park | Maumee Bay/ Lake Erie | Lucas County | OH | Not Inspected |
| 87 | Mayfield Road | Chagrin River | Gates Mills | OH | Not Inspected |
| 88 | Mentor Beach Park | Lake Erie | Mentor | OH | Not Inspected |
| 89 | North Portage Path | Cuyahoga River | Akron | OH | Not Inspected |
| 90 | Oak Harbor Wastewater Treatment Plant | Portage River | Oak Harbor | OH | Not Inspected |
| 91 | Oregon Municipal Water Supply | Maumee Bay/ Lake Erie | Oregon | OH | Not Inspected |
| 92 | Pier 34 North Coast Harbor | Lake Erie | Cleveland | OH | Not Inspected |
| 93 | Point Place | Maumee Bay/ Ottawa River | Toledo | OH | Not Inspected |
| 94 | Reno Beach-Howard Farms | Lake Erie | Jerusalem Township | OH | Not Inspected |
| 95 | Riverview Road | Cuyahoga River | Cuyahoga Falls | OH | Not Inspected |
| 96 | Sand Road | Lake Erie | Catawba Island | OH | Not Inspected |
| 97 | Shoreland Drive | Ottawa River | Toledo | OH | Not Inspected |
| 98 | Sims Park | Lake Erie | Euclid | OH | Not Inspected |
| 99 | Solon Road | Chagrin River | Chagrin Falls | OH | Not Inspected |
| 100 | South Perimeter Rd (Kelly's Island) | Lake Erie | Kelley’s Island | OH | Not Inspected |
| 101 | Sperry Road | Chagrin River | Kirtland Hills | OH | Not Inspected |
| 102 | St. Joseph Life Center | Lake Erie | Cleveland | OH | Not Inspected |
| 103 | State Road 163 | Lake Erie | Marblehead | OH | Not Inspected |

## TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| No. | Project Name | Body of Water | City | State | Date Inspected |
|---|---|---|---|---|---|
| **OHIO (continued)** | | | | | |
| 104 | State Route 15 | Blanchard River | Ottawa | OH | Not Inspected |
| 105 | State Route 531 | Lake Erie | Geneva | OH | Not Inspected |
| 106 | Swan Creek | Swan Creek | Toledo | OH | 23 Sep 2009 |
| 107 | Tobias Ditch | Maumee Bay | Oregon | OH | 23 Sep 2009 |
| 108 | Twilight Drive Lift Station | Lake Erie | Mentor-on-the-Lake | OH | Not Inspected |
| 109 | Whites Landing | Sandusky Bay | Erie County | OH | 23 Sep 2009 |
| 110 | Wightmans Grove | Sandusky River | Wightmans Grove | OH | Not Inspected |
| **PENNSYLANIA** | | | | | |
| 111 | Brig Niagara Berthing Facility East Canal Basin | Presque Isle Bay | Erie | PA | Not Inspected |
| 112 | Little Elk Creek | Little Elk Creek | Girard | PA | Not Inspected |
| 113 | Presque Isle Peninsula | Lake Erie | Erie | PA | Not Inspected |

Work performed in FY09 during the period 1 October 2008 through 30 September 2009 includes: the inspection of 44 Inspection of Completed Works (ICW) Program projects for conformance with Operations and Maintenance manuals; implementation of new guidance from HQUSACE, such as Periodic Inspections, Levee Screenings, Vertical Datum Survey, and other initiatives of the Levee Safety Program; review of project modifications; project engineering evaluations; coordination with FEMA on the status of levee ratings and certifications; and updates of the hydraulics and hydrology of various local flood control projects. The cost for the FY09 work is $530,055. The total cumulative cost for the program through 30 September 2009 is $6,550,516. There are currently a total of 113 projects in the Buffalo District ICW Program.

# DETROIT, MI, DISTRICT

The District is composed of the upper and lower peninsulas of Michigan and portions of Indiana, Wisconsin and Minnesota, which border the lakes. It includes U.S. waters of Lakes Superior, Michigan, Huron, St. Clair and western Lake Erie. Unless otherwise indicated, all depths stated in this report are referred to low water datum as follows: Lake Superior, 601.1 feet; Lake Michigan-Huron, 577.5 feet; Lake Erie, 569.2 feet; and Lake St. Clair, 572.3 feet. These elevations are in feet above the mean water level at Rimouski, Quebec -- International Great Lakes Datum, 1985 (IGLD 1985).

The IGLD 1985 is a datum or reference system used to define water levels within the Great Lakes - St. Lawrence River system. This datum was implemented in January 1992, officially replacing IGLD 1955. At the time IGLD 1955 was established, it was recognized that this datum would have to be periodically revised due to isostatic rebound. Isostatic rebound is the gradual rising or bouncing back of the earth's crust from the weight of the glaciers that covered the Great Lakes region during the last ice age.

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## NAVIGATION

### 1. ARCADIA HARBOR, MI

A contract for maintenance dredging was awarded and completed this FY, removing 7,500 cubic yards of shoal material at a cost of $50,250. Engineering and design and supervision and administration cost $29,002.

Existing project was completed in 1909. Varying depths of 5-12 feet exist in the channel at present. Maintenance of the harbor is based on providing a 9-foot depth. Piers and revetments are in good condition. Total cost of the existing project to end of FY was $6,100,632.

**Location.** On east shore of Lake Michigan, 193 miles northeasterly from Chicago, IL, and 15 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

**Existing Project.** Provided for maintenance dredging of the existing harbor built by private interests, for a period of five years. The five years covered by this project were the calendar years 1905 to 1909, inclusive. Funds were also appropriated and maintenance was performed in calendar years 1911, 1912, 1913 and 1915, inclusive. There is at present no approved project for the improvement of this harbor. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** Dock facilities are considered adequate for existing recreational traffic.

**Operations During Fiscal Year.** Maintenance:
A contract for maintenance dredging was awarded and completed this FY, removing 7,500 cubic yards of shoal material at a cost of $50,250. Engineering and design and supervision and administration cost $29,002.

Existing project was completed in 1909. Varying depths of 5-12 feet exist in the channel at present.

Maintenance of the harbor is based on providing a 9-foot depth. Piers and revetments are in good condition. Total cost of the existing project to end of FY was $6,100,632.

## 2. AuSABLE HARBOR AT AuSABLE RIVER (OSCODA), MI

**Location.** The AuSable River and village of Oscoda, MI are on the west shore of Lake Huron, 8 miles north of AuSable Point, northeast limit of Saginaw Bay. (See NOAA Nautical Chart 14863.)

**Previous Project.** For details see pages 336 and 2453 of Annual Report for 1892.

**Existing Project.** Riprapping outer 200 feet of north pier at mouth of AuSable River, dredging an entrance channel 12 feet deep and dredging between piers and upstream to State Highway Bridge 10 feet deep. (See Table 21-B for authorizing legislation.)

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by government forces cost $4,526.

Existing project was completed in 1962. Piers and revetments are in good condition. Total cost of the existing project to end of FY was $3,620,988, of which $209,776 was for new work (includes $16,400 contributed funds) and $3,411,212 for maintenance.

## 3. BAY PORT HARBOR, MI

**Location.** On Wild Fowl Bay on east shore of Saginaw Bay about 10 miles south of Caseville, MI. (See NOAA Nautical Chart 14863.)

**Existing Project**. Provides for a channel 6 feet deep and 50 feet wide extending 5,750 feet from 6-foot contour in Saginaw Bay to intersection of private service channels to be dredged by local interests. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Several small wharves used primarily by commercial fisherman. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Environmental studies performed by Government forces cost $19,804.

Existing project was completed in 1967. Total cost of the existing project to end of FY was $937,096, of which $93,597 was for new work and $843,499 for maintenance (which includes $137,399 contributed funds).

## 4. BIG BAY HARBOR, MI

**Location.** On south shore of Lake Superior 33 miles northwesterly from Marquette, MI, and 38 miles easterly from Portage entry to Keweenaw Waterway. (See NOAA Nautical Chart 14964).

**Existing Project.** Provides for two converging piers extending from shore, an entrance channel between piers and rectangular harbor basin. Project depths are 12 feet in entrance channel and 10 feet in harbor basin. For details see page 1009 of Annual Report for 1965 and page 1261 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** A State-owned launching ramp and dock for small craft.

**Operations During Fiscal Year.** Maintenance: The contract for maintenance dredging awarded last FY was complete this FY, removing approximately 2,032 cubic yards of shoal material at a cost of $11,610. Supervision and administration cost $12,638.

Project was completed in June 1961 except for protection at inner end of east breakwater, completed in November 1961. Project features are in fair to good condition. Total cost of the existing project to end of FY was $2,279,349, of which $396,943 was for new work and $1,882,406 for maintenance. The new work cost does not include $56,500 contributed funds.

## 5. BLACK RIVER HARBOR (UPPER PENINSULA), MI

**Location.** At mouth of Black River on south shore of Lake Superior 39 miles westerly from Ontonagon, MI, and 47 miles easterly from Ashland, WI. (See NOAA Nautical Chart 14965.)

**Existing** Project. Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. For additional details see page 1092 of Annual Report for 1966. Project depths are 12 feet in the approach channel and

8 feet in the river channel and basin. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with. Local interests furnished easements on 0.85 acre of land.

**Terminal Facilities.** Wharves constructed on both sides of river. Wharf on east bank has frontage of 400 feet, on west bank, a frontage of 750 feet.

**Operations During Fiscal Year.** Maintenance: Environmental studies performed by Government forces cost $10,000. A contract for maintenance dredging was awarded this FY in the amount of $227,341. The contract was 62% complete removing approximately 6,351 cubic yards of material at a cost of $141,239.

Project was completed in June 1958. Navigation structures are in good condition. Total cost of the existing project to end of FY was $1,729,889, of which $383,350 was for new work and $1,346,539 was for maintenance. The new work cost does not include $30,000 contributed funds.

## 6. BOLLES HARBOR, MI

**Location.** On west shore of Lake Erie at mouth of La Plaisance Creek 7 miles southwest of Monroe, MI. (See NOAA Nautical Chart 14846.)

**Existing project.** Provides for an entrance channel in Lake Erie, 8 feet deep and 80 feet wide from deep water to a point opposite the outer end of existing jetty, thence widening to 100 feet at creek mouth; an access channel in La Plaisance Creek, 6 feet deep and 100 feet wide at the mouth widening to 120 feet and extending to the first bend, thence narrowing to 50 feet wide and continuing at that width to the La Plaisance Road bridge; a steel sheet pile revetment, about 200 feet long, located along Michigan State Conservation Department property on west side of channel at creek mouth. Project also provides for inclusion of existing 400-foot long steel sheet pile jetty constructed by Michigan State Waterways Commission at the mouth of La Plaisance Creek. (See Table 21-B for authorizing legislation.)

**Local cooperation.** Fully complied with.

**Terminal facilities.** The Monroe Boat Club and three marinas provide facilities adequate for existing recreational boat traffic. There is also a public launching ramp and parking area at the Conservation Department fishing site at creek mouth.

**Operations During Fiscal Year.** Maintenance: Condition surveys and sediment sampling were performed by Government forces and contract at a cost of $27,368. The contract for maintenance dredging awarded last FY was completed this FY, removing approximately 8,200 cubic yards of material at a cost of $108,566. Supervision and administration cost $8,074.

The existing project was completed in 1970. (Adequate depths exist over the project length except for the upstream 800 feet.) Facilities are in good condition. Total cost of the existing project to end of FY was $4,823,101, of which $472,916 was for new work (includes $255,000 contributed funds) and $4,350,185 for maintenance.

## 7. CASEVILLE HARBOR, MI

**Location.** At mouth of Pigeon River on south shore of Saginaw Bay about 17 miles southwest of Port Austin, MI. (See NOAA Nautical Chart 14860.)

**Existing project.** A small craft harbor of refuge consisting of a breakwater protected channel extending from the 10-foot contour in Saginaw Bay into Pigeon River. Project depths are 10 and 8 feet. For additional details see page 1320 of Annual Report for 1963. Widening river channel from 50 to 60 feet for about 1,000 feet, with widening to 80 feet in upper 300-foot reach, is considered inactive. Estimated (1963) cost of this portion of project is $30,00 (See Table 21-B for authorizing legislation).

**Local cooperation.** Fully complied with.

**Terminal Facilities.** Complete public boating facilities constructed by State and local agencies are available in addition to privately owned and operated marinas.

**Operations During Fiscal Year.** Maintenance: Environmental activities performed by Government forces cost $13,823. Engineering and design cost $14,969.

The existing project was completed in 1964 except for the inactive portion of the project. Project features are in fair to good condition. Total cost of the existing project to end of FY was $2,977,192 of which $587,314 was for new work (including $293,657 contributed funds) and $2,389,878 for maintenance.

## 8. CHARLEVOIX HARBOR, MI

**Location.** On east shore of Lake Michigan, 276 miles northeasterly from Chicago, IL, and 75 miles northerly from Frankfort, MI. (See NOAA Nautical Chart 14942.)

**Existing Project.** A channel 24 feet deep in Lake Michigan and a river channel 23 feet deep in the lower and upper channels connecting Lake Michigan with Lake Charlevoix via Round Lake. The channels are protected where needed by piers and revetments. For additional details see page 1476 of Annual Report for 1962. (See Table 21-B for authorizing legislation.) Section 25 of the WRDA of 1988 provides authorization pertaining to the South Pier to Charlevoix Harbor. It states, "The Secretary shall take such action as may be necessary to restore recreational uses established prior to May 1, 1988, or provide comparable recreation uses at the South Pier to Charlevoix Harbor project, Charlevoix, Michigan in order to mitigate any adverse impact on recreational uses resulting from reconstruction of the South Pier..."

**Local Cooperation.** None required except the latest project modification is subject to the following: Provide without cost to the United States, all lands, easements, and rights-of-ways required for construction and subsequent maintenance of the modified project upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of excavated materials and any necessary retaining dikes, bulkheads, and embankments, therefore, or the cost of such retaining works; hold and save the United States free from damages due to the constructing and maintenance of the modified project, except for damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminal commensurate with the depths provided in the related project areas; accomplish, without cost to the United States, such alterations of submarine utility crossing as are required by the modified project; establish regulations prohibiting discharge of pollutants into the waters of the harbor by users thereof which regulations shall be in accordance with applicable laws or regulations of Federal, State and local authorities responsible for pollution prevention and control; if acquiring lands, easements and rights-of-ways for construction of the project, local interests will comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1971; PL 91-646, approved January 2, 1971; contribute all costs in excess of $1,000,000 should the total cost of construction of the general navigation facilities exceed that amount, in accordance with provisions of Section 107 of the 1960 River and Harbor Act, as amended. The total first cost of construction (1975) is estimated at $625,000.

**Terminal Facilities.** Several small landing places in Round Lake at Charlevoix for handling fish and miscellaneous commodities, a wharf for petroleum products at west end of Lake Charlevoix, and coal wharves at Advance and Boyne City. Charlevoix, Boyne City, and East Jordan provide public docks for small craft. Facilities considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $49,905. Location and removal of obstructions was performed using the Cranebarge MANITOWOC at a cost of $122,922. Safety maintenance performed by hired labor cost $4,327.

Existing project was completed in 1939 except for the latest modification. Navigation structures are in good to fair condition with miscellaneous repairs scheduled in future years. Total cost of the existing project to end of FY was $13,044,984, of which $180,623 was for new work, $11,734,965 for maintenance (Bank Stabilization $46,352), and $1,129,396 for rehabilitation.

## 9. CLINTON RIVER, MI

**Location.** Has its sources in Oakland County, MI, flows easterly about 60 miles and empties into Anchor Bay in northwestern part of Lake St. Clair. (See NOAA Nautical Chart 14850).

**Previous Project.** For details see page 1958 of Annual Report for 1915, and page 1556 of Annual Report for 1938.

**Existing Project.** An entrance channel in Anchor Bay 8 feet deep, 300 feet wide at 8-foot depth contour in the bay, gradually decreasing to 50 feet wide at about 1,000 feet upstream from mouth of Clinton River, a length of about 4,600 feet; a channel 8 feet deep and 50 feet wide in the river about 38,700 feet long from entrance channel upstream to Mt. Clemens at Cass Avenue; closing old channel and making a cutoff at Shoemakers Bend; closing Catfish Channel; construction of revetments as needed in the river; and a harbor basin, 5 feet deep and 11 acres in area at entrance along bay channel, protected by breakwaters

on north and south sides. (See Table 21-B for authorizing legislation).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** River is used exclusively by recreational craft. There are numerous public and private wharves along the river below the city. They are considered adequate.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $2,261. Cost associated with the Silent Inspector Program (GPS unit) cost $4,620. The contract for maintenance dredging awarded last FY was completed at the end of this FY removing approximately 8,670 cubic yards of material at a cost of $346,156. Engineering and design cost $3,388.

Existing project was completed in 1966. Total cost of the existing project to end of FY was $9,806,891, of which $549,798 was for new work (includes $289,752 contributed funds), $5,460,913 for maintenance and $3,796,180 for diked disposal.

## 10. CORNUCOPIA HARBOR, WI

**Location.** At mouth of Siskiwit River on south shore of Lake Superior, 49 miles east from Duluth, MN. (See NOAA Nautical Chart 14973).

**Existing Project.** Provides for an entrance channel between piers; an irregular-shaped turning basin; two inner channels, and reconstruction and Federal maintenance of deflection dike and entrance piers constructed by local interests. Project depths are 10 feet between piers and 8 feet in turning basin and inner channels. For additional details see page 1010 of Annual Report for 1965. (See Table 21-B for authorizing legislation).

**Location cooperation.** Fully complied with.

**Terminal Facilities.** About 1,000 linear feet of privately owned docking space is available.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $12,417. The contract for maintenance dredging awarded last FY was completed at the end of this FY removing approximately 5,074 cubic yards of material at a cost of $43,568.

Work authorized by earlier Act was completed in 1939. Work authorized in 1954 was completed in 1963. Navigation structures are in fair to good condition; repairs will be scheduled in future years. Total cost of the existing project to end of FY was $2,109,041, of which $462,653 was for new work and $1,646,388 for maintenance.

## 11. DETROIT RIVER, MI

**Location.** One of the Great Lakes connecting channels, 31 miles long, flows south from Lake St. Clair to Lake Erie. (See NOAA Nautical Chart 14848.)

**Previous Project.** For details see page 1958 of Annual Report for 1915, and page 1541 of Annual Report for 1938.

**Existing Project.** Improving Detroit River main channels to provide 25.5-foot draft navigation; improving certain auxiliary and side channels; and construction of various water level and crosscurrent control structures. Details are in accompanying Table 21-H. Project depths are referred to local low water datum planes which correspond to low water datums for Lakes St. Clair and Erie, 572.3 and 569.2 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with. No local cooperation is required for modifications authorized by Acts of July 1946 and March 1956. The uncompleted portion of the project authorized by the 1946 and the 1956 R & H Acts, construction of the Compensating Works, with the uncompleted portion of the Trenton Channel modification approved Aug. 13, 1968, were deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

**Terminal Facilities.** Numerous commercial installations used for handling coal, iron ore, limestone, steel products, petroleum products, and other items such as overseas general cargo. Detail on actual port and harbor facilities is in Port Series No. 45 (revised 1996) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost $738,407. Location and removal of obstructions was performed using the Cranebarge VELER at a cost of $1,899,372. Cost associated with the Silent Inspector Program cost $12,325. Real estate activities,

engineering and design and supervision and administration cost $557,784.

Latest modification of connecting channels project in the Detroit River is complete except for compensating works. Pertinent data concerning channels covered by project at end of FY are set forth in Table 21-H. Total cost of the existing project to end of FY was $281,867,960, of which $76,877,357 was for new work ($75,346,669 regular funds and $1,530,688 Public Works Funds), $162,520,018 (includes $361,235 Section 150 contributed funds) for maintenance and $42,470,585 for diked disposal.

## 12. DULUTH-SUPERIOR HARBOR, MN AND WI

**Location.** At extreme western end of Lake Superior. Cities of Duluth, MN, and Superior, WI, are on north and south sides, respectively. (See NOAA Nautical Chart 14975.)

**Previous Projects.** See page 1246 of Annual Report for 1962.

**Existing Project.** Provides for rebuilding canal piers at Duluth entry, replacement or construction of piers and breakwater at Superior entry and dredging approaches and channels within harbor, St. Louis Bay, and St. Louis River. Channels vary in depth from 32 to 28 feet in entrances, are 27 feet deep in iron-ore route channels, and are from 20 to 23 feet deep in inner channels. (See Table 21-B for authorizing legislation.)

For details of authorized channel dimensions and dimensions of structures, see pages 1246 and 1247 of Annual Report for 1962 and page 1011 of Annual Report for 1965. Portion of project for deepening Twenty-first Avenue West channel was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

The WRDA of 1986 authorized modifications to the project to deepen the western portions of North and South Channels, the entire Upper Channel and the Minnesota Channel to 27 feet LWD; widen the Cross Channel to provide a minimum turning basin of 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet; and construct an upland confined disposal facility. The current recommended plan involves only the mechanical dredging of the Cross Channel Turning Basin with disposal at the Erie Pier CDF. The remainder of the project is now unscheduled.

**Local Cooperation.** Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 150, 86th Congress, 1st Session and also includes, as a result of PL 99-662, construction cost sharing.

**Terminal Facilities.** There are 113 docks or terminals including some 54 major ones; all but one privately owned. Detail on actual port and harbor facilities is in Port Series No. 49 (revised 1999) prepared and published by the Water Resources Support Center. Facilities for handling iron ore, coal, limestone, petroleum, steel and scrap iron, cement, general cargo, and grain are believed adequate for most existing commerce.

**Operations During Fiscal Year.** Maintenance: Operation and maintenance of the museum performed by Government forces and contract cost $502,146. Operation and maintenance of visitor's center performed by hired labor cost $43,262. Condition surveys, environmental studies, dredged material management plans, real estate, and miscellaneous inspections and reports performed by Government forces and contract cost $800,528. Safety maintenance performed by hired labor cost $10,424. Duluth and Superior Entry Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of $1,105,066. The maintenance dredging contract awarded in FY 07 was completed at the end of the FY at a cost of $181,756. The maintenance dredging contract awarded last FY was 63% complete at the end of this FY, removing approximately 112,721 cubic yards of material at a cost of $1,014,613. Engineering and design and supervision and administration cost $1,045,832.

Work authorized prior to 1960 Act was completed in June 1956. Under the 1960 Act, work on the outer harbor, included in House Document 150, was completed in June 1965. Work in the inner harbor, included in House Document 196, started in May 1963, was completed in November 1968 except for 21st Avenue West channel portion which was deauthorized December 31, 1989. Of the work authorized in WRDA 1986, only the Cross Channel dredging has been completed (September 1994). All other authorized improvements are unscheduled.

The United States owns 34.90 acres of land in fee in Minnesota and Wisconsin of which 2.15 acres are used for a vessel yard. Navigation structures are in poor to excellent condition; repairs are scheduled in the near future. Total cost of the existing project to end of FY was $139,827,295, of which $17,226,343 was for new

work (includes $331,685 contributed funds), $109,489,293 for maintenance, $1,556,249 for diked disposal and $11,555,410 for rehabilitation.

## 13. FOX RIVER, WI

**Location.** Rises in Columbia County, WI, and flows about 176 miles northerly into Green Bay. Wolf River, physically a main river but by designation a tributary of Fox River, rises in central part of Fort County, WI and flows southerly. (See NOAA Nautical Chart 14916 for Lake Winnebago and lower Fox River.)

**Previous Projects.** See page 1368 of Annual Report for 1962.

**Existing Project.** Deepening and widening channel of Fox River from DePere 7 miles above mouth to confluence of Wolf River, a total length of 59 miles, to 6 feet, with 9.6 feet in rock cut below DePere lock and 7 feet in other rock cuts on lower river below Menasha lock; construction and reconstruction of 19 locks and 9 dams; a concrete retaining wall at Kaukauna; construction and maintenance of harbors having depths of 6 feet on Lake Winnebago; widening Neenah Channel to 100 feet, with a 6-foot depth for about 1 mile; and dredging, snagging, and otherwise improving Wolf River 47 miles from its mouth to New London, depth to be 4 feet.

Cost of completed portion of project is $513, 424 for the lower river exclusive of previous projects. The uncompleted portion of the project authorized by the River and Harbor Act of 1925, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Section 332 of the WRDA of 1992 authorized the transfer of the navigation system to the State of WI subject to agreement; however, water regulation and dam operation will be continued by the Federal government. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** Wharf and landing facilities are, in general, adequate for existing needs. (See Table 21-I on locks and dams, Fox River, WI.)

**Operations During Fiscal Year.** Maintenance: Condition surveys, environmental activities, water quality control, archeological management and investigations, and miscellaneous studies, inspections and reports were performed by Government forces and contract at a cost of $474,328. Cooperative stream gaging was performed at a cost of $61,600. The operation and maintenance of the locks and dams totaled $1,210,443. The contract awarded for repairs to the Dam Sluiceway was completed at a cost of $237,752. A contract was awarded and completed for the Gate automation at a cost of $719,701. Reimbursement to State of WI for repairs they incurred in making repairs to the navigation lock cost $1,600,000. This payment is in accordance with the transfer agreement between the State and COE. American Recovery & Reinvestment Act (ARRA) funds of $939,846 were used for completion of the dam gates, award of a trunion repair contract and supervision and administration.

Existing project is complete except for the inactive portion. Nineteen original locks and nine original dams were rebuilt. (See Table 21-I for year of completion of each). Structures and dredging in pools have increased original depths generally about 2 feet. Work remaining to complete project consists of dredging in upper portion of Wolf River, and rock removal and deepening of Neenah Channel on lower Fox River, which are no longer considered necessary. The dams tainter gates are receiving new hoist mechanisms. Existing dams repairs are underway or programmed in the near future; but many of the locks are in extremely poor condition. Total cost of the existing project to end of FY was $110,776,040, of which $3,753,334 was for new work, $106,082,860 for operation and maintenance and $939,846 for American Recovery & Reinvestment Act (ARRA). Between July 5, 1884 and June 30, 1935, funds in the amount of $3,706,187 were expended on operation and care of works of improvement under provisions of permanent indefinite appropriation for such purposes.

## 14. FRANKFORT HARBOR, MI

**Location.** On east shore of Lake Michigan, 204 miles northeasterly from Chicago, IL, and 28 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

**Existing Project.** Provides for constructing an exterior basin in Lake Michigan formed by two breakwaters, 450 feet apart at the outer ends, diverging at an angle of about 90 degrees, the main arm and shore connection on north breakwater are 972 and 1,000 feet long, respectively, and the main arm and shore connection of south breakwater 1,188 and 1,400 feet long, respectively; for removing 801 feet of north pier and 1,172 feet of south pier; dredging basin 20 feet deep and 800 feet wide at entrance, decreasing toward new pier heads to 600 feet wide, dredging approach and entrance channel through outer basin to a depth of

24 feet from deep water in Lake Michigan to a point 500 feet landward of opening between breakwaters, over the entire width outside the breakwaters; thence to maximum width of 500 feet inside the breakwaters and to 23 feet deep through inner portion of outer basin to outer end of north pier, over widths decreasing from 500 to 160 feet; and thence to 22 feet deep between the piers to the inner basin in Lake Betsie; dredging an 18-foot deep interior basin in Lake Betsie from within 50 feet of existing structures on the west and extending eastward about 1,550 feet to easterly boundary and from within 50 feet of existing structures on the north and extending southward 800 feet to the southerly boundary; dredging a recreational craft anchorage area 10 feet deep and 300 feet wide, extending 600 feet eastward of the east limit of the interior basin, with its north side in line with the north limit of the basin. Breakwaters and shore connections are built of concrete caissons and piling capped with concrete. Inner piers and revetments are built of stonefilled timber cribs and piling, all capped with concrete, except for 476 feet of south revetment which consists of steel sheet piling. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Two car ferry slips on south shore and several docks along north shore of Lake Betsie. The City and State provide a recreational docking facility on north side of Lake Betsie which is open to all on equal terms. There is also a marine railway capable of handling small craft. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and sediment analysis performed by Government forces cost $31,603. A contract for maintenance dredging was awarded and completed this FY, removing approximately 30,440 cubic yards of material at a cost of $299,995. Supervision and administration cost $9,463.

Existing project was completed in 1939, with exception of the latest modification that was completed in 1969. For additional details on completion of existing project see page 1474 of Annual Report for 1962. Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was $15,036,781, of which $1,955,159 (includes $31,709 contributed funds) was for new work, $11,602,346 for maintenance, $1,204,500 for diked disposal and $274,776 for rehabilitation.

## 15. GRAND HAVEN HARBOR AND GRAND RIVER, MI

**Location.** Harbor is on east shore of Lake Michigan, 108 miles northeasterly from Chicago, IL, and 23 miles northerly from Holland, MI. River rises in Jackson County, MI, and flows 260 miles westerly into Lake Michigan. (See NOAA Nautical Chart 14933, and Geological Survey Grand Rapids quadrangle.)

**Previous Project.** For details see page 1949 of Annual Report for 1915, and page 1481 of Annual Report for 1938.

**Existing Project.** An entrance channel protected by parallel piers and revetments at mouth of Grand River, a deep draft channel in river extending to Spring Lake, a turning basin, and a shallow draft channel in river extending 14.5 miles upstream to Bass River. Project depths are 23 feet in entrance channel, 21 feet in river to turning basin, 18 feet in turning basin and channel to Spring Lake, and 8 feet in upper Grand River channel. For additional details see page 1461 of Annual Report for 1962. Dredging on northerly side of inner channel is considered inactive. Estimated cost of this portion (1954) is $38,600. The WRDA of 1986 authorized modifications to deepen the harbor entrance and river channels to 29 and 27 feet, respectively; and provides for a new and larger turning basin. Estimated cost (Oct 90) is $20,400,000, which includes $11,754,000 Federal and $8,646,000 non-Federal. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with for completed portions of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 661, 76th Congress, 3d Session, and also includes, as a result of PL 99-662, construction cost sharing requirements as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $4,246,000. The estimated cash contribution of $4,246,000 to be paid in lump sum, prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined; and

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the

total cost of construction of general navigation facilities, an amount presently estimated at $2,040,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution of lands, easements, rights-of-ways, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost.

**Terminal Facilities.** Several wharves exist for handling coal, limestone, sand and gravel, petroleum products, fish, and miscellaneous commodities. There is also a car-ferry slip, which is inactive. The State and local agencies provide recreational boating facilities, which are open to all on equal terms. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition and structure surveys performed by Government forces cost $188,072. Safety maintenance performed by hired labor cost $5,152. A contract for structural repairs cost $74,947. A contract for maintenance dredging the Outer harbor was awarded and completed this FY, removing approximately 71,466 cubic yards of shoal material at a cost of $259,000. Engineering and design and real estate activities cost $118,532. Construction General funds were used for preparation of the preliminary assessment for the dredged material disposal facility at a cost of $50,520. Sediment sampling was performed by contract at a cost of $24,997. American Recovery & Reinvestment Act (ARRA) funds of $555,458 were used to perform condition surveys, and to award a maintenance dredging contract and a structural repair contract.

Existing project was substantially completed in 1949. For additional details on completion of existing project see page 1463 of Annual Report for 1982. Condition of navigation structures range from good to poor with portions in a general state of deterioration and are scheduled for repairs. Total cost of the existing project to end of FY was $46,289,033 of which $1,533,986 was for new work, $42,605,576 for maintenance (includes $15,585 contributed funds), $780,400 diked disposal, $813,613 for rehabilitation and $555,458 for American Recovery & Reinvestment Act.

## 16. GRAND MARAIS HARBOR, MI

**Location.** On south shore of Lake Superior, 93 miles west of Sault Ste. Marie, MI (See NOAA Nautical Chart 14962.)

**Existing Project.** Provides for a channel protected by parallel piers and for closing natural entrance channel with a pile dike. Project depths are 18 feet between piers and 20 feet in lake approach. For additional details see page 1449 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** Several small piers, a Coast Guard Station, and a small boat pier and launching ramp built by the State of Michigan provide facilities adequate for present traffic.

**Operations During Fiscal Year.** Maintenance: Structural design repairs performed by Government forces cost $22,037.

Existing project is complete except for widening a portion of channel from 250 to 300 feet. Project now being maintained to 19 and 15 feet below I.G.L.D., in lieu of 20 and 18 feet, which is adequate for current usage. The Pile Dike Breakwater is severely deteriorated and no longer maintained; major repair is required to make the Breakwater functional. Total cost of the existing project to end of FY was $4,581,501, of which $1,055,871 was for new work and $3,525,630 for maintenance.

## 17. GRAND MARAIS HARBOR, MN

**Location.** On north shore of Lake Superior, 106 miles northeasterly from Duluth, MN. (SEE NOAA Nautical chart 14967).

**Existing Project.** Provides breakwater piers to narrow the entrance; concrete seawalls across ledge at southeast corner of harbor; an anchorage area and a small-boat basin protected by a rubblemound breakwater. Project depths are 16 feet in anchorage area increasing to 20 feet near entrance and 8 feet in small-boat basin. For additional details see page 1014 of Annual Report for 1965. (See Table 21-B for authorizing legislation).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Two active pulpwood wharves and several fish wharves all privately owned. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $24,831. Cost associated with the Silent Inspector Program (GPS) cost $4,620. Repairs to the breakwater were performed using the Derrickbarge SCHWARTZ

at a cost of $93,352. The contract for maintenance dredging awarded last FY was completed at the end of this FY removing approximately 5,801 cubic yards of material at a cost of $288,722.

Existing project is complete. Structures range from good to fair. Total costs of the existing projects to end of FY was $3,525,003 of which $450,972 was for new work and $3,074,031 for maintenance.

## 18. GRAND TRAVERSE BAY HARBOR, MI

**Location.** At mouth of Traverse River on eastern shore of Keweenaw Peninsula about 20 miles northeasterly from Portage entry to Keweenaw Waterway. (See NOAA Nautical Chart 14964.)

**Existing Project.** Provides two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between piers and 10 feet in basin. Project area extended 200 feet upstream in 1966. For additional details see page 1015 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with. Local interests furnished easements on 5.1 acres of land.

**Terminal Facilities.** Several privately owned fishing wharves. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $11,398. A contract for maintenance dredging was awarded this FY in the amount of $270,934. The contract was 45% complete removing approximately 1,174 cubic yards of material at a cost of $119,492.

Existing project was completed in 1950 except for extension of north pier completed in 1964. Steel cells and piers are in good condition. Total cost of existing project to end of FY was $3,150,046, of which $329,565 was for new work and $2,820,481 for maintenance.

## 19. GRAYS REEF PASSAGE, MI

**Location.** Between Grays Reef and Vienna Shoal, in the northeasterly end of Lake Michigan, lying easterly of Beaver, Fox, and Manitou Islands. (See Lake Survey Chart 79.)

**Existing Project.** Provides for the improvement of Grays Reef Passage over a width of 3,000 feet and a depth of 25 feet through the east channel. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** The passage is a through, unprotected waterway having no terminal facilities.

**Operations During Fiscal Year.** Maintenance: Hydrographic surveying and obstruction location operations were performed at a cost of $182,148.

Existing project was completed in 1937. For additional details on completion of existing project see page 1259 of Annual Report for 1937. Total cost of existing project to end of FY was $1,375,863, of which $190,521 was for new work and $1,185,342 for maintenance.

## 20. GREEN BAY HARBOR, WI

**Location.** At mouth of Fox River, at head of Green Bay, about 180 miles from Milwaukee, WI, via Sturgeon Bay Canal, and about 49 miles southwest of Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14918.)

**Previous Projects.** See page 1366 of Annual Report for 1962.

**Existing Project.** See Chicago District 1979 Annual Report, Table 30-C, page 30-30.
For more detailed description of project see page 1216 of Annual Report for 1963.

Cost of completed portion of project is $9,335,000 Federal, and non-Federal cost is $490,000 including $100,000 contributed funds. Local interests requested that the inactive portion of the 1962 River and Harbor Act, consisting of dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge, be reactivated and the authorization modified to include deepening the adjacent turning basin and modifying the Chicago & Northwestern Railway Bridge to provide increased horizontal clearance. Estimated cost of this portion (1990) is $6,130,000; $4,030,000 Federal and $2,100,000 non-Federal which includes $1,970,000 local contribution. Section 601c of the WRDA of 1986 authorized deepening the Fox River Channel, Green Bay, WI, to 27 feet. (See Table 21-B for authorizing

legislation.)

**Local Cooperation.** Fully complied with for existing project.

**Terminal Facilities.** There are 16 wharves for handling coal, petroleum products, cement, limestone, general overseas cargo and miscellaneous commodities. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition and structure surveys, environmental activities, sediment coordination, and miscellaneous inspections and reports performed by Government forces cost $211,982. Preparation of the Phase II Draft Dredged Material Management Plan for the dredged material disposal facility continued using Construction General funds in the amount of $124,810. Cost associated with the Silent Inspector Program (GPS unit) cost $30,000. Safety maintenance performed by hired labor cost $11,686. A contract was awarded and completed this FY for maintenance dredging, removing approximately 255,609 cubic yards of shoal material at a cost of $4,164,985. Engineering, design and supervision and administration cost $691,967.

Existing project is complete. The 1962 modification was started in November 1966 and completed in September 1973, except for dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge. Dredging of the turning basin above C & N.W. Railway Bridge was commenced in August 1938. The turning basin was enlarged under authority of Section 5 of the Rivers and Harbors Act of March 4, 1915, in order to provide sufficient area for the large ships that use it. The work was performed as part of a maintenance dredging contract in September and October 1973. East revetment at Grassy Island was entirely removed in July 1935. Dredging Fox River and entrance channel to Tail Point Light was completed in September 1967. Total cost of the existing project to end of FY was $89,571,706 ($88,633,906 regular funds and $940,800 Public Works Funds), $10,179,762 for new work, $71,490,633 for maintenance and $7,904,311 for diked disposal. The new work cost does not include $100,000 contributed funds.

## 21. HARBOR BEACH HARBOR, MI

**Location.** On west shore of Lake Huron about 60 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862).

**Existing Project.** Harbor of refuge protected by three breakwaters; a main entrance 23 feet deep; and an anchorage area 21 feet deep. For additional details see page 1485 of Annual Report for 1962. (See Table 21-B for authorizing legislation).

**Local Cooperation.** None required.

**Terminal Facilities.** Coal and limestone are received at a private wharf. In addition, there is a public recreational craft pier, a Coast Guard pier, and several small installations engaged in docking and servicing light-draft commercial and recreational vessels. These facilities satisfy current commerce and traffic requirements.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $7,032. American Recovery & Reinvestment Act (ARRA) funds of $122,581 were used for condition surveys, sediment sampling, silent inspector program (GPS), supervision and administration for the maintenance dredging contract, and awarding of the maintenance dredging contract.

Existing project was completed in 1928. For additional details on completion of existing project see page 1485 of Annual Report for 1962. Navigation structures are in good condition. Total cost of the existing project to end of FY was $17,675,714, of which $1,200,598 was for new work, $15,914,931 for maintenance, $243,100 for diked disposal, $194,504 for rehabilitation and $122,581 for American Recovery & Reinvestment Act (ARRA).

## 22. HOLLAND HARBOR, MI

**Location.** On east shore of Lake Michigan 95 miles northeasterly from Chicago, IL, and 23 miles southerly from Grand Haven, MI. (See NOAA Nautical Chart 14932.)

**Previous Project.** For details see page 1948 of Annual Report for 1915, and page 1478 of Annual Report for 1938.

**Existing Project.** An outer breakwater protected approach channel in Lake Michigan, an entrance channel to Lake Macatawa protected by piers and revetments, a channel through Lake Macatawa into Black River, and a turning basin. Project depths are 23 feet in outer portion of approach channel decreasing to 21 feet at outer end of inner piers, 21 feet to upper end of project, and 18 feet in turning basin. For additional

details see page 1458 of Annual Report for 1962.

The uncompleted portion of the project, widening bend of entrance channel into Lake Macatawa, was deauthorized Dec, 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with for completed portions of project.

**Terminal Facilities.** Wharves are at inner end of Lake Macatawa and used for handling coal, building materials, petroleum products, and miscellaneous commodities. Two shipbuilding yards are on south shore of the lake. Holland provides a public wharf for small craft. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition and structure surveys, sediment coordination, and miscellaneous reports performed by Government forces cost $109,640. A contract for maintenance dredging the Outer harbor was awarded and completed this FY, removing approximately 41,141 cubic yards of shoal material at a cost of $194,650. Engineering and design and supervision and administration cost $140,826. American Recovery & Reinvestment Act (ARRA) funds of $109,147 were used to perform condition surveys and for a maintenance dredging contract.

Existing project, with exception of widening bend in revetted entrance channel authorized by Act of September 3, 1954, was completed in 1957. For additional details on completion of existing project, see page 1460 of Annual Report for 1962. Navigation structures are in good to fair condition with repairs anticipated within the next 5 years. Total cost of the existing project to end of FY was $39,749,299, of which $1,392,827 was for new work ($1,180,502 regular funds, $176,620 for previous project and $35,705 contributed funds), $36,081,573 for maintenance, $1,663,300 for diked disposal, $502,452 for rehabilitation and $109,147 for American Recovery & Reinvestment Act (ARRA).

## 23. THE INLAND ROUTE, MI

**Location.** A series of interconnected lakes and streams stretching across northern tip of Lower Peninsula of Michigan, and extends from Conway near Lake Michigan to Cheboygan on Lake Huron; a distance of 35 miles. Crooked and Indian Rivers are connecting channels in the waterway. (See NOAA Nautical Chart 14886.)

**Existing Project.** Provides for a channel 30 feet wide and 5 feet deep, with necessary widening at bends, through Crooked and Indian Rivers, and Crooked, Burt, and Mullett Lakes, and from Conway (west end of Crooked Lake) to navigation lock at Cheboygan; in Pickerel Channel from Pickerel Lake to Crooked Lake. It also provides for suitable jetties at head of Indian River. The addition of a lock and dam was approved by the Chief of Engineers on Sep. 2, 1964, to correct a design deficiency. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** None exist for commercial cargo-handling along the Crooked and Indian Rivers. Numerous small privately owned timber piers and wharves, some equipped with covered boat wells for serving and storing recreational craft, have been constructed. Landings maintained by hotel and resort operators are open to the public for transfer of passengers. Public docks are at Conway and Oden on Crooked Lake; the village of Indian River, Topinabee, and Mullett Lake Village on Mullett Lake; and at Cheboygan. About 30 highways dead end at water's edge, permitting public access for various marine activities. Dock facilities are considered adequate for existing traffic.

**Operations During Fiscal Year.** Maintenance: The navigation lock was operated and maintained by the State of Michigan at no cost to the Government. In FY 09, the lock was operated from 9:00 a.m. to 5:00 p.m. April 25-26, May 2-3, 09-10, 16-17, September 14-30. The lock was operated 8:00 a.m. to 9:00 p.m. May 23–June 30, August 17-September 7 and 8:00 a.m. to 8:00 p.m. September 8-13. The lock was operated from 8:00 a.m. to 10:00 p.m. July 1–August 16. The lock was operated from 9:00 a.m. to 11:00 a.m. and 3:00 p.m. to 5:00 p.m. October 3, 4, 10, 11. The lock closed for the season on October 11 at 5:00 p.m. Miscellaneous studies, inspections and reports performed by Government forces cost $324,576. American Recovery & Reinvestment Act (ARRA) funds of $71,093 were used for condition surveys, lock maintenance safety repairs and engineering and design.

The existing project was completed in 1958. The lock and dam was completed in FY 1968. For additional details see page 1382 of Annual Report for 1960. Total cost of the existing project to end of FY was $5,439,278, of which $918,222 was for new work (includes $148,000 contributed funds), $4,045,663 for

maintenance, $404,300 for diked disposal and $71,093 for American Recovery & Reinvestment Act (ARRA).

## 24. KEWAUNEE HARBOR, WI

**Location.** On west shore of Lake Michigan, about 105 miles north of Milwaukee, WI, and about 78 miles from Green Bay, via Sturgeon Bay Canal. Harbor is at mouth of Kewaunee River. (See NOAA Nautical Chart 14908.)

**Previous Projects.** See page 1375 of Annual Report for 1962.

**Existing Project.** See Chicago District 1979 Annual Report, Table 30-C, page 30-31.

Costs of completed project are $603,021 Federal, and $9,000 non-Federal, exclusive of amount expended on previous projects. Uncompleted portion (estimated $200,000, July 1965) of 1935 River and Harbor Act is considered inactive, and excluded from present cost estimate. The portion authorized by the 1960 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Two car-ferry slips, a petroleum tank farm, a Corps of Engineers project office, and several fish wharves. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $10,533. The contract for maintenance dredging awarded last FY was completed at the end of this FY, removing approximately 15,590 cubic yards of material at a cost of $208,990. American Recovery & Reinvestment Act (ARRA) funds of $171,458 were used to perform condition surveys, silent inspector program (GPS), and to award a maintenance dredging contract.

Active portion of existing project is complete. The north pier was completed in 1897 and the remaining portion is in generally good condition. Rehabilitation of the south pier was completed in June 1967. Construction of north breakwater and shore connection, except for a gap of 150 feet about 830 feet from shoreward end, and removal of outer 706.5 linear feet of north pier was commenced in September 1935 and completed in June 1937. Removed 500 linear feet of north pier in April/May 1963 and widened and deepened the adjacent channel in 1965. Outer end of the north pier was struck and severely damaged by car ferry vessel in October 1973 and a 24-foot section at outlet end was subsequently removed, thus reducing the structure to a length of 626 feet. Dredging entrance channel in interior basin to the existing project depth was commenced in April and completed in October 1938. Kewaunee River is navigable to about 6.5 miles above mouth for craft drawing not more than 4 feet. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was $13,948,396, of which $758,333 was for new work ($338,333 regular and $420,000 Emergency Relief Funds) $9,439,844 for maintenance, $2,961,461 for diked disposal, $617,300 for rehabilitation and $171,458 for American Recovery & Reinvestment Act (ARRA).

## 25. KEWEENAW WATERWAY, MI

**Location.** In Lake Superior across Keweenaw Peninsula in upper peninsula of Michigan. The west entrance is 169 miles east of Duluth, MN. (See NOAA Nautical Chart 14972.)

**Existing Project.** A navigable channel, minimum width 300 feet, 25 miles long, partially natural and partially artificial, across Keweenaw Peninsula via Portage Lake. For details see page 1121 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

The uncompleted portion of the project for navigation at Keweenaw Waterway, Houghton County, MI, authorized by the River and Harbor Act of Aug. 30, 1935, PL 409, 73rd Congress, which consists of extending the lower entrance breakwater by 2,000 feet, including the necessary alteration or replacement of structures due to channel deepening, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

**Local Cooperation.** None required.

**Terminal Facilities.** Six coal docks, a petroleum dock, and several general merchandise and miscellaneous wharves, all privately owned. Facilities are considered adequate for existing commerce. Also present is a government constructed recreational area with facilities to include a picnic area and small boat landing range.

**Operations During Fiscal Year.** Maintenance. Condition surveys performed by Government forces cost $60,069. Hydrolographic surveys and obstruction

location operations were performed at a cost of $10,617.

Active portion of the project is complete. Lower entry piers are in fair condition. It is anticipated repairs will be required within the next ten years. Upper entry breakwaters are in good condition, but require annual stone maintenance due to severity of the wave climate. Total cost of the existing project to end of FY was $37,608,566, of which $5,974,141 was for new work, $30,110,925 for maintenance and $1,523,500 for diked disposal.

## 26. LAKE ST. CLAIR, MI, CHANNELS MI

**Location.** Lake St. Clair, a section of Great Lakes connecting channels, is an expansive shallow basin having a vessel track length of about 15 miles from mouth of St. Clair River to head of Detroit River. (See NOAA Nautical Chart 14850.)

**Previous Project.** For details see page 2882, Annual Report for 1896; pages 1957-58, Annual Report for 1915; and page 1539, Annual Report for 1938.

**Existing Project.** An improved channel through Lake St. Clair 800 feet wide, 27.5 feet deep, and about 14.5 miles long; extending from mouth of Southeast Bend cutoff channel at lower end of St. Clair River to head of Detroit River Channel. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** None.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $160,374.

Total cost of the existing project to end of FY was $22,661,060, of which $7,675,357 was for new work ($6,666,762 regular funds and $1,008,595 Public Works Funds), $9,865,903 for maintenance, and $5,119,800 for diked disposal.

## 27. LELAND HARBOR, MI

**Location.** A light-draft harbor on eastern shore of Lake Michigan at mouth of Carp River, about 40 miles north of Frankfort, MI, and 40 miles southwest of Charlevoix, MI. (See NOAA Nautical Chart 14912.)

**Existing Project.** Provides for a harbor of refuge consisting of a breakwater about 1,200 feet long, a protected anchorage and maneuver area about 3 acres in extent and 10 feet deep, a 12-foot deep flared approach channel decreasing in width to 90 feet, an existing south pier 440 feet long, a 35-foot long cellular extension to south pier, an entrance channel 6 feet deep and 40 feet wide extending to mouth of Carp River, and for elimination of existing north pier. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Privately owned wharves on each side of river below the dam which is 400 feet above the river mouth. These wharves serve the local fishing interests and recreational craft. Public facilities are operated by the State and local agencies. All available dockage space is utilized.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $13,964. A contract for maintenance dredging was awarded and completed this FY, removing 20,782 cubic yards of shoal material at a cost of $142,111. Engineering and design and supervision and administration cost $14,433.

The existing project was completed in 1932 except for the 1962 authorization, which was completed in 1967. Navigation structures are in good condition. Total cost of the existing project to end of FY was $6,032,682 of which $1,027,089 was for new work (includes $354,139 contributed funds), $4,934,915 for maintenance and $70,678 for rehabilitation.

## 28. LES CHENEAUX ISLANDS CHANNELS, MI

**Location.** Along the north shore of Lake Huron, about 20 miles northeast of Mackinac Island, Michigan (See NOAA Nautical Chart 14885).

**Existing Project**. Provides for removing shoals from Les Cheneaux Islands Channels on the presently designated Small Boat Course, including the Middle Entrance between Marquette and Little LaSalle Island, to provide a depth of seven feet over a minimum width of 100 feet, with suitable widening where required at bends in the channel. (See Table 21-B for authorizing legislation).

**Local Cooperation**. Fully complied with.

**Terminal Facilities.** Privately owned marinas, open to the public, are located at Hessel and Cedarville. There are numerous other docks located on the islands which are not open to the general public. These facilities are considered adequate for existing commerce and vessel traffic.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $29,990. A maintenance dredging contract was awarded this FY in the amount of $1,643,000. Engineering and design and real estate activities cost $69,398.

Total cost of the existing project to end of FY was $872,605 of which $399,478 was for new work, $246,939 for maintenance, and $226,188 for diked disposal.

## 29. LEXINGTON HARBOR, MI

**Location.** On southwest shore of Lake Huron, 20 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

**Existing Project.** Provides for two offshore breakwaters opening to the southeast and totaling about 2,400 feet long with provisions for recreational fishing on the main breakwater; an anchorage and maneuver area of about 5 acres, 8 feet deep; and a flared approach channel 10 feet deep, decreasing to 160 feet in width through the breakwaters. Project also provides for recreational fishing facilities. Estimated (1979) Federal cost of new work is $1,647,306 excluding $1,088,888 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Assurances of local cooperation were furnished by the Michigan Department of Natural Resources to the Secretary of the Army. The cash contribution was $1,088,888.

**Terminal Facilities.** An existing public fishing pier of open pile construction is not adequate for existing and prospective commerce. Complete boating facilities are planned by State and local agencies in connection with the harbor construction.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $11,833

The existing project was completed during FY 1977. Navigation structures are in fair condition. Total cost of the existing project to end of FY was $6,792,158 of which $3,107,192 (includes $1,088,888 contributed funds) was for new work and $3,684,966 for maintenance.

## 30. LITTLE LAKE HARBOR, MI

**Location.** On south shore of Lake Superior 21 miles west of Whitefish Point and 30 miles east of Grand Marais, MI. (See NOAA Nautical Chart 14962.)

**Existing Project.** Provides for a small-craft harbor of refuge by dredging an entrance channel 12 feet deep from Lake Superior into Little Lake, suitably protected by breakwaters and revetments. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Only terminal facility at project consists of a public dock built by the State of Michigan for light-draft craft.

**Operations During Fiscal Year.** Maintenance: An adjustment of -$280 was made to the maintenance dredging contract completed last FY. American Recovery & Reinvestment Act (ARRA) funds of $514,137 were used for condition surveys, award of a maintenance dredging contract and engineering and design.

This project is considered complete; however, because of shifting sand, the harbor entrance shoals rapidly with the result that full project depth is not usually available. Navigation structures are in good condition. Total cost of the existing project to end of FY was $7,329,807, of which $600,478 was for new work (includes $57,670 contributed funds), $6,215,192 for maintenance and $514,137 for American Recovery & Reinvestment Act (ARRA).

## 31. LUDINGTON HARBOR, MI

**Location.** On east shore of Lake Michigan, 156 miles northeasterly from Chicago, IL, and 67 miles northerly from Grand Haven, MI. (See NOAA Nautical Chart 14937.)

**Previous Project.** For details see page 1951 of Annual Report for 1915, page 1491 of Annual Report for 1938, and page 1307 of Annual Report for 1963.

**Existing Project.** Provides for an exterior basin in Lake Michigan protected by north and south breakwaters, north breakwater is 1,800 feet long and south breakwater 1,700 feet long, 550 feet apart at outer ends, diverging at an angle of 90 degrees, with shore connections, 1,103 and 2,004 feet long, respectively; for dredging exterior basin to 18 feet deep with a maximum width of 1,500 feet; for a channel with a depth of 29 feet from deep water in Lake Michigan decreasing to 27 feet at the west end of the north pier, over a maximum width of 600 feet; thence a channel with a depth of 27 feet, over a minimum width of 230 feet with necessary widening at Pere Marquette Lake; and for inner piers and revetments, 1,649 feet long on north and sufficiently long on the south for turn at Pere Marquette Lake. The estimated (1977) Federal cost for new work is $8,250,000. Estimated total cost for local interests is $147,000. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** In addition to main terminal of Chesapeake & Ohio Railway Company consisting of three car ferry slips, a wharf, and warehouses, there are several wharves which handle coal, limestone, and miscellaneous commodities. Facilities are adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $30,070. Repairs to the breakwater were performed at a cost of $80,304. A contract for maintenance dredging was awarded and completed this FY, removing approximately 35,000 cubic yards of material at a cost of $223,900. Engineering and design cost $104,084. American Recovery & Reinvestment Act funds of $931,449 were used for condition surveys, award of a maintenance dredging contract and engineering and design.

Existing project was completed in 1918. For additional details on completion of existing project see page 1469 of Annual Report for 1962. Structures are in good condition except for the south breakwater head that needs repair. Total cost of the existing project to end of FY was $34,348,859, of which $8,532,202 was for new work, $24,527,295 for maintenance, $357,913 for rehabilitation and $931,449 for American Recovery & Reinvestment Act (ARRA). The maintenance cost does not include $136,286 contributed funds.

## 32. MANISTEE HARBOR, MI

**Location.** On east shore of Lake Michigan, 179 miles northeasterly from Chicago, IL, and 26 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14938.)

**Previous Project.** For details see page 1952 of Annual Report for 1915, and page 1493 of Annual Report for 1938.

**Existing Project.** An entrance channel in Lake Michigan protected by a breakwater, piers, and revetment; a channel in Manistee River to Manistee Lake; and Federal participation in cost of replacing Maple Street Bridge. Project depths are 25 feet in entrance channel and 23 feet in river channel. For additional details see page 1470 of Annual Report for

1962. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Installations are on both sides of river and on Manistee Lake. Commerce handled includes coal, sand, salt, and general cargo. In addition, there is a Government wharf and a State and City owned recreational craft pier which is open to the public. These facilities satisfy current commerce requirements.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $51,516. Repairs to the breakwater were performed at a cost of $21,589. Engineering and design and supervision and administration cost $33,524.

Existing project was completed in August 1967. For additional details on completion of existing project see page 1470 of Annual Report for 1962. Navigation structures range from generally fair to good condition. Total cost for existing project to end of FY was $19,257,599, of which $2,696,522 was for new work, $15,186,913 for maintenance, and $1,374,164 for rehabilitation.

## 33. MANITOWOC HARBOR, WI

**Location.** On west shore of Lake Michigan about 79 miles north of Milwaukee, WI, and about 106 miles from Green Bay Canal. (See NOAA Nautical Chart 14922.)

**Previous Projects.** See page 1379 of Annual Report for 1962.

**Existing Project.** The total estimated (Oct. 1981) project cost is $3,080,000; the Federal cost is $1,085,000 and non-Federal cost is $1,995,000, which is a cash contribution. See Chicago District Annual Report for 1979, Table 30-C.

For detailed description see page 1228 of Annual Report for 1963. Estimated costs (1970) of new work for 1968 modification are $81,000 Federal and $30,000 non-Federal which includes a cash contribution of $18,000. Work on the 1968 modification was postponed until 1982. The portion authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 26, 1979, and 720-foot channel extension affirmed in July 1982, under authority of Section 107, 1960 River and Harbor Act, as amended.

**Local Cooperation.** Fully complied with for completed modifications. For 1968 modification local interests must make an annual cash contribution equivalent to 50% of the annual costs associated with construction and maintenance of the channel extension until such time that a second user utilizes the channel extension. Such a contribution is presently estimated at $9,206; additional assurances require that the sponsor provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of dredged materials, and the necessary retaining dikes, bulkheads and embankments therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and subsequent use, operation, and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States adequate berthing areas at the docks adjacent to the improvement; accomplish at no cost to the United States all relocations and alterations of utilities necessary for the project; assume full responsibility for all project first costs in excess of the Federal cost limitation of $2,000,000; and comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

**Terminal Facilities.** Three car-ferry slips, a grain elevator, one shipbuilding yard, and three other wharves used for handling coal, building materials, cement, and miscellaneous commodities. While these facilities are considered adequate for existing commerce, it is believed the city should provide a suitable wharf with warehouse and railway connection open to the general public.

**Operations During fiscal year.** Maintenance: Repairs to the breakwater were performed at a cost of $5,731. Cost associated with the Silent Inspector Program (GPS unit) cost $4,620. The contract for maintenance dredging awarded last FY was completed at the end of this FY, removing approximately 12,552 cubic yards of material at a cost of $246,004. Engineering and design and supervision and administration cost $29,525. American Recovery & Reinvestment Act (ARRA) funds of $500,974 were used for Silent Inspector Program (GPS unit), award of a maintenance dredging contract and engineering and design.

Existing project is complete except for the 1962 and 1968 modifications. The 1962 modification was deauthorized December 31, 1990. Work on the 1968 modification was essentially completed in FY 83. The Federal modification, adopted July 15, 1985, included the expansion of the new entrance channel to the Section 107 project and extension of the rubblemound breakwater. Dredging a channel through the outer basin to existing project depth and removal of a portion of old north stub pier at the river entrance were completed in December 1937. Dredging river channel was completed in July 1942. South Breakwater, Section E, is in fair condition and is programmed for repair. Total cost of the existing project to end of FY was $19,100,290 of which $3,960,044 was for new work (includes $1,911,130 contributed funds), $11,557,516 for maintenance (includes $66,735 contributed funds), $3,081,756 for diked disposal and $500,974 for American Recovery & Reinvestment Act (ARRA).

## 34. MARQUETTE HARBOR, MI

**Location.** In Marquette Bay on south shore of Lake Superior, 160 miles west of Sault Ste. Marie, MI, and 265 miles east from Duluth, MN. (See NOAA Nautical Chart 14970.)

**Existing Project.** Provides for a breakwater, and a harbor basin 26.5 feet deep, giving a protected area of 350 acres. Project was modified in 1960 to provide a 27-foot depth in harbor area. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required for earlier authorizations. Fully complied with for the 1960 Act.

**Terminal Facilities.** One ore dock, unused at present; two coal docks; one petroleum dock; and three other unused docks. There are also several small fish wharves without railroad connections. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Breakwater repairs were performed at a cost of $31,739.

Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was $6,312,905, of which $1,282,893 was for new work, $4,564,255 for maintenance and $465,757 for rehabilitation.

## 35. MENOMINEE HARBOR AND RIVER, MI AND WI

**Location.** On Lake Michigan at the mouth of Menominee River on the western shore of Green Bay, 16 miles northwest of the mouth of Sturgeon Bay, and 49 miles northeast of Green Bay Harbor, about 155 miles from Milwaukee via Sturgeon Bay Canal. The river forms the boundary between the commercial harbors at Marinette, WI, and Menominee, MI. (See NOAA Nautical Chart 14917.)

**Previous Projects.** See page 1361 of Annual Report for 1962.

**Existing Project.** See Chicago District Annual Report for 1979, Table 30-C, page 30-26.

For detailed description see page 1214, Annual Report for 1963. The portion authorized by 1960 River and Harbor Act is inactive and estimated (1964) at $442,000 Federal, and $105,000 non-Federal. Costs of completed new work, exclusive of inactive work and amount expended on previous projects, are $221,053 Federal and $40,762 non-Federal, which includes a cash contribution of $36,762. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with for completed work.

**Terminal Facilities.** There are 9 wharves for handling coal, limestone, pulp and miscellaneous commodities. City of Marinette, WI, provided a public wharf. Facilities are considered fairly adequate for existing commerce, except that there is need for a public wharf owned by city of Menominee, with warehouse and railway connection.

**Operations During Fiscal Year.** Maintenance: Cosr associated with the Silent Inspector Program (GPS unit) cost $9,900. The maintenance dredging contract awarded last FY was completed at the end of this FY, removing approximately 87,135 cubic yards of material at a cost of $9,908,864.

The project in effect prior to the modification of March 2, 1945, was completed in 1938. No additional work was necessary under the modification of March 2, 1945, to provide a depth of 12 feet in the extension of the channel to the vicinity of the Marinette Yacht Club, as project depth or more was available. The entrance piers were completed in 1884, were rehabilitated (1954-1964) and are in excellent condition. Dredging of the channel below the Marinette municipal wharf, together with enlarging the turning basin to existing project depth, was commenced in May 1938. Modification of the project authorized by the 1960 River and Harbor Act is inactive. Construction for the 1967 modifications was started August 17, 1968, and completed in October 1968. Navigation structures are in good condition. Total cost of the existing project to end of FY was $7,669,993, of which $570,238 was for new work (includes $36,762 contributed funds), $5,154,243 for maintenance, $593,660 for diked disposal and $1,351,852 for rehabilitation.

## 36. MILWAUKEE HARBOR, WI

**Location.** On west shore of Lake Michigan about 85 miles north of Chicago, IL, and about 83 miles west of Grand Haven, MI. (See NOAA Nautical Chart 14924.)

**Previous Projects.** See page 1385 of Annual Report for 1962.

**Existing Project.** See Chicago District Annual Report for 1979, Table 30-C, page 30-26. For detailed description see page 1232 of Annual Report for 1963.

Completed new work costs are $6,934,804 Federal and $478,000 non-Federal, exclusive of amount expended on previous projects. The uncompleted

portion authorized by the 1935 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Uncompleted portion of 1945 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Complied with for Acts of March 2, 1945, October 23, 1962, and July 14, 1960, except deauthorized portion of 1945 Act. Act of Aug. 30, 1935, provided that original dredging of outer harbor area be done by city of Milwaukee and city of Milwaukee be reimbursed at actual cost but not to exceed 10 cents per cubic yard, place measurement, for original dredging done subsequent to authorization of work by Congress. Agreement covering dredging was executed by Secretary of War, Feb. 23, 1934, after this work was originally authorized as part of public works program. City was reimbursed for 10 percent of dredging.

**Terminal Facilities.** There are 4 car-ferry slips, and 57 other wharves, private and municipal, used for handling coal, grain, building materials, cement, petroleum products, and miscellaneous commodities. As facilities in inner harbor were inadequate for existing commerce, Milwaukee Harbor Commission has constructed nine docks in the outer harbor for handling general cargo. Detail on actual port and harbor facilities is in Port Series No. 48 (revised 1994) prepared and published by the Water Resources Support Center.

**Operations During Fiscal Year.** Maintenance: Condition and structure surveys, environmental activities, and miscellaneous inspections and reports performed by Government forces cost $77,722. Repairs to the breakwater were performed using the Cranebarge MANITOWOC at a cost of $709,352. Cost associated with the Silent Inspector Program (GPS unit) cost $7,428.

Existing project is complete except for inactive portions. The 1962 modification was completed in July 1967. North breakwater and shore connection, 9,954 feet long, was completed in August 1925. North pier was completed in 1905 and construction of south pier was completed in November 1910. Construction of south breakwater and shore connection was completed in October 1929. Before modification of August 30, 1935, City of Milwaukee also dredged most of the area in the outer harbor south of inner entrance piers and lakeward of pierhead line to more than 21 feet below datum without cost to the United States. City of Milwaukee also dredged a portion of the area of the outer harbor north of inner entrance piers to provide an approach channel to the passenger and auto pier opposite East Claybourn Street. Work on the 1945 modification was completed in August 1957, except for the uncompleted portion, which consists of dredging the Milwaukee River from Buffalo Street to upper limit of the project at Humboldt Avenue. The uncompleted portion of the project authorized by the 1945 Rivers and Harbors Act was deauthorized in 1977. Navigation structures range from fair to excellent condition. Total cost of the existing project to end of FY was $81,380,597, of which $8,231,024 was for new work, $54,053,088 for maintenance (includes $322,471 contributed funds), $6,380,925 for diked disposal and $12,715,560 for rehabilitation.

## 37. MONROE HARBOR, MI

**Location.** On lower reach of River Raisin, which empties into Lake Erie and is 36 miles south of Detroit, MI. (See NOAA Nautical Chart 14830.)

**Existing Project.** Provides for a channel in Lake Erie and River Raisin to city of Monroe, for a turning basin, and for riprapping protecting dikes at river mouth. Project depths are 21 feet to turning basin, 18 feet in turning basin, and 9 feet to upstream end of project. For additional details see page 1490 of Annual Report for 1962. Project feature for riprapping protecting dikes is considered inactive. Estimated cost of this feature (1954) is $90,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized modifications to deepen the River Raisin portion of the existing 200-foot navigation channel from 21 to 27 feet between existing turning basin and the river's mouth; deepen the lake channel from 21 to 28 feet, and widen the channel from 200 to 500 feet, for a distance of approximately 47,000 feet from the river's mouth to the Maumee Bay Entrance Channel; dredge a new turning basin 24 feet deep, with a diameter of at least 1,600 feet, at the river's mouth; and construct a 190 acre confined disposal area in Plum Creek Bay behind which would enable the creation of a 700 acre marsh. Estimated total cost (Oct. 88) is $150,200,000; $59,000,000 Federal and $91,200,000 non-Federal, which includes a cash contribution of $19,650,000.

**Local Cooperation.** Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in the Rivers and Harbors Committee Document 22, 71st Congress, 1st Session; R & H Comm. Doc. 12, 72d Congress, 1st

Session, and 45, 75th Congress, 1st Session, and also includes, as a result of PL 99-662, construction cost sharing as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $19,650,000. The estimated cash contribution of $19,650,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at $7,860,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

c. The confined dike area construction is a non-Federal responsibility and is estimated to cost $70,156,000.

**Terminal Facilities.** Several privately owned docks and a municipal terminal. Port of Monroe Authority built a steel and concrete wharf on southeast side of turning basin for commercial use. Detail on actual port and harbor facilities is in Port Series No. 45 (revised 1996) prepared and published
by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $88,741. The contract for maintenance dredging awarded last FY was completed this FY, removing approximately 58,320 cubic yards of material at a cost of $453,912. Engineering and design and supervision and administration cost $108,664. A contract for maintenance dredging was awarded this FY, removing approximately 90,002 cubic yards of material at a cost of $507,200.

Total cost of the existing project to end of FY was $64,910,118, of which $987,340 was for new work (includes $300,000 contributed by the Port Commission of Monroe) $25,233,196 for maintenance (includes $166,667 contributed funds: $125,000 by Consolidated Paper Company and $41,667 by River Raisin Company) and $38,689,582 for diked disposal (includes $83,182 contributed funds).

## 38. MUSKEGON HARBOR, MI

**Location.** On east shore of Lake Michigan, 114 miles northeasterly from Chicago, IL, and 80 miles easterly from Milwaukee, WI. (See NOAA Nautical chart 19434.)

**Previous Project.** For details see page 1950 of Annual Report for 1915; page 1399, Annual Report for 1924; and page 1484, Annual Report for 1938.

**Existing Project.** A breakwater protected outer basin in Lake Michigan and an entrance channel from Lake Michigan to Muskegon Lake protected by piers and revetments. Project depths vary from 29 feet in the lakeward portion of the outer basin to 27 feet in the channel between the inner piers to Muskegon Lake. For additional details see page 1303 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Several privately owned wharves primarily for commercial use. Details on actual port and harbor facilities are in Port Series, No. 48 (revised 1981) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and sediment sampling performed by Government forces and contract cost $25,143. Repairs to the breakwater were performed using the Cranebarge MANITOWOC at a cost of $311,814.

Existing project, including latest project modification, was completed in 1965. For additional details on completion of existing project see page 1465 of Annual Report for 1962. Navigation structures are in good condition. Total cost of the existing project to end of FY was $33,957,855, of which $3,017,110 was for new work, $17,116,445 for maintenance, and $13,824,300 for rehabilitation.

## 39. NEW BUFFALO HARBOR, MI

**Location.** At mouth of Galien River on southeast shore of Lake Michigan in Berrien County, about 45 miles easterly from Chicago, IL. (See NOAA Nautical Chart 14905).

**Existing Projects.** Provides for an entrance channel 10 feet deep by 80 feet wide and 850 feet long, to mouth of Galien River; new north and south breakwaters 1,305 and 740 feet long, respectively, and deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long. (See Table 21-B for authorizing legislation).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** One village owned boat ramp and three privately operated marinas, and a private boat club facility.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $14,563.

Existing project is complete. The North and South Breakwaters are in fair condition. It is anticipated repairs will be required within the next five years. Total cost of the existing project to end of FY was $8,542,158, of which $2,472,183 was for new work (includes $1,186,467 contributed funds), $5,888,475 for maintenance, and $181,500 for diked disposal.

## 40. ONTONAGON HARBOR, MI

**Location.** About 140 miles east of Duluth, MN, on south shore of Lake Superior, at mouth of Ontonagon River; provides the only refuge for small craft between the Keweenaw Waterway upper entrance and Black River Harbor. (See NOAA Nautical Chart 14965.)

**Previous Project.** For details see page 1931 of Annual Report for 1915, and page 1406 of Annual Report for 1938.

**Existing Project.** Provides for approach channel 16 feet deep, a channel between piers with 17- and 15-foot depths, an inner basin 12 feet deep, and maintenance of channels, basin, and entrance piers. Completed project cost $19,619. See page 1100 of Annual Report for 1966 for details. A modification authorized by 1962 River and Harbor Act provides for increasing depths of channels, construction of an inner basin and a sedimentation basin. (See Table 21-B for authorized legislation.)

The turning basin feature of the project for navigation at Ontonagon Harbor, Ontonagon County, MI, authorized by the River and Harbor Act of 1962, was deauthorized by the WRDA of 1986; PL 99-662 (Section 1002) Nov. 17, 1986, 99th Congress, Title X. The channel modification project authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

**Local Cooperation.** None required.

**Terminal Facilities.** There are no publicly owned wharves. There are three coal wharves, an oil receiving facility, and a few small fish wharves. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $50,369. Repairs to the breakwater were performed using the Derrickbarge SCHWARTZ at a cost of $119,641. The contract for maintenance dredging awarded last FY was completed at the end of this FY, removing approximately 37,000 cubic yards of shoal material at a cost of $198,075. Engineering and design, and supervision and administration cost $16,694. A contract was awarded and completed this FY for maintenance dredging, removing approximately 62,802 cubic yards of material at a cost of $690,121. Engineering and design cost $49,922.

All work authorized under previous Acts was completed in 1938. Navigation structures range from fair to excellent condition. Several areas along the piers have had tie rod failures and repairs are underway. Total cost of the existing project to end of FY was $31,200,922, of which $953,903 was for new work, $30,226,019 for maintenance and $21,000 for diked disposal.

## 41. PENTWATER HARBOR, MI

**Location.** On east shore of Lake Michigan, 146 miles northeasterly from Chicago, IL, and 14 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14907.)

**Existing Project.** Provides for widening old entrance channel to 150 feet between parallel piers and revetments, channel to extend from Lake Michigan to Pentwater Lake, with a depth of 16 feet. Piers and revetments are built of stone filled timber cribs and piling and capped with concrete. The 200-foot

extension to south pier portion of project is considered inactive. Estimated cost (1954) of this portion is $65,100. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** Several small privately owned wharves on west end of Pentwater Lake. The City and Michigan Waterways Commission jointly constructed a dock on northwest side of Pentwater Lake for public use. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Engineering and design for future maintenance dredging work cost $18,391.

Existing project was completed in 1959 except for a 200-foot extension to the south pier, which is not considered necessary under present conditions. For additional details see page 1468 of Annual Report for 1962. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was $15,907,995, of which $179,899 was for new work, and $15,728,096 for maintenance.

## 42. PETOSKEY HARBOR, MI

**Location.** This harbor is on the east shore of Lake Michigan about 50 miles south of the Straits of Mackinac. (See NOAA Nautical Chart 14913.)

**Previous Project.** For details see page 1954 of Annual Report for 1915, page 1547 of Annual Report for 1931, and page 2024 of Annual Report for 1949.

**Existing Project.** Provides for a breakwater extending from shore 1,345 feet long of stone-filled timber crib, concrete capped, and rubblestone construction that protects the municipal pier. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** There is a municipal pier about 635 feet long plus several recreational craft piers. These installations satisfy current commerce and traffic requirements.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $7,250. A structure repair contract for repairs to the breakwater was awarded and completed this FY in the amount of $2,634,314. Supervision and administration cost $36,761. American Recovery & Reinvestment Act (ARRA) funds of $189,008 were used to award a structure repair contract and for supervision and administration.

The existing project was complete in 1938. Breakwater is in fair overall condition. Total cost of the existing project to the end of FY was $4,706,576 of which $123,839 was for new work, $4,393,729 for maintenance and $189,008 for American Recovery & Reinvestment Act (ARRA).

## 43. POINT LOOKOUT, MI (AU GRES RIVER), MI

**Location.** At Au Gres River on westerly shore of Lake Huron at entrance to Saginaw Bay, about 17 miles northeast of mouth of Saginaw River. (See NOAA Nautical Chart 14863.)

**Existing Project.** Provides for construction of a small boat harbor having a 12-foot deep, 100-foot wide, 2,800-foot long outer entrance channel; a 5,600-foot long, 100-foot wide inner entrance channel having a 10-foot depth; an 8,270-foot long, 6-foot deep river channel ending just downstream from U.S. 23 highway bridge and having a width of 60 feet; a 4,000-foot long north breakwater and a 3,800-foot long south breakwater. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Small boat marina facilities are under construction by the State of Michigan.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $31,244. Engineering and design for future maintenance dredging work cost $55,669.

Existing project was completed in 1974. Navigation structures are in good condition. Total cost of the existing project to end of FY was $7,491,458 of which $2,642,584 was for new work, $4,727,274 for maintenance (includes $9,257 contributed funds) and $121,600 for diked disposal.

## 44. PORT AUSTIN HARBOR, MI

**Location.** On west shore of Lake Huron at extreme southeastern limit of Saginaw Bay, and 29 miles south

of AuSable River (Oscoda). (See NOAA Nautical Chart 14863.)

**Existing Project.** A harbor of refuge at the mouth of Bird Creek, consisting of a harbor basin dredged to a depth of 10 feet protected by a breakwater structure, and for dredging an entrance channel to the harbor basin to a depth of 12 feet. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** A number of docks near mouth of Bird Creek and a State-owned dock inside breakwater. Facilities accommodate recreational craft and are considered adequate for existing traffic.

**Operations During Fiscal Year.** Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces and contract cost $33,262.

Navigation structures are in good condition. Total cost for existing project to end of FY was $5,850,611 of which $3,363,334 was for new work (includes $172,100 contributed funds), $2,328,277 for maintenance and $159,000 for diked disposal

## 45. PORT SANILAC HARBOR, MI

**Location.** On southwest shore of Lake Huron, 30 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

**Existing Project.** Provides for a harbor of refuge protected by breakwater structures extending to 12-foot depth contour in lake; for dredging a harbor basin 10 feet deep; for dredging an entrance channel 12 feet deep; a 70-foot extension of the south breakwater; a 300-foot arm added to the north breakwater; and riprap placed at the lakeward side of the breakwater addition. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** There is one privately owned dock used principally as a fishing terminal by owner and a municipally owned pier for recreational craft. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: An adjustment of -$845 was made to the maintenance dredging contract completed last FY.

The project was completed in 1951 except for latest modification that was completed in FY 76. The breakwaters are in good condition, with miscellaneous repairs programmed in the next 5 years. Total cost of the existing project to end of FY was $6,077,687, of which $1,733,071 was for new work (includes $487,108 contributed funds), $4,335,458 for maintenance (includes $115,000 contributed funds) and $9,158 for diked disposal.

## 46. PORT WING HARBOR,WI

**Location.** On south shore of Lake Superior, 34 miles easterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

**Existing Project.** Provides for two parallel piers at entrance, 835 and 1,017 feet long, respectively, 200 feet apart; an entrance channel between piers 150 feet wide with 15-foot depth; an irregular-shaped turning basin 15 feet deep at inner end of piers from which two inner channels with 8-foot depth extend. One of these is 60 feet wide extending southerly for 340 feet and one 70 feet wide extending easterly 1,170 feet.

Portion of dredging entrance channel to complete project width and depth is considered unnecessary to meet present navigation requirements. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** There are four privately owned fishing wharves that are considered adequate for existing conditions.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $10,595. The maintenance dredging contract awarded last FY was completed at the end of this FY, removing approximately 11,500 cubic yards of material at a cost of $92,200. Engineering and design and supervision and administration cost $11,673.

Existing project is complete, except channel between piers, and has been dredged to only a 100-foot width. Widening the channel an additional 50 feet was considered unnecessary to meet present navigation requirements. That work was classified inactive and deauthorized on August 5, 1977, under Section 12 of Public Law 93-251. Land owned by the United States totals 7.80 acres. Navigation structures are in fair condition. Total cost of the existing project to end of

FY was $2,180,179, of which $63,393 was for new work and $2,116,786 for maintenance.

## 47. PRESQUE ISLE HARBOR, MI

**Location.** On south shore of Lake Superior at Marquette, MI. It is an indentation about 1.5 miles long and one-half mile wide in shore behind Presque Isle Point. (See NOAA Nautical Chart 14970.)

**Existing Project.** A breakwater off Presque Isle Point and dredging harbor to depth of 28 feet at inner portion with 30 feet at entrance. For details see page 1021 of 1965 Annual Report. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** One merchandise and petroleum receiving wharf and one ore dock. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Stone repairs and repairs to the breakwater performed using the U.S. Derrickbarge SCHWARTZ at a cost of $312,767.

Navigation structures are in good condition. Total cost of the existing project to end of FY was $3,787,768, of which $1,252,192 was for new work, $2,459,076 for maintenance (includes $16,500 for diked disposal) and $76,500 for rehabilitation.

## 48. ROUGE RIVER, MI

**Location.** Rises in Oakland and Washtenaw Counties, MI, 30 miles long, flows southeasterly through Wayne County, and joins Detroit River at westerly limit of city of Detroit. (See NOAA Nautical Chart 14854.)

**Previous Project.** For details see page 1530 of Annual Report for 1932, and page 1558 of Annual Report for 1938.

**Existing Project.** Provides for: (a) Main channel from Detroit River through Short Cut Canal extending to upstream limit of the project, a distance of 3.5 miles. Project depths are 25 and 21 feet in navigation channel, 21 feet in turning basin, and 13 feet in upper reach of project. (b) Old Channel from Detroit River extending to junction of Old Channel with Short Cut Canal. Project depths are 25, 18, 17, and 21 feet. For additional details see page 1324 of Annual Report for 1963. In 1973, work authorized by the 1962 River and Harbor Act was reclassified from the active to inactive category. Estimated cost (1972) of this work is $880,000. Except for dredging 25-foot channel 1,150 feet upstream from mouth of Old Channel, work authorized in Act of Aug. 30, 1935, is considered inactive. Estimated cost (1958) of inactive portion is $255,000. Work authorized by Act of July 3, 1958, is considered inactive. Estimated cost (1960) of this work is $210,000. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Act of Oct. 23, 1962, requires local interests to provide lands and rights-of-way for construction upon request of the Chief of Engineers; hold the United States free from damages; provide terminal facilities to accommodate prospective commerce considered in report of District Engineer; dredge and maintain areas between the Federal improvement and terminal facilities to depths commensurate with improved Federal channel; make alterations in docks, bulkheads and other structures, and take such other measures as may be necessary to assure stability of banks adjacent to channel; and provide bridge protection. The assurances of local cooperation for the River and Harbor Act of 1962 were furnished by the Michigan State Waterways Commission and accepted on Jan. 7, 1965. Fulfillment of all items of local cooperation has not been accomplished.

**Terminal Facilities.** Numerous large commercial docks for handling various type cargo. Details on actual port and harbor facilities are contained in the Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $136,807. Cost associated with the Silent Inspector Program (GPS unit) cost $6,930. Engineering and design and supervision and administration for future maintenance dredging work cost $220,482.

Work authorized before 1962 modification is complete or deauthorized. For additional details on completion of existing project see Annual Report for 1962. Total cost of the existing project to end of FY was $42,340,063, of which $675,251 was for new work ($29,563 was expended from Emergency Relief Act Funds), $26,757,494 for maintenance and $14,907,318 for diked disposal.

## 49. SAGINAW RIVER, MI

**Location.** Formed by union of Tittabawassee and Shiawassee Rivers, 22 miles long, and flows northerly into extreme inner end of Saginaw Bay, Lake Huron. Cities of Saginaw and Bay City are on the river. (See NOAA Nautical Chart 14867.)

**Previous Project.** For details, see page 1957 of Annual Report for 1915; and page 1550 of Annual Report for 1938.

**Existing Project.** Provides for an entrance channel 27 feet deep and 350 feet wide from 27-foot contour in Saginaw Bay to river mouth; thence a channel 26 feet deep and 200 feet wide to New York Central Railroad Bridge at Bay City; thence 22 feet deep and 200 feet wide to C&O Railroad Bridge in Saginaw; thence 16.5 feet deep and 200 feet wide to upstream limit at Green Point. Project also provides for five turning basins; one 25 feet deep at Essexville, 600 feet wide with a maximum length of 1,850 feet; one 22 feet deep on east side of channel about 1 mile upstream from Cass Avenue in Bay City, 650 feet wide and 1,000 feet long; one 20 feet deep at Carrollton, 100 to 300 feet wide and 900 feet long; one 20 feet deep downstream from C&O Bridge in Saginaw, 650 feet wide and 1,000 feet long; and one 15 feet deep between Bristol Street Bridge and New York Central Railroad Bridge in Saginaw. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Numerous large commercial docks for handling a great variety of cargo. Details on actual port and harbor facilities are in Port Series No. 45 (revised 1996) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost $383,485. The contract awarded in FY 05 for the construction of the confined disposal facility for placement of dredged disposal material for upper Saginaw River using Construction General funds continued at a cost of $120. Monitoring of the wells continued at a cost of $130,029. Cost associated with the Silent Inspector Program (GPS unit) cost $19,800. The contract awarded last FY for maintenance dredging was completed this FY at a cost of $286,063. A contract was awarded and completed this FY for maintenance dredging, removing approximately 200,589 cubic yards of material at a cost of $1,926,453. Engineering, design, and supervision and administration cost $162,607. American Recovery & Reinvestment Act (ARRA) funds of $183,528 were used for awards of maintenance dredging and CDF contracts, silent inspector program and engineering and design costs.

Existing project is complete except for small part of the work authorized by the Act of October 23, 1962. Section D (Sixth Street Turning Basin) of the 1962 Act is complete except for the channel portion, which is pending modification. Total cost of the existing project to end of FY was $116,667,775, of which $16,838,056 was for new work (includes $321,809 for contributed funds), $78,694,303 for maintenance, $20,951,888 for diked disposal and $183,528 for American Recovery & Reinvestment Act (ARRA).

## 50. ST. CLAIR RIVER, MI

**Location.** A 40 mile long section of Great Lakes connecting channels which flows southerly from Lake Huron and discharges into Lake St. Clair. (See NOAA Nautical Chart 14852.)

**Existing Project.** Provides for channels through St. Clair River, which, at low water datum, are suitable for vessels drawing 25.5 feet. Project also provides for improvement of North Channel outlet, 100 feet wide and 10 feet deep, for recreational craft. Project depths are referred to low water datums for Lakes Huron and St. Clair; 577.5 and 572.3 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Tables 21-B and 21-H for authorizing legislation and features of existing project.) Act of July 24, 1946, provides for widening and deepening of southeast bend and improvement of outlet of north channel at an estimated cost (1986) of $870,000; $435,000 Federal and $435,000 non-Federal. On June 16, 1969, the Director of Civil Works approved substitution of the middle channel of the St. Clair River for the authorized north channel. Subsequently, however, the work authorized by the River and Harbor Act of July 24, 1946, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

**Local Cooperation.** None required.

**Terminal Facilities.** This improvement serves through commerce, between the upper and lower Great Lakes, and has not materially influenced terminal facilities along its route. A number of privately owned piers and wharves are at Port Huron, Marysville, St. Clair, and Marine City, MI, which handle coal, limestone, petroleum products, wood-pulp, salt and

general cargo. These installations satisfy present commerce requirements.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $317,087. Cost associated with the Silent Inspector Program (GPS unit) cost $5,100. Obstruction removal was performed using the U.S. Cranebarge VELER at a cost of $254,388. Supervision and administration cost $343,526. Preparation of the Phase II Draft Dredged Material Management Plan for the dredged material disposal facility continued using Construction General Funds in the amount of $11,104. American Recovery & Reinvestment Act (ARRA) funds of $95,403 were used for award of a CDF contract, engineering and design and supervision and administration.

Existing project is complete. Total cost of the existing project to end of FY was $56,615,479 of which $19,250,833 was for new work, $37,269,243 for maintenance and $95,403 for American Recovery & Reinvestment Act (ARRA).

## 51. ST. JOSEPH HARBOR, MI

**Location.** On east shore of Lake Michigan, 60 miles easterly from Chicago, IL, and 24 miles southerly from South Haven, MI. (See NOAA Nautical Chart 14930.)

**Previous Project.** For details see page 1945 of Annual Report for 1915, and page 1470 of Annual Report for 1938.

**Existing Project.** Provides for protecting mouth of St. Joseph River by two piers, 250 to 325 feet apart at their inner and outer ends, respectively, having lengths of 2,758 feet on north side and 2,603 feet on south side; for a channel 21 feet deep from Lake Michigan to mouth of Benton Harbor Canal, a length of about 6,900 feet with widths of 265 feet at outer end of piers, 190 feet at inner end of piers and revetments, thence generally 215 feet to lower end of turning basin, increasing to 250 feet above the turning basin to mouth of Paw Paw River, thence generally 110 feet in Paw Paw River to mouth of Benton Harbor Canal; for dredging channel in Benton Harbor Canal up to west line of Riverview Drive extended northerly, to 18 feet deep and 80 feet wide; and a turning basin 18 feet deep on north side of channel above mouth of Morrison Channel and a turning basin 18 feet deep near mouth of Paw Paw River. Public Law 88-88 declared a portion of Benton Harbor Canal a non-navigable stream. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Several commercial wharves for handling coal, building materials, petroleum products, and miscellaneous commodities. A package freight terminal and a public docking facility is also available. Facilities considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and environmental activities performed by Government forces cost $7,368. The contract for maintenance dredging the inner harbor awarded last FY was completed at the end of this FY at a cost of $574,614. A contract for maintenance dredging the outer channel was awarded and completed this FY, removing approximately 60,119 cubic yards of material at a cost of $508,857. Engineering, design and supervision and administration cost $107,005. American Recovery & Reinvestment Act (ARRA) funds of $651,051 were used for award of a maintenance dredging contract, sediment sampling and engineering and design.

Existing project was completed in 1956. For additional details on completion of existing project see page 1454 of Annual Report for 1962. Navigation structures are in generally good condition. Total cost of the existing project to end of FY was $41,663,857, of which $1,804,485 was for new work, $37,608,029 for maintenance, $638,076 for diked disposal, $962,216 for rehabilitation and $651,051 for American Recovery & Reinvestment Act (ARRA).

## 52. SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI

**Location.** Harbor is on east shore of Lake Michigan, 90 miles northeasterly from Chicago, IL, and 22 miles northerly from South Haven, MI. (See NOAA Nautical Chart 14906.)

**Previous Project.** For details see page 1947 of Annual Report for 1915, and page 1475 of Annual Report for 1938.

**Existing Project.** Entrance channel protected by parallel piers at mouth of Kalamazoo River and a river channel to village of Saugatuck, MI. Project depths: 16 feet in entrance channel, 14 feet in river channel. Additional details on page 1456 of 1962 Annual Report. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** None required.

**Terminal Facilities.** At city of Saugatuck, MI, there are several landing places for recreational craft and one for small commercial vessels. At village of Douglas, MI, there is a landing pier. Facilities are considered adequate for present traffic.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $33,552. American Recovery & Reinvestment Act (ARRA) funds of $423,086 were used for award of revetment repair contracts, value engineering and engineering and design cost.

Existing project was completed in 1903. Navigation structures are in excellent to poor condition and are programmed for major repair. Total cost of the existing project to end of FY was $11,537,243 of which $364,527 was for new work, $10,749,630 for maintenance and $423,086 for American Recovery & Reinvestment Act (ARRA).

## 53. SAXON HARBOR, WI

**Location.** On the south shore of Lake Superior in Wisconsin at the mouth of Oronto Creek, 27 miles southeast of the harbor at Bayfield, WI, and 21 miles westerly of the harbor at Black river, MI; 99 miles east of Duluth-Superior Harbor and 60 miles west of Ontonagon Harbor, MI. (See NOAA Nautical Chart 14965.)

**Previous Project.** For details see page 1254 of Annual Report for 1962.

**Existing Project.** Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and diversion of Oronto Creek to Parkers Creek by three short reaches of channel excavation and a levee. For detailed dimensions of features see page 1025 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** One wharf 300 feet long on the east side of present harbor basin constructed by local interests.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $11,055. A contract for maintenance dredging was awarded and completed this FY, removing approximately 4,500 cubic yards of material at a cost of $207,800. Engineering, design and supervision and administration cost $6,800.

The project was completed in March 1968. A reconnaissance report was completed in August 1971 concerning erosion of the shoreline west of the harbor. Navigation structures are in good condition. Total cost of the existing project to end of FY was $2,187,672, of which $711,777 was for new work and $1,475,895 for maintenance. The new work cost does not include $50,193 contributed funds.

## 54. SEBEWAING RIVER, MI

**Location.** At mouth of Sebewaing River on south shore of Saginaw Bay about 10 miles south of Bay Port, MI. (NOAA Nautical Chart 14863).

**Previous Report.** For details see page 1007 of Annual Report for 1912.

**Existing Project.** Provides for an entrance channel 8 feet deep, 100 feet wide, and about 15,000 feet long in Saginaw Bay. (See Table 21-B for authorizing legislation).

**Terminal Facilities.** A number of small wharves used by fishing vessels and other light-draft craft are along the river. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces and contract cost $83,247. A contract for maintenance dredging was awarded and completed this FY, removing approximately 20,720 cubic yards of material at a cost of $441,752. Engineering, design and supervision and administration cost $32,289.

Existing project was completed in 1903. Total cost of the existing project to end of FY was $5,005,150 of which $35,573 was for new work and $4,969,577 for maintenance.

## 55. SOUTH HAVEN HARBOR, MI

**Location.** On east shore of Lake Michigan, 77 miles northeasterly from Chicago, IL, and 24 miles northerly from St. Joseph, MI. (See NOAA Nautical Chart 14906.)

**Previous Project.** For details see page 1947 of Annual Report for 1915, and page 1473 of Annual Report for 1938.

**Existing Project.** An entrance channel protected by parallel piers and revetments at mouth of Black River, a river channel and a turning basin. Project depths are 21 feet in entrance channel and 19 feet in river channel and turning basin. For additional details see page 1455 of Annual Report for 1962. The turning basin feature was subsequently deauthorized by Section 116 of the WRDA of 1992 (PL 102-580). (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Several wharves for handling coal, building materials, wood-pulp, fish, and miscellaneous commodities; two have warehouses. Facilities satisfy current commerce requirements.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $22,995. The contract for maintenance dredging awarded last FY was completed at the end of this FY, removing approximately 37,434 cubic yards of material at a cost of $232,995.

Existing project was completed in 1960. Project now being maintained to 14-foot and 12-foot depths, respectively (in lieu of the 21 feet and 19 feet authorized), which is adequate for current usage. For additional details on completion of existing project see page 1456 of Annual Report for 1962. Navigation structures are in good to fair condition and are under repair. Total cost of the existing project to end of FY was $13,940,427, of which $984,426 was for new work, $11,281,544 for maintenance, $42,381 for diked disposal and $1,632,076 for rehabilitation.

## 56. STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI

**Location.** On west shore of Lake Michigan about 52 miles northeast of Green Bay and about 128 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14919.)

**Previous Project.** See page 1373 of Annual Report for 1962.

**Existing Project.** See Chicago District Annual Report for 1979, Table 31-C, page 30-27. For detailed description, see page 1223, Annual Report for 1963. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** As the canal and connecting channel is a through waterway, only terminal facilities are in city of Sturgeon Bay, 4 miles from west end of revetted portion of canal. These facilities consist of two wharves for handling coal, petroleum products and miscellaneous commodities, and four shipbuilding yards. City of Sturgeon Bay provided a public wharf about 5 miles northwesterly from city of Sturgeon Bay. Two major shipyards are located in Sturgeon Bay where repair facilities are available including dry docks, marine railways and hoists. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Operation and maintenance of the recreation facilities by Government forces cost $30,549. Cost associated with the Silent Inspector Program (GPS unit) cost $4,620. Hydrographic surveying and obstruction location operations performed by hired labor cost $26,989. The contract for maintenance dredging awarded last FY was completed at the end of this FY, removing approximately 29,018 cubic yards of material at a cost of $544,292. American Recovery & Reinvestment Act (ARRA) funds of $689,469 were used for awards of maintenance dredging and structural repair contracts, sediment sampling, value engineering study, silent inspector program, engineering, design and supervision and administration.

Navigation structures are in good to fair condition, the South Revetment, Section N, is in poor condition and is programmed for major repair. Total cost of the existing project to end of FY was $16,466,783 of which $1,059,722 was for new work, $13,521,574 for maintenance, $311,119 for diked disposal, $884,899 for rehabilitation and $689,469 for American Recovery & Reinvestment Act (ARRA). In addition, between April 25, 1893, and June 30, 1917, $235,940 was expended for operating and care of works of improvements under provision of permanent indefinite appropriations for such purposes.

## 57. TWO HARBORS, MN

**Location.** Harbor is on north shore of Lake Superior, 27 miles northeasterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

**Existing Project.** Narrowing natural entrance by construction of two breakwaters, 1,628 and 900 feet long, from eastern and western points of bay, respectively; and dredging a maneuvering area on north side of harbor to 28 and 30 feet deep. A walkway on

east breakwater is provided for public recreational use. For details see page 1026 of Annual Report for 1965. Dredging to deepen areas along easterly and northerly edges of channel was completed in 1980. This portion of project was reclassified from the "inactive" to "active" category in 1973. (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with. A section 221 local cooperation agreement was entered into with the City of Two Harbors on August 14, 1978.

**Terminal facilities.** No publicly owned wharves. Three ore docks, tug wharf, an unused coal dock, and merchandise wharf are privately owned. Detail on actual port and harbor facilities is in Port Series No. 49 (revised 1999) prepared and published by the Water Resources Support Center. Facilities considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $8,027. Repairs to the breakwater were performed using the Derrickbarge SCHWARTZ at a cost of $272,440.

The existing project is complete. Navigation structures are in good condition. Total cost of the existing project to end of FY was $10,226,633, of which $4,170,710 was for new work and $6,055,923 for maintenance.

## 58. TWO RIVERS HARBOR, WI

**Location.** On west shore of Lake Michigan about 82 miles north of Milwaukee and about 101 miles from Green Bay, WI, via Sturgeon Bay Canal. (See NOAA Nautical Chart 14903.)

**Previous Project.** See page 1377, Annual Report for 1962.

**Existing Project.** See Chicago District Annual Report for 1979, Table 30-C, page 30-28.

For detailed description see page 1226 of Annual Report for 1963. Completed project cost $147,463, exclusive of the amount expended on previous projects. The 1935 River and Harbor Act portion of project is essentially complete, except for dredging a 10-foot width along each side of the entrance channel between the piers. The uncompleted portion of the project authorized by the 1935 R & H Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** A coal wharf and several fishing wharves. City provided a wharf for receipt of petroleum products and public use. Facilities considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys and sediment sampling performed by Government forces and contract cost $40,197. A contract for maintenance dredging was awarded and completed this FY, removing approximately 89,250 cubic yards of material at a cost of $578,595. Engineering and design cost $137,383. The contract for structural repairs to the North Pier awarded last FY was completed at a cost of $826,621. Supervision and administration and real estate activities cost $11,832.

Existing project is complete except for portion deauthorized in December 1989. Present width of channel is considered adequate for present and reasonably prospective commerce. North Pier was completed in 1908. North Revetment, completed in 1917, was rebuilt in May to August 1962. Dredging entrance channel and inner basin to existing project depth was commenced in March and substantially completed in May 1937. Navigation structures range from fair to good condition and are under repair. Total cost of the existing project to end of FY was $16,201,970, of which $360,320 was for new work, $14,596,121 for maintenance, $1,187,472 for diked disposal and $58,057 for minor rehabilitation

## 59. WHITEFISH POINT HARBOR, MI

**Location:** On south shore of Lake Superior 40 miles northwesterly from Sault Ste. Marie, MI and 53 miles easterly from Grand Marais, MI. (See NOAA Nautical Chart No. 14962).

**Existing project.** Provides for a harbor of refuge protected by two breakwater structures and for dredging a harbor basin and entrance channel, 12 feet deep. The addition of a 270-foot wave absorbing breakwater inside the harbor was approved by the Chief of Engineers on August 17, 1967 to correct a design deficiency. (See Table 21-B for authorizing legislations).

**Local cooperation.** Fully complied with.

**Terminal facilities**. There is one privately owned fishing wharf and a small boat pier and launching ramp built by the State of Michigan. Facilities are considered adequate for existing commerce.

**Operations During Fiscal Year.** Maintenance: Condition surveys performed by Government forces cost $3,860. Cost associated with the Silent Inspector Program (GPS unit) and engineering and design cost $13,254.

Existing project was completed in 1960. The interior breakwater and repairs to the shore connection were accomplished by contract during FY 1969. Remaining structures are in generally good condition. Total cost for existing project to end of FY was $1,586,202 of which $771,639 was for new work and $814,563 for maintenance.

## 60. RECONNAISSANCE AND CONDITION SURVEYS

See Table 21-J.

## 61. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 21-C.

## 62. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-K.

# BEACH EROSION CONTROL

## 63. AUTHORIZED BEACH EROSION CONTROL PROJECTS

**River and Harbor Act of 1962, as amended, Beach Erosion Control.** None.

## 64. EMERGENCY SHORE PROTECTION

See Table 21-L.

## 65. BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-M.

## 66. MITIGATION OF SHORE DAMAGES

See Table 21-N.

## 67. PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

See Table 21-O

# FLOOD CONTROL

## 68. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

| NAME OF PROJECT | DATE OF INSPECTION |
|---|---|
| Paw Paw River & Lake, MI……..... | May 2009 |
| Mt. Clemons, Clinton River Spillway, MI... | June 2009 |
| Red Run Drain, Clinton River, MI……... | June 2009 |
| Rouge River, MI……..... | July 2009 |
| Sebewaing, MI…….. | Aug 2009 |

**Operations During Fiscal Year.** Maintenance: Miscellaneous inspections and reports performed by Government forces and contract cost $297,137.

Total cost to the end of FY was $5,030,154.

## 69. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 21-E.

## 70. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

**Emergency Flood Control Activities, Flood Fighting (Public Law 84-99 and PL 93-288 and Antecedent Legislation).**

| Project and Location | FY Cost for Sep 30, 2009 |
|---|---|
| Disaster Preparedness | $379,662 |

**Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.**

See Table 21-P.

**Flood control activities pursuant to Section 208 of the 1954 Flood Control Act.** Snagging and clearing activities pursuant to Section 208 of the Flood Control Act of 1954, as amended. None.

## 71. REGULATORY FUNCTIONS PROGRAM

| | |
|---|---|
| Permit Evaluation | $4,547,977 |
| Enforcement | $ 902,679 |
| Administrative Appeals | $ 4,670 |
| Compliance | $598,431 |
| Total Regulatory | $6,053,757 |

## 72. SURVEILLANCE OF NORTHERN BOUNDARY WATERS AND INTERNATIONAL WATER STUDIES

**International Activities.** The Detroit District has successfully supported the International Joint Commission (IJC) for many years. This has included numerous engineering and scientific assignments supporting the Commission's boards of control, working committees, and study boards.

The Detroit District conducted the following activities, specifically for the IJC Boards and Committees:

**a. Semi-Annual Meetings.** Members of the Detroit District staff attended the semi-annual meetings of the three Great Lakes Boards of Control. They also attended the spring and fall appearances of the Boards before the IJC, in Windsor, Ontario, in April 2009, and the fall appearances, in Ottawa, Ontario in October 2009.

**b. International Lake Superior Board of Control.** The Detroit District Engineer is the United States Regulation Representative of this Board. In support of the U.S. Section of the Board, the District provided monthly Lake Superior outflow recommendations based upon a review of the hydrologic factors that influence the monthly regulation decisions for Lake Superior. These recommendations were based upon the use of probability forecasts of water supplies routed through the lakes using the approved operating regulation plan, Plan 1977-A. Plan 1977-A has been in operational use since June 1990.

Lake Superior water supplies were about 14% below average for FY 2008 and the water levels remained below the long term average levels for that lake. This continued the longest consecutive period of below average monthly levels in the 1918-2008 period of record. The level of the lake ended FY 2009 about 3 inches closer to its long term average. This was mostly due to below average evaporation during the April through August period and well above average precipitation in August. The Board is required by the IJC to hold at least one public meeting each year to inform them of the Board's activities and to solicit feedback regarding activities and current issues. As such, the District participated in the Board's FY 2009 annual meeting held in Sault Ste Marie, Michigan. A presentation was made, discussing the current water levels conditions, future trends and the Board's role in water level management. After the presentation, questions and general discussion was held between all interested parties. The District also disseminates extensive Board information to the public, the media and user interests via news releases, letters and the Board's web page.

Hydropower peaking and ponding causes flow and water level variations in the St. Marys River downstream of the power plants. With water levels and Lake Superior outflows below average, these fluctuations have become a concern to commercial navigation. The District continues to provide significant technical support to the Board to evaluate this issue and make a recommendation on peaking and ponding operations. In March 2006, the IJC approved continuation of peaking and ponding indefinitely, subject to prior approval by the Board at the beginning and middle of each month. This approval is basically for five years, or until completion of the International Upper Great Lakes Study is completed. District staff provide ongoing technical support to the Board for these peaking and ponding recommendations.

**c. International Niagara Board of Control, International Niagara Working Committee, and International Niagara Committee.** The District provides direct technical support and consulting engineering services to this Board and its Committees. The Chief of the Great Lakes Hydraulics and Hydrology Office is a member of the Niagara Working

Committee. Under the auspices of the Committee, the Detroit District, with Canada, computes, coordinates, and publishes the monthly flows in the Niagara River.

The Detroit District and the Water Survey of Canada routinely conduct discharge measurements in the lower Niagara River at the Cableway Section. This is part of a continuing effort to verify the Ashland Avenue stage-discharge equations. The Ashland Avenue equations are used to compute the flow out of the Maid-of-the-Mist Pool, which encompasses the total flow over the American and Canadian Falls, to ensure that the hydropower plants operate within the terms of the Niagara Treaty. As a result of analysis performed on ADCP data collected since 2000, it was recommended that the Ashland Avenue rating equation be updated. During the past year, work was done to finalize the newly accepted equation which will be implemented in January 2010. Discharge measurements at the Cableway Section, to verify the Ashland Avenue rating curve, are scheduled every three years with the next measurements set for 2010.
Discharge measurements are also made routinely in the Welland Canal. These are part of the continuing effort to verify the ratings for the Welland Canal supply weir. Data collected to date indicates that the present equations may be underestimating the flow. Revision of the ratings is being evaluated. The last sets of measurements were made in 2007 and the next measurements at this section are scheduled for 2010, in accordance with the three-year schedule.

Due to the dynamic nature of the Niagara River at the Niagara Falls, the District is also involved with periodic verification of the rating curves for the flow in the American Falls Channel and for the Niagara River flow out of Lake Erie. Discharge measurements are made in the American Falls Channel on a five-year schedule. Due to an alteration of the bridge used for measurements, alternate sites and different technologies needed to be investigated for the measurement series that was originally scheduled for 2005. In the spring of 2007, a set of measurements were taken, upstream of the original bridge location, at the American Falls NOAA water level gauge. This section allowed for use of a tethered boat with a bottom mounted ADCP. The next set of measurements is scheduled for 2012.

Discharge measurements are made at the International Railway Bridge Section to verify the rating equations for the flow out of Lake Erie. The rating equation based on the Buffalo gage was recently revised based on measurements collected at this section since 1974. Measurements are made at the International Railway Bridge Section on a three-year schedule. The last set of measurements was made in 2009, and the next is scheduled for 2012.

District staff is heavily involved in the International Upper Great Lakes Study. This study has two main objectives. The first focuses on reviewing IJC Orders of Approval for Lake Superior outflow regulation and water level impacts on affected interests in the upper Great Lakes system from Lake Superior downstream through Lake Erie. The second objective has the team looking at possible physical changes in the upper St. Clair River which could impact water level changes on the upstream (Michigan-Huron) and downstream lakes (St. Clair and Erie). The study, which began in FY 2007, has several District staff actively involved on multiple technical working groups (TWG) including the Hydraulic Modeling TWG, Data Verification TWG, Coastal TWG, Plan Formulation and Evaluation TWG and Adaptive Management TWG. The St. Clair River portion of the study is expected to be completed in FY 10.

**d. Great Lakes Basin Studies. Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data.** The Chief of the Great Lakes Hydraulics and Hydrology Office is the U.S. Secretary to this Committee. The two Branch Chiefs hold membership on the three subcommittees: the Vertical Control-Water Levels, Hydraulics, and Hydrology.
The District continued its support of Committee operations pertaining to the coordination of basic hydraulic and hydrologic data with Canada. District efforts have also continued to closely coordinate the formats of the U.S. and Canadian water level bulletins in order to avoid confusion and to better inform the public.

The Hydrology Subcommittee continues to work on issues related to the coordination of precipitation data. Multiple government agencies involved with the Coordinating Committee all create and use various precipitation data products for their respective missions. Detroit District staff is comparing various precipitation estimating techniques to improve provisional precipitation estimates.

During FY 2009, the District continued development and/or supported development of 1- and 2-dimensional hydrodynamic models of all the Great Lakes connecting channels. These models can be used to analyze effects of dredging, channel encroachments, and any other changes to river cross-sections. These models will also serve as valuable tools in answering the many “what if” questions that are asked about the rivers.

**Field Operations.** In addition to field operations conducted in support of the IJC, and as a continuing and ongoing mission, the Detroit District conducts hydraulic flow measurements throughout the Great Lakes Connecting Channels and St. Lawrence River system. This capability is unique among the Corps Districts (and other federal agencies) on the Great Lakes. During FY 2009, the Detroit District continued gathering hydraulic data using the ADCP (Acoustic Doppler Current Profiler) instrumentation at several sections on the lower St. Marys River, the upper and lower Detroit River, the St. Clair River, and the Niagara River. These hydraulic data sets are currently being used to develop two-dimensional flow models of the river systems, and to help refine the flow retardation estimates for weed conditions through the growing season.
As an ongoing mission, during the winter months the District monitors the extent of ice in the St. Marys, St. Clair, and Detroit Rivers. Water levels are monitored continuously at key water level gages in these rivers to detect possible ice jams and potential flooding. The Corps and other governmental agencies, including the National Weather Service and the Coast Guard, can use this information to provide advance warning to area residents and to trigger emergency actions. Currently, data are obtained through phone access of these gages or from a satellite data relay to the District's water management data system and remote laptop personal computers. These systems provide water level information to the District office within minutes of data collection.

**Water Management Data System.** In FY 2009, the Detroit District continued to provide an extensive variety of water management products for the entire Great Lakes system, based on the water level gage network, on its Internet web pages. Weather information and meteorological data are also received and processed within the District and available on the Internet. The Detroit District has 21 active data collection platforms (DCPs). In FY 2009, the District furthered work on verifying horizontal and vertical control for its water level gages to ensure accurate readings.

**Great Lakes Hydrology.** The Great Lakes Hydraulics and Hydrology Office uses water supply forecasts routinely in forecasting water levels on all the Great Lakes and regulating the outflows from Lake Superior. Studies to improve the existing Great Lakes water level forecasting system, including investigations into the factors affecting the Great Lakes water balance relationship (i.e., runoff, over-lake precipitation, evaporation, ice retardation, etc.) and use of real-time hydrologic data such as the new National Weather Service Doppler radar networks were continued during FY 2009. Work continued with the Cold Regions Research and Engineering Laboratory (CRREL) to improve snow water equivalent estimates used for supply forecasting.

**Great Lakes Water Levels.** The Great Lakes Hydraulics and Hydrology Office continued to make routine short-term (30 day) and long-term (six month) Great Lakes still water level forecasts. These forecasts are distributed in the form of weekly, semi-monthly and monthly news releases and bulletins. The Monthly Bulletin of Lake Levels for the Great Lakes, containing a six-month projection of Great Lakes water levels, has a circulation of about 5,000 copies per month by mail and 1,000 by email. Included with the monthly bulletin on a quarterly basis is an informational enclosure entitled Great Lakes Update, which covers various topics of interest pertaining to the water resource management of the Great Lakes.

Water levels for Lake Superior and Lake Michigan-Huron were higher in 2009 than they were in 2008, but both lakes remain below their respective long-term averages. December saw the highest levels to end a year since 2005 on Lake Superior and 1998 on Lake Michigan-Huron. Lake Erie was above its long-term average during all of 2009, while on Lake Ontario only October, November and December saw below average water levels. Office personnel provided essential expertise regarding water level forecasts, recorded lake levels, and the potential impacts of these water levels on interested parties. These parties include members of Congress, state and local officials, news media, navigation and power interests, property owners, and recreational boaters. Water level information is supplied to the public via the District's web pages, telephonic and written responses to inquiries, presentations to various interest groups, and interviews with the news media.

The total cost for FY 2009 under the Surveillance of Northern Boundary Waters was $2,883,063.

## MULTIPLE-PURPOSE PROJECTS INCLUDING POWER

## 73. ST. MARYS RIVER, MI

**Location.** A Great Lakes connecting channel about 63 miles long, flows southeasterly between State of Michigan and Providence of Ontario, Canada, from eastern end of Lake Superior into northern end of Lake Huron. (See NOAA Nautical Charts 14882, 14883,

and 14884.) At Sault Ste. Marie, MI, about 14 miles downstream from Lake Superior, there are four parallel locks and a hydroelectric power plant.

**Previous Project.** For details see page 1955, Annual Report for 1915; and page 1529, Annual Report for 1938.

**Existing Project.** Channels permitting 25.5-foot draft navigation in St. Marys River and Lake Superior and Lake Huron approaches thereto; constructing and operating four locks and two canals; constructing an electric plant of 14,000 kilowatt capacity (45,000 kilowatt ultimate capacity) constructing anchorage areas in river above and below locks; and constructing various other works in conjunction with project. Subsequently, in 1932, the Unit 10 powerhouse was installed raising the capacity to 18,400 kilowatts (45,000 ultimate capacity). Original State Locks were operated and maintained under permanent indefinite appropriation from Jun. 9, 1881, to Nov. 2, 1886, after which they were destroyed by excavation for the Poe Lock in 1896.

Weitzel Lock, destroyed in 1942 by excavation for the MacArthur Lock, was operated and maintained under the same appropriation from Sep. 1, 1881, to Jun. 30, 1935. Poe Lock was operated and maintained under the same appropriation from Aug. 3, 1896, Davis Lock from Oct. 21, 1914, and Sabin Lock from Sep. 18, 1919, to end of FY 1935. The 1,200-foot by 110-foot new Poe Lock was authorized in 1962 and put into operation in 1968. Details of existing project are set forth in Table 21-F.

Project depths are referred to low water datum corresponding to sloping surface of river as follows: Above locks: When water surface of Lake Superior is at elevation 601.1 feet and at upstream side of locks is 600.6 feet above mean water level at Rimouski, Quebec, IGLD 1985. Below locks: When water surface at downstream side of locks is at elevation 578.4 feet and Lake Huron is 577.5 feet above mean water level at Rimouski, Quebec, IGLD 1985. Estimated (1974) cost for new work is $163,087,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized construction of a second lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks. Material removed during construction of the replacement lock will be placed on the Northwest Pier to serve as a windbreak for downbound vessels approaching the lock. Estimated cost (Oct. 90) is $174,200,000 Federal and $93,800,000 non-Federal.

**Local Cooperation.** Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as follows:

(a) Provide without cost to the United States all lands, easements, and rights-of-way necessary for implementation and later maintenance of the proposed project, and for aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and later disposal of dredged/demolition material and including necessary retaining dikes, bulkheads, and embankments therefore, or the costs of such retaining works;

(b) Hold and save the United States free from damages due to the implementation and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors;

(c) Accomplish without cost to the United States such alterations and relocations of pipelines, powerlines, cables, sewer, water supply, drainage, and other utilities, structures, and improvements made necessary by the project. (Any such costs of the items on Federal property at the locks, would be part of the total construction cost and not separable local sponsor cost.);

(d) Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at $67,000,000. The estimated cash contribution of $67,000,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

(e) Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at $26,800,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal

sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

(f) Any construction needed to prevent/mitigate for erosion or shoaling attributed to the lock would be cost shared in the same proportion as the project.

**Terminal Facilities.** This improvement serves through commerce between Lake Superior and lower lakes and has not materially influenced terminal facilities at localities along its route. Three piers at Sault Ste. Marie receive coal and petroleum products. Limestone is shipped from a pier at Drummond Island. Vessel refueling stations are at Lime Island and village of DeTour; they receive coal and petroleum products. Present terminals satisfy current traffic requirements.

**Operations During Fiscal Year.** New Work: Construction of a replacement lock. The St. Marys River project includes four navigation locks: MacArthur, Poe, Davis and Sabin. Currently, the MacArthur and Poe service loaded commercial vessel traffic. The Davis Lock is rarely used and the Sabin Lock is in disrepair and has been closed for several years. The new lock will replace the Davis and Sabin Locks in the North Canal of the St. Marys Falls Canal. As a minimum, the new lock would have the same dimensions as the 1200-foot by 110-foot Poe Lock. The Water Resources Development Act 2007 authorizes construction of the new lock at Federal Expense.

FY09 funds in the amount of $4,099,794 were expended to continue work on the plans and specifications for the coffer dam contract package and down stream channel excavation contract package. Design efforts also continued on the approach walls and up stream channel excavation plans and specifications, as well as the lock chamber plans and specifications. The Record of Decision (ROD) was signed 27 February 2009. A contract for installation of the coffer dams was awarded to TAB Construction Company on 4 June 2009, in the amount of $1,996,726. Additionally, a contract for the down stream channel excavation was awarded to Kokosing Construction Company (Durocher Marine) on 4 August 2009 in the amount of $6,915,000. Also, to support design efforts model testing, by ERDC, continued on the lock filling/emptying system.

American Recovery & Reinvestment Act funds of $184,387 were used for award of Stop Log contract.

Operations, maintenance, and care of locks: Two canals and three locks were operated (the fourth lock, Sabin, was in caretaker status) as required. Necessary repairs and improvements were made thereto and to appurtenant structures and equipment. Canals were open to navigation 297 days during the period 1 October 2008 through 30 September 2009. A total of 6,928 vessels, aggregating 55,883,764 short tons of freight and 101,461 passengers passed through the MacArthur, Davis and Poe Locks. Total cost for operation, maintenance, and care of the locks during the FY was $13,975,898.

Powerhouse and equipment: A total of 167,278,600 kilowatt-hours of power was generated this FY. Income from the sale of power, sent to the U.S. Treasury, amounted to $1,674,977. Total cost of operation and maintenance for two hydroelectric powerhouses during the FY was $601,748.

Other operation and care items: Buildings and grounds were operated and maintained; condition surveys, operations studies, environmental activities, safety compliance, archeological and cultural management, real estate, and miscellaneous inspections and reports were performed by Government forces and contract at a cost of $2,134,778. The contract awarded this FY for repairs to the Stop Logs cost $703,092. A contract for maintenance dredging was awarded and completed this FY removing approximately 18,167 cubic yards of material at a cost of $605,038. Engineering and design cost $64,379.

Channels and canals: St. Marys River channels and canal approach depths were surveyed by sweeping. Location and removal of obstructions were performed by hired labor using the U.S. Derrickbarge NICOLET and the U.S. Cranebarge HARVEY at a cost $3,018,297.

Recreational facilities: Information center, Visitors center, comfort stations, park fountain, and observation and overlook platforms were operated and maintained at a cost of $320,017. Visitors entering the Soo Locks Visitors Center numbered 294,591. Visitors to the observation platforms overlooking the locks numbered 212,677. Total visitors to the Soo Locks Park numbered 289,240. A grand total of 390,810 people (includes tour boat visitors of 101,398) visited the Soo Locks.

Total project costs in FY09 amounted to $21,423,247.

Project in effect prior to modification of March 21, 1956, is complete and work authorized by 1956 modification to provide a safe draft of 25.5 feet for both upbound and downbound traffic is also complete.

Public Works Acceleration Funds used for maintenance were $118,000. Total cost of the existing project to end of FY was $750,019,549, of which $176,374,465 was for new work, $573,460,697 for maintenance (includes $340,400 contributed funds) and $184,387 for American Recovery & Reinvestment Act (ARRA).

## GENERAL INVESTIGATIONS

## 74. SURVEYS

| Project and Location | FY Cost for Sep 30, 2009 |
|---|---|
| **Reconnaissance and Feasibility Studies** | |
| Great Lakes Navigation System, MI | $377,183 |
| John Glen Great Lakes Basin Program, MI | $9,066 |
| Lansing, MI | $5,137 |
| **Watershed and Ecosystem Restoration Reconnaissance and Feasibility Studies** | |
| Rouge River Supplemental Study, MI | $406 |
| **Coordination Studies with Other Agencies** | |
| Coop w/Other Water Agencies | $3,248 |
| FERC Licensing Activities | $1,990 |
| Interagency Water Resources Development | $16,000 |
| North American Water Fowl Mgmt Planning | $3,447 |
| National Estuary Studies | $6,744 |
| Special Investigations | $32,141 |
| **Sec 22 Planning Assistance to States & Tribes:** | |
| Great Lakes Remedial Action Program | $162,510 |

Federal amount shown, studies cost shared equally with partner include:

| | |
|---|---|
| PAS Macomb Co. GIS | $111,809 |
| PAS Negotiation Funds, MI | $17,172 |
| PAS Onieda Nation GIS | $48,734 |
| PAS Grand Beach, MI | $29,692 |

## 75. COLLECTION AND STUDY OF BASIC DATA

| Project and Location | FY Cost for Sep 30, 2009 |
|---|---|
| Flood Plain Mgmt Services Program | |
| FPMS Unit | $96,767 |
| Technical Services | $59,935 |
| Quick Responses | $5,409 |

**No Federal Emergency Management Agency's Community Assistance Program Study or Flood Insurance Studies in FY09.**

International Water Studies…… $24,516

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 1. | Arcadia Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 0 |
| | | Cost | 0 | 0 | 0 | 0 | 0 |
| | | Maintenance | | | | | |
| | | Approp. | 63,260 | 71,000 | 6,020 | 103,500 | 6,134,291 |
| | | Cost | 63,616 | 71,000 | 6,020 | 79,252 | 6,100,632 |
| 2. | Ausable Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 209,776[1] |
| | | Cost | 0 | 0 | 0 | 0 | 209,776[1] |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 223,000 | 0 | 3,411,212 |
| | | Cost | 0 | 0 | 218,474 | 4,526 | 3,411,212 |
| 3. | Bay Port Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 93,567 |
| | | Cost | 0 | 0 | 0 | 0 | 93,567 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 60,000 | 746,296[2] |
| | | Cost | 0 | 0 | 0 | 19,804 | 706,100[2] |
| | | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 137,399 |
| | | Cost | 0 | 0 | 0 | 0 | 137,399 |
| 4. | Big Bay Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 396,943[3] |
| | | Cost | 0 | 0 | 0 | 0 | 396,943[3] |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 190,000 | 0 | 1,895,986 |
| | | Cost | 0 | 0 | 152,172 | 24,248 | 1,882,406 |
| 5. | Black River Harbor, MI (U.P.) | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 383,350[4] |
| | | Cost | 0 | 0 | 0 | 0 | 383,350[4] |
| | | Maintenance | | | | | |
| | | Approp. | 5,626 | 0 | 20,299 | 245,000 | 1,442,070 |
| | | Cost | 5,626 | 0 | 20,299 | 151,239 | 1,346,539 |
| 6. | Bolles Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 217,916 |
| | | Cost | 0 | 0 | 0 | 0 | 217,916 |
| | | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 255,000 |
| | | Cost | 0 | 0 | 0 | 0 | 255,000 |
| | | Maintenance | | | | | |
| | | Approp. | 4,908 | 6,883 | 177,000 | 0 | 4,350,185 |
| | | Cost | 4,908 | 6,883 | 32,992 | 144,008 | 4,350,185 |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 7. | Caseville Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 293,657 |
| | | Cost | 0 | 0 | 0 | 0 | 293,657 |
| | | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 293,657 |
| | | Cost | 0 | 0 | 0 | 0 | 293,657 |
| | | Maintenance | | | | | |
| | | Approp. | 120,268 | (57,000) | (59,000) | 575,000 | 2,936,985 |
| | | Cost | 3,369 | 0 | 0 | 28,792 | 2,389,878 |
| 8. | Charlevoix Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 180,623 |
| | | Cost | 0 | 0 | 0 | 0 | 180,623 |
| | | Maintenance | | | | | |
| | | Approp. | 79,000 | 137,000 | 174,000 | 179,340 | 11,738,118 |
| | | Cost | 79,000 | 111,939 | 198,094 | 177,154 | 11,734,965 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,129,396 |
| | | Cost | 0 | 0 | 0 | 0 | 1,129,396 |
| 9. | Clinton River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 260,046[5] |
| | | Cost | 0 | 0 | 0 | 0 | 260,046[5] |
| | | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 289,752 |
| | | Cost | 0 | 0 | 0 | 0 | 289,752 |
| | | Maintenance | | | | | |
| | | Approp. | 31,890 | 6,883 | 460,000 | 449,820 | 9,756,829[6] |
| | | Cost | 243,928 | 10,121 | 53,659 | 356,425 | 9,257,093[6] |
| 10. | Cornucopia Harbor, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 462,653 |
| | | Cost | 0 | 0 | 0 | 0 | 462,653 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 91,000 | 10,595 | 1,681,108 |
| | | Cost | (296) | 5,747 | 10,889 | 55,985 | 1,646,388 |
| 11. | Detroit River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 76,877,357[7] |
| | | Cost | 0 | 0 | 0 | 0 | 76,877,357[7] |
| | | Maintenance | | | | | |
| | | Approp. | 2,993,000 | 4,712,000 | 4,314,000 | 4,846,100 | 206,496,737[8] |
| | | Cost | 2,981,549 | 4,244,621 | 4,578,182 | 3,207,888 | 204,629,368[8] |
| | | Maintenance | | | | | |
| | Contributed Funds | Contrib. | 0 | 0 | 0 | 0 | 361,235 |
| | | Cost | 0 | 0 | 0 | 0 | 361,235 |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 12. | Duluth-Superior Harbor, MN & WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 16,894,658[9] |
| | | Cost | 0 | 0 | 0 | 0 | 16,894,658[9] |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 331,685 |
| | | Cost | 0 | 0 | 0 | 0 | 331,685 |
| | | Maintenance | | | | | |
| | | Approp. | 4,666,000 | 4,628,529 | 4,759,242 | 4,491,527 | 113,219,148[10] |
| | | Cost | 4,524,364 | 3,226,341 | 3,941,647 | 4,703,627 | 111,045,542[10] |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 11,555,410 |
| | | Cost | 0 | 0 | 0 | 0 | 11,555,410 |
| 13. | Fox River, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 3,753,334[11] |
| | | Cost | 0 | 0 | 0 | 0 | 3,753,334[11] |
| | | Maintenance | | | | | |
| | | Approp. | 1,466,000 | 2,138,000 | 4,239,000 | 3,575,040 | 106,429,354[12,13] |
| | | Cost | 1,407,246 | 1,259,059 | 4,108,424 | 4,303,824 | 106,082,860[12,13] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 8,195,000 | 8,195,000 |
| | | Cost | 0 | 0 | 0 | 939,846 | 939,846 |
| 14. | Frankfort Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,923,450 |
| | | Cost | 0 | 0 | 0 | 0 | 1,923,450 |
| | | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 31,709 |
| | | Cost | 0 | 0 | 0 | 0 | 31,709 |
| | | Maintenance | | | | | |
| | | Approp. | 38,170 | 0 | 127,373 | 343,550 | 12,809,335[14] |
| | | Cost | 38,170 | 0 | 127,373 | 341,061 | 12,806,846[14] |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 274,776 | 274,776 |
| | | Cost | 0 | 0 | 0 | 274,776 | 274,776 |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 15. | Grand Haven Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 123,000 | 0 | 1,406,469[15] |
| | | Cost | 0 | 0 | 0 | 75,517 | 1,358,986[15] |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 175,000 |
| | | Cost | 0 | 0 | 0 | 0 | 175,000 |
| | | Maintenance | | | | | |
| | | Approp. | 1,638,000 | 459,519 | 607,713 | 1,193,640 | 40,839,259[16] |
| | | Cost | 1,646,389 | 391,049 | 642,240 | 645,703 | 40,257,345[16] |
| | Contributed Funds | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 15,585 |
| | | Cost | 0 | 0 | 0 | 0 | 15,585 |
| | Section 111 | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 3,113,087 |
| | | Cost | 0 | 0 | 0 | 0 | 3,113,046 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 813,613 |
| | | Cost | 0 | 0 | 0 | 0 | 813,613 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,459,999 | 1,459,999 |
| | | Cost | 0 | 0 | 0 | 555,458 | 555,458 |
| 16. | Grand Marais Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,055,871 |
| | | Cost | 0 | 0 | 0 | 0 | 1,055,871 |
| | | Maintenance | | | | | |
| | | Approp. | 805,000 | 498,000 | 935,000 | 0 | 5,378,830 |
| | | Cost | 267,442 | 41,754 | 53,567 | 22,037 | 3,525,630 |
| 17. | Grand Marais Harbor, MN | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 450,972 |
| | | Cost | 0 | 0 | 0 | 0 | 450,972 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 456,332 | 24,081 | 3,075,080 |
| | | Cost | 0 | 0 | 67,839 | 411,525 | 3,074,031 |
| 18. | Grand Traverse Bay Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 266,037 |
| | | Cost | 0 | 0 | 0 | 0 | 266,037 |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 63,528 |
| | | Cost | 0 | 0 | 0 | 0 | 63,528 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 5,883 | 0 | 292,398 | 2,981,989 |
| | | Cost | 0 | 5,883 | 0 | 130,890 | 2,820,481 |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 19. | Grays Reef Passage, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 190,521 |
| | | Cost | 0 | 0 | 0 | 0 | 190,521 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 93,000 | 163,660 | 1,197,594 |
| | | Cost | 0 | 0 | 69,584 | 182,148 | 1,185,342 |
| 20. | Green Bay Harbor, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 123,000 | 909,000 | 10,978,395[17,18] |
| | | Cost | 0 | 0 | 108,557 | 124,810 | 10,179,762[17,18] |
| | | Maintenance | | | | | |
| | | Approp. | 2,557,000 | 2,602,941 | 4,646,000 | 5,117,156 | 79,468,843[19] |
| | | Cost | 2,506,481 | 2,657,543 | 4,613,137 | 5,110,620 | 79,394,944[19] |
| 21. | Harbor Beach Harbor MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,200,598 |
| | | Cost | 0 | 0 | 0 | 0 | 1,200,598 |
| | | Maintenance | | | | | |
| | | Approp. | 444,000 | 57,000 | 0 | 7,032 | 16,158,031[20] |
| | | Cost | 89,306 | 398,395 | 13,299 | 7,032 | 16,158,031[20] |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 194,504 |
| | | Cost | 0 | 0 | 0 | 0 | 194,504 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 820,000 | 820,000 |
| | | Cost | 0 | 0 | 0 | 122,581 | 122,581 |
| 22. | Holland Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 736,122[21] |
| | | Cost | 0 | 0 | 0 | 0 | 736,122[21] |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 35,705 |
| | | Cost | 0 | 0 | 0 | 0 | 35,705 |
| | Section 111 | New Work | | | | | |
| | | Approp | 0 | 0 | 0 | 0 | 621,000 |
| | | Cost | 0 | 0 | 0 | 0 | 621,000 |
| | | Maintenance | | | | | |
| | | Approp. | 1,202,000 | 553,327 | 460,000 | 685,080 | 35,364,171[22] |
| | | Cost | 1,209,654 | 500,967 | 456,783 | 445,116 | 35,068,530[22] |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 22. | Holland Harbor, MI (Cont'd) | | | | | | |
| | Section 111 | Maintenance | 0 | 0 | 0 | 0 | 2,676,351 |
| | | Approp. | 0 | 0 | 0 | 0 | 2,676,343 |
| | | Cost | | | | | |
| | | Major (or Minor) | | | | | |
| | | Rehabilitation | 0 | 0 | 0 | 502,452 | 502,452 |
| | | Approp. | 0 | 0 | 0 | 502,452 | 502,452 |
| | | Cost | | | | | |
| | | Maint: ARRA | 0 | 0 | 0 | 306,000 | 306,000 |
| | | Approp. | 0 | 0 | 0 | 109,147 | 109,147 |
| | | Cost | | | | | |
| 23. | Inland Route, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 770,222 |
| | | Cost | 0 | 0 | 0 | 0 | 770,222 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 148,000 |
| | | Cost | 0 | 0 | 0 | 0 | 148,000 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 354,000 | 8,392 | 4,461,198[23] |
| | | Cost | 0 | 0 | 26,582 | 324,576 | 4,449,963[23] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,127,000 | 1,127,000 |
| | | Cost | 0 | 0 | 0 | 71,093 | 71,093 |
| 24. | Kewaunee Harbor, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 758,333[24] |
| | | Cost | 0 | 0 | 0 | 0 | 758,333[24] |
| | | Maintenance | | | | | |
| | | Approp. | 255,000 | 0 | 218,324 | 10,533 | 12,401,315[25] |
| | | Cost | 247,732 | 197 | 16,574 | 219,523 | 12,401,305[25] |
| | | Major (or Minor) | | | | | |
| | | Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 617,300 |
| | | Cost | 0 | 0 | 0 | 0 | 617,300 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,701,000 | 1,701,458 |
| | | Cost | 0 | 0 | 0 | 171,458 | 171,458 |
| 25. | Keweenaw Waterway, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 5,974,141 |
| | | Cost | 0 | 0 | 0 | 0 | 5,974,141 |
| | | Maintenance | | | | | |
| | | Approp. | 335,086 | 6,883 | 121,000 | 78,400 | 31,652,629[26] |
| | | Cost | 335,823 | 6,883 | 110,533 | 70,686 | 31,634,425[26] |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 26. | Lake St. Clair, MI, Channels | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 7,675,357[27] |
| | | Cost | 0 | 0 | 0 | 0 | 7,675,357[27] |
| | | Maintenance | | | | | |
| | | Approp. | 162,000 | 87,000 | 93,000 | 142,100 | 14,989,434[28] |
| | | Cost | 161,808 | 78,097 | 80,090 | 160,374 | 14,985,703[28] |
| 27. | Leland Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 672,950 | 672,950 |
| | | Cost | 0 | 0 | 0 | 672,950 | 672,950 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 354,139 |
| | | Cost | 0 | 0 | 0 | 0 | 354,139 |
| | | Maintenance | | | | | |
| | | Approp. | 78,000 | 5,901 | 176,000 | 173,964 | 4,938,971 |
| | | Cost | 78,000 | 5,901 | 175,400 | 170,508 | 4,934,915 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 70,678 | 70,678 |
| | | Cost | 0 | 0 | 0 | 70,678 | 70,678 |
| 28. | Les Cheneaux, Island Channels, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 399,478[29] |
| | | Cost | 0 | 0 | 0 | 0 | 399,478[29] |
| | | Dike Disposal | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 231,100 |
| | | Cost | 0 | 0 | 0 | 0 | 226,188 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,940,000 | 1,997,203 |
| | | Cost | 0 | 0 | 0 | 99,388 | 156,591 |
| 29. | Lexington Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,646,304 | 1,646,304 |
| | | Cost | 0 | 0 | 0 | 1,646,304 | 1,646,304 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 1,088,888 | 1,088,888 |
| | | Cost | 0 | 0 | 0 | 1,088,888 | 1,088,888 |
| | Lexington Hbr, MI Cont'd Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 372,000 | 372,000 |
| | | Cost | 0 | 0 | 0 | 372,000 | 372,000 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 162,000 | 7,139 | 1,486,213 |
| | | Cost | 36,532 | 28 | 164,722 | 11,833 | 1,485,564 |
| | Section 111 | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 2,199,402 |
| | | Cost | 0 | 0 | 0 | 0 | 2,199,402 |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 30. | Little Lake Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 542,808 |
| | | Cost | 0 | 0 | 0 | 0 | 542,808 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 57,670 |
| | | Cost | 0 | 0 | 0 | 0 | 57,670 |
| | | Maintenance | | | | | |
| | | Approp. | 168,908 | 7,352 | 418,000 | 0 | 6,224,437 |
| | | Cost | 4,908 | 7,352 | 573,035 | (280) | 6,215,192 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 983,100 | 983,100 |
| | | Cost | 0 | 0 | 0 | 514,137 | 514,137 |
| 31. | Ludington Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 7,912,202[30] |
| | | Cost | 0 | 0 | 0 | 0 | 7,912,202[30] |
| | | New Work | | | | | |
| | Section 111 | Approp. | 0 | 0 | 0 | 0 | 620,000 |
| | | Cost | 0 | 0 | 0 | 0 | 620,000 |
| | | Maintenance | | | | | |
| | | Approp. | 399,170 | 183,065 | 229,000 | 401,800 | 23,738,300[31] |
| | | Cost | 50,316 | 495,680 | 184,974 | 438,358 | 23,694,555[31] |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 832,740 |
| | | Cost | 0 | 0 | 0 | 0 | 832,740 |
| | Section 111 | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 357,913 |
| | | Cost | 0 | 0 | 0 | 0 | 357,913 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 954,200 | 954,200 |
| | | Cost | 0 | 0 | 0 | 931,449 | 931,449 |
| 32. | Manistee Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 2,696,522[32] |
| | | Cost | 0 | 0 | 0 | 0 | 2,696,522[32] |
| | | Maintenance | | | | | |
| | | Approp. | 5,170 | 453,180 | 935,328 | 433,964 | 15,540,613[33] |
| | | Cost | 4,867 | 370,015 | 992,484 | 106,629 | 15,186,913[33] |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,374,164 |
| | | Cost | 0 | 0 | 0 | 0 | 1,374,164 |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 33. | Manitowoc Harbor, WI | New Work | 0 | 0 | 0 | 0 | 2,048,914[34] |
| | | Approp. | 0 | 0 | 0 | 0 | 2,048,914[34] |
| | | Cost | | | | | |
| | Contributed Funds | New Work | 0 | 0 | 0 | 0 | 1,911,130 |
| | | Contrib. | 0 | 0 | 0 | 0 | 1,911,130 |
| | | Cost | | | | | |
| | | Maintenance | | | | | |
| | | Approp. | 405,468 | 653,918 | 6,697 | 0 | 14,662,757[35] |
| | | Cost | 264,427 | 656,506 | 42,495 | 285,880 | 14,572,537[35] |
| | Contributed Funds | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 79,648 |
| | | Cost | 0 | 0 | 0 | 0 | 66,735 |
| | | Maint: ARRA | | | | | |
| | | Approp. | | | | | |
| | | Cost | 0 | 0 | 0 | 545,400 | 545,400 |
| | | | 0 | 0 | 0 | 500,974 | 500,974 |
| 34. | Marquette Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,282,893[36] |
| | | Cost | 0 | 0 | 0 | 0 | 1,282,893[36] |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 7,456 | 358,000 | 0 | 4,564,261[37] |
| | | Cost | 0 | 7,456 | 326,255 | 31,739 | 4,564,255[37] |
| | | Major (or Minor Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 465,757 |
| | | Cost | 0 | 0 | 0 | 0 | 465,757 |
| 35. | Menominee Harbor & River, MI & WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 533,476[38] |
| | | Cost | 0 | 0 | 0 | 0 | 533,476[38] |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 36,762 |
| | | Cost | 0 | 0 | 0 | 0 | 36,762 |
| | | Maintenance | | | | | |
| | | Approp. | 399,741 | 0 | 961,268 | 0 | 5,753,906[39] |
| | | Cost | 6,417 | 0 | 348,501 | 1,000,764 | 5,747,903[39] |
| | | Major (or Minor Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,351,852 |
| | | Cost | 0 | 0 | 0 | 0 | 1,351,852 |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 36. | Milwaukee Harbor, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 8,231,024[40] |
| | | Cost | 0 | 0 | 0 | 0 | 8,231,024[40] |
| | | Maintenance | | | | | |
| | | Approp. | 749,000 | 1,163,941 | 1,405,000 | 599,722 | 60,231,066[41] |
| | | Cost | 533,786 | 1,316,595 | 1,155,294 | 794,502 | 60,111,542[41] |
| | Contributed Funds | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 322,471 |
| | | Cost | 0 | 0 | 0 | 0 | 322,471 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 12,715,560 |
| | | Cost | 0 | 0 | 0 | 0 | 12,715,560 |
| 37. | Monroe Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 687,340 |
| | | Cost | 0 | 0 | 0 | 0 | 687,340 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 300,000 |
| | | Cost | 0 | 0 | 0 | 0 | 300,000 |
| | | Maintenance | | | | | |
| | | Approp. | 438,000 | 476,000 | 686,000 | 926,100 | 64,040,998[42] |
| | | Cost | 437,049 | 244,871 | 317,594 | 1,158,517 | 63,672,929[42] |
| | Contributed Funds | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 249,849[43] |
| | | Cost | 0 | 0 | 0 | 0 | 249,849[43] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 500,000 | 500,000 |
| | | Cost | 0 | 0 | 0 | 0 | 0 |
| 38. | Muskegon Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 2,912,110[44] |
| | | Cost | 0 | 0 | 0 | 0 | 2,912,110[44] |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 105,000 |
| | | Cost | 0 | 0 | 0 | 0 | 105,000 |
| | | Maintenance | | | | | |
| | | Approp. | 466,000 | 220,456 | 918,164 | 318,500 | 13,879,662[45] |
| | | Cost | 465,957 | 119,597 | 971,792 | 336,957 | 13,850,845[45] |
| | Section 111 | Maintenance Approp. | 0 | 0 | 0 | 0 | 3,265,600 |
| | | Cost | 0 | 0 | 0 | 0 | 3,265,600 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 13,824,300 |
| | | Cost | 0 | 0 | 0 | 0 | 13,824,300 |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 39. | New Buffalo Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,285,716 |
| | | Cost | 0 | 0 | 0 | 0 | 1,285,716 |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 1,186,467 |
| | | Cost | 0 | 0 | 0 | 0 | 1,186,467 |
| | | Maintenance | | | | | |
| | | Approp. | 70,000 | 6,115 | 93,000 | 13,964 | 6,069,975[46] |
| | | Cost | 68,060 | 8,055 | 92,401 | 14,563 | 6,069,975[46] |
| 40. | Ontonagon Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 953,903[47] |
| | | Cost | 0 | 0 | 0 | 0 | 953,903[47] |
| | | Maintenance | | | | | |
| | | Approp. | 426,626 | 549,000 | 595,000 | 862,400 | 30,323,836[48] |
| | | Cost | 342,811 | 653,412 | 280,684 | 1,124,822 | 30,247,019[48] |
| 41. | Pentwater Harbor, MI | New Work | 0 | 0 | 0 | 0 | 179,899 |
| | | Approp. | 0 | 0 | 0 | 0 | 179,899 |
| | | Cost | | | | | |
| | | Maintenance | | | | | |
| | | Approp. | 89,000 | 5,963 | 151,000 | 125,360 | 15,841,948 |
| | | Cost | 89,000 | 5,963 | 144,118 | 18,391 | 15,728,096 |
| 42. | Petoskey Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 123,839 |
| | | Cost | 0 | 0 | 0 | 0 | 123,839 |
| | | Maintenance | | | | | |
| | | Approp. | 434,187 | 6,017 | 2,989,000 | 7,250 | 4,399,042 |
| | | Cost | 307,615 | 132,589 | 312,612 | 2,678,325 | 4,393,729 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 4,580,000 | 4,580,000 |
| | | Cost | 0 | 0 | 0 | 189,008 | 189,008 |
| 43. | Point Lookout Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 2,642,584 |
| | | Cost | 0 | 0 | 0 | 0 | 2,642,584 |
| | Contributed Funds | New Work | | | | | |
| | | Contribution | 0 | 0 | 0 | 0 | 9,257 |
| | | Cost | 0 | 0 | 0 | 0 | 9,257 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 1,084,000 | 5,836,704[49] |
| | | Cost | 0 | 0 | 0 | 86,913 | 4,839,617[49] |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 44. | Port Austin Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 3,191,234 |
| | | Cost | 0 | 0 | 0 | 0 | 3,191,234 |
| | | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 172,100 |
| | | Cost | 0 | 0 | 0 | 0 | 172,100 |
| | | Maintenance | | | | | |
| | | Approp. | 6,268 | 0 | 0 | 333,139 | 2,787,154[50] |
| | | Cost | 6,268 | 0 | 0 | 33,262 | 2,487,277[50] |
| 45. | Port Sanilac Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 909,963 |
| | | Cost | 0 | 0 | 0 | 0 | 909,963 |
| | Contribute Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 487,108 |
| | | Cost | 0 | 0 | 0 | 0 | 487,108 |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 336,000 |
| | | Cost | 0 | 0 | 0 | 0 | 336,000 |
| | | Maintenance | | | | | |
| | | Approp. | 4,908 | 6,201 | 139,000 | 7,139 | 2,974,154[51] |
| | | Cost | 4,908 | 6,201 | 132,392 | (845) | 2,959,562[51] |
| | Contributed Funds | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 115,000 |
| | | Cost | 0 | 0 | 0 | 0 | 115,000 |
| | Section 111 | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,270,054 |
| | | Cost | 0 | 0 | 0 | 0 | 1,270,054 |
| 46. | Port Wing Harbor, WI | New Work | 0 | 0 | 0 | 0 | 63,393 |
| | | Approp. | 0 | 0 | 0 | 0 | 63,393 |
| | | Cost | | | | | |
| | | Maintenance | 0 | 6,937 | 130,000 | 10,595 | 2,120,797 |
| | | Approp. | 30 | 6,937 | 22,115 | 114,468 | 2,116,786 |
| | | Cost | | | | | |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 47. | Presque Isle Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,190,492 |
| | | Cost | 0 | 0 | 0 | 0 | 1,190,492 |
| | | New Work | | | | | |
| | | Approp. | | | | | |
| | | Cost | 0 | 0 | 0 | 0 | 61,700 |
| | | Maintenance | 0 | 0 | 0 | 0 | 61,700 |
| | | Approp. | | | | | |
| | | Cost | | | | | |
| | | Major (or | 0 | 0 | 147,000 | 283,220 | 2,459,076[52] |
| | | Minor) | 0 | 0 | 117,453 | 312,767 | 2,459,076[52] |
| | | Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 76,500 |
| | | Cost | 0 | 0 | 0 | 0 | 76,500 |
| 48. | Rouge River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 153,000 | 828,251[53] |
| | | Cost | 0 | 0 | 0 | 0 | 675,251[53] |
| | | Maintenance | | | | | |
| | | Approp. | 770,000 | 20,000 | 712,000 | 936,440 | 42,290,830[54] |
| | | Cost | 420,093 | 369,907 | 658,203 | 364,219 | 41,664,812[54] |
| 49. | Saginaw River, MI (Federal Funds) | New Work | | | | | |
| | | Approp. | 1,724,000 | 100,000 | 0 | 0 | 16,841,127[55] |
| | | Cost | 1,374,495 | 436,975 | 92,835 | 120 | 16,824,456[55] |
| | Contributed Funds | New Work | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 13,600 |
| | | Cost | 0 | 0 | 0 | 0 | 13,600 |
| | | Maintenance | | | | | |
| | | Approp. | 3,419,323 | 3,541,000 | 2,806,887 | 3,446,030 | 102,644,356[56] |
| | | Cost | 2,878,696 | 1,555,162 | 2,906787 | 2,908,437 | 99,646,191[56] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 2,660,000 | 2,660,000 |
| | | Cost | 0 | 0 | 0 | 183,528 | 183,528 |
| 50. | Saint Clair River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 123,000 | 0 | 19,336,246 |
| | | Cost | 0 | 0 | 26,483 | 11,104 | 19,250,833 |
| | | Maintenance | | | | | |
| | | Approp. | 817,000 | 519,000 | 1,401,000 | 1,636,113 | 37,985,955[57] |
| | | Cost | 815,513 | 453,234 | 1,483,549 | 920,101 | 37,269,243[57] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 423,000 | 423,000 |
| | | Cost | 0 | 0 | 0 | 95,403 | 95,403 |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 51. | Saint Joseph Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 976,485[58] |
| | | Cost | 0 | 0 | 0 | 0 | 976,485[58] |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 828,000 |
| | | Cost | 0 | 0 | 0 | 0 | 828,000 |
| | | Maintenance | | | | | |
| | | Approp. | 908,070 | 1,213,000 | 448,000 | 2,229,000 | 29,470,149[59] |
| | | Cost | 835,359 | 1,280,069 | 369,885 | 1,708,082 | 29,427,369[59] |
| | Section 111 | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 8,818,736 |
| | | Cost | 91 | 0 | 0 | 0 | 8,818,736 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 962,216 |
| | | Cost | 0 | 0 | 0 | 0 | 962,216 |
| 52. | Saugatuck Harbor, MI, and Kalamazoo River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 364,527[60] |
| | | Cost | 0 | 0 | 0 | 0 | 364,527[60] |
| | | Maintenance | | | | | |
| | | Approp. | 5,170 | 5,950 | 291,000 | 14,221 | 10,761,713[61] |
| | | Cost | 5,170 | 5,950 | 259,586 | 33,552 | 10,749,630[61] |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 7,911,500 | 7,911,500 |
| | | Cost | 0 | 0 | 0 | 423,086 | 423,086 |
| 53. | Saxon Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 507,507[62] |
| | | Cost | 0 | 0 | 0 | 0 | 507,507[62] |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 204,270 |
| | | Cost | 0 | 0 | 0 | 0 | 204,270 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 234,899 | 11,055 | 1,475,895 |
| | | Cost | 0 | 0 | 20,299 | 225,655 | 1,475,895 |
| 54. | Sebewaing River, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 35,573 |
| | | Cost | 0 | 0 | 0 | 0 | 35,573 |
| | | Maintenance | | | | | |
| | | Approp. | 320,000 | 0 | 431,000 | 100,158 | 5,189,408[63] |
| | | Cost | 72,264 | 0 | 1,775 | 557,288 | 4,969,577[63] |

**COST AND FINANCIAL STATEMENT**

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 55. | South Haven Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 452,426[64] |
| | | Cost | 0 | 0 | 0 | 0 | 452,426[64] |
| | Section 111 | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 532,000 |
| | | Cost | 0 | 0 | 0 | 0 | 532,000 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 5,972 | 279,000 | 14,306 | 9,357,990[65] |
| | | Cost | 0 | 5,972 | 37,312 | 255,990 | 9,357,986[65] |
| | Section 111 | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,965,939 |
| | | Cost | 0 | 0 | 0 | 0 | 1,965,939 |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,632,076 |
| | | Cost | 0 | 0 | 0 | 0 | 1,632,076 |
| 56. | Sturgeon Bay, WI, & Lake Michigan Ship Canal, WI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,059,722[66] |
| | | Cost | 0 | 0 | 0 | 0 | 1,059,722[66] |
| | | Maintenance | | | | | |
| | | Approp. | 228,000 | 7,028 | 614,809 | 34,700 | 13,834,620[67] |
| | | Cost | 226,184 | 7,733 | 42,727 | 606,450 | 13,832,693[67] |
| | | Major (or Minor) Rehabilitation | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 884,899 |
| | | Cost | 0 | 0 | 0 | 0 | 884,899 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 6,940,350 | 6,940,350 |
| | | Cost | 0 | 0 | 0 | 689,469 | 689,469 |
| 57. | Two Harbors, MN | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 4,170,710 |
| | | Cost | 0 | 0 | 0 | 0 | 4,170,710 |
| | | Maintenance | | | | | |
| | | Approp. | 11,667 | 0 | 357,037 | 280,467 | 6,055,923[68] |
| | | Cost | 11,667 | 0 | 357,037 | 280,467 | 6,055,923[68] |

**TABLE 21-A** **COST AND FINANCIAL STATEMENT**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 58. | Two Rivers Harbor, WI | New Work | 0 | 0 | 0 | 0 | 360,320[69] |
| | | Approp. | 0 | 0 | 0 | 0 | 360,320[69] |
| | | Cost | | | | | |
| | | Maintenance | 379,055 | 6,998 | 1,836,723 | 750,120 | 15,869,028[70] |
| | | Approp. | 144,693 | 111,645 | 1,037,380 | 1,594,628 | 15,783,593[70] |
| | | Cost | | | | | |
| | | Major (or Minor) | | | | | |
| | | Rehabilitation | 0 | 0 | 0 | 0 | 58,057 |
| | | Approp. | 0 | 0 | 0 | 0 | 58,057 |
| | | Cost | | | | | |
| 59. | Whitefish Point Harbor, MI | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 771,639 |
| | | Cost | 0 | 0 | 0 | 0 | 771,639 |
| | | Maintenance | | | | | |
| | | Approp. | 0 | 0 | 225,400 | 3,860 | 836,900 |
| | | Cost | 0 | 0 | 189,809 | 17,114 | 814,563 |
| 72. | Surveillance of Northern Boundary Waters | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 0 |
| | | Cost | 0 | 0 | 0 | 0 | 0 |
| | | Maintenance | | | | | |
| | | Approp. | 2,749,000 | 2,870,000 | 2,942,000 | 2,937,640 | 98,136,072[71] |
| | | Cost | 2,767,393 | 2,864,736 | 3,026,440 | 2,883,063 | 98,008,601[71] |
| 73. | St. Marys River, MI | New Work | | | | | |
| | | Approp. | 1,480,000 | 507,000 | 1,968,000 | 17,000,000 | 189,899,071[72] |
| | | Cost | 1,643,824 | 608,304 | 1,474,519 | 4,099,794 | 176,374,465[72] |
| | | Maintenance | | | | | |
| | | Approp. | 15,784,000 | 18,601,000 | 21,651,000 | 29,410,741 | 584,810,341[73,74] |
| | | Cost | 16,122,955 | 18,262,246 | 20,155,211 | 21,423,247 | 573,120,297[73,74] |
| | | Maintenance | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 340,400 |
| | | Cost | 0 | 0 | 0 | 0 | 340,400 |
| | | Maint: ARRA | | | | | |
| | | Approp. | 0 | 0 | 0 | 3,300,000 | 3,300,000 |
| | | Cost | 0 | 0 | 0 | 184,387 | 184,387 |

## COST AND FINANCIAL STATEMENT

**TABLE 21-A**

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep. 30, 2009 |
|---|---|---|---|---|---|---|---|

[1]Includes $114,786 for previous projects.
[2] Includes $792 for diked disposal.
[3]Excludes $56,500 for contributed funds.
[4]Excludes $30,000 contributed funds.
[5]Includes $25,500 for previous projects.
[6]Includes $3,796,180 for previous projects.
[7]Includes $2,097,254 for previous projects.
[8]Includes $42,470,585 for diked disposal.
[9]Includes $1,547,195 for previous projects.
[10]Includes $1,556,249 for diked disposal.
[11] Includes $3,239,910 for previous projects.
[12]Includes $89,309 for previous projects.
[13]Includes $42,084 expended for M&O of Dams. (Excludes $10 expended in FY99).
[14]Includes $1,204,500 for diked disposal.
[15]Includes $311,329 for previous projects.
[16]Includes $13,437 for previous project and $780,400 for diked disposal.
[17]Includes $506,437 for previous projects.
[18]Excludes $100,000 contributed funds.
[19]Includes $8,918 for previous projects and $7,642,642 for diked disposal.
[20]Includes $243,100 for diked disposal.
[21]Includes $176,620 for previous projects.
[22]Includes $127,598 for previous projects and $1,663,300 for diked disposal.
[23]Includes $404,300 for previous projects.
[24]Includes $149,312 for previous projects.
[25]Includes $88,364 for previous projects and $2,961,461 for diked disposal.
[26]Includes $402,242 for previous projects and $1,523,500 for diked disposal.
[27]Includes $656,000 for previous projects.
[28]Includes $235,346 for previous projects and $5,119,800 for diked disposal.
[29]Includes $199,739 Contributed funds.
[30]Includes $491,416 for previous projects.
[31]Excludes $136,286 contributed funds.
[32]Includes $354,999 for previous projects.
[33]Includes $150,910 for previous projects.
[34]Includes $400,126 for previous projects.
[35]Includes $54,288 for previous projects and $3,081,756 for diked disposal.
[36]Includes $312,423 for previous projects.
[37]Includes $36,194 for previous projects.
[38]Includes $312,423 for previous projects.
[39]Includes $36,194 for previous projects $593,660 for diked disposal.
[40]Includes $1,293,220 for previous projects.
[41]Includes $459,305 for previous projects and $6,380,925 for diked disposal.
[42]Includes $38,606,400 for diked disposal.
[43]Includes $83,182 contributed funds - diked disposal.
[44]Includes $613,408 for previous projects.
[45]Includes $446,183 for previous projects.
[46]Includes $181,500 for diked disposal.
[47]Includes $284,802 for previous projects.
[48]Includes $113,326 for previous projects and $21,000 for diked disposal.
[49]Includes $121,600 for diked disposal.
[50]Includes $159,000 for diked disposal.
[51]Includes $9,158 for diked disposal.
[52]Includes $16,500 for diked disposal.
[53]Includes $50,084 for previous projects.
[54]Includes $56,608 for previous projects and $14,907,318 for diked disposal.
[55]Includes $962,556 for previous projects.
[56]Includes $20,951,888 for diked disposal ($1,671,660 public works fund and $49,419 emergency relief funds)
[57]Includes $420,000 expended for M&O of Dams.
[58]Includes $503,113 for previous projects.
[59]Includes $638,076 for diked disposal.
[60]Includes $90,232 for previous projects.
[61]Includes $117,554 for previous projects.
[62]Excludes $50,198 contributed funds.
[63]Includes $15,000 for previous projects.
[64]Includes $187,233 for previous projects.
[65]Includes $131,239 for previous projects and $42,381 for diked disposal.
[66]Includes $323,419 for previous projects.
[67]Includes $219,730 for previous projects and $311,119 for diked disposal.
[68]Includes $48,404 National Recovery Act for New Work funds.
[69]Includes $212,857 for previous projects.
[70]Includes $33,113 for previous projects and $1,187,472 for diked disposal.
[71]Includes $3,973,897 for previous projects.
[72]Includes $2,904,807 for previous projects.
[73]Includes $13,100 for diked disposal.
[74]Includes $799,947 expended for M&O of Dams.

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 1. | | **ARCADIA HARBOR, MI** | |
| | Mar. 3, 1905 | Maintenance of existing 12-foot channel. | H. Doc. 194, 58th Cong., 2d Sess. |
| 2. | | **AUSABLE HARBOR, MI (OSCODA), MI** | |
| | Mar. 2, 1945 | Dredging channels 12 and 10 feet deep and riprapping North Pier. | H. Doc. 446, 78th Cong., 2d Sess.[1] |
| 3. | | **BAY PORT HARBOR, MI** | |
| | May 20, 1965 | Channel 6 feet deep and 50 feet wide. | Section 107, 1960 Rivers and Harbor Act. |
| 4. | | **BIG BAY HARBOR, MI** | |
| | Mar. 2, 1945 | Provides for converging piers extending from shore, an entrance channel between piers and a rectangular harbor basin. Project depths are 12 feet in entrance channel and 10 feet in harbor basin. | H. Doc. 446, 78th Cong., 2d Sess.[1] |
| 5. | | **BLACK RIVER HARBOR, MI (UPPER PENINSULA)** | |
| | Mar. 2, 1945 | Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. Project depths 12 feet in approach channel and 8 feet in the river channel an basin. | H. Doc. 446, 78th Cong., 2d Sess.[1] |
| 6. | | **BOLLES HARBOR, MI** | |
| | Jul. 6, 1965 | Entrance channel in Lake Erie, Access channel in LaPlaisance Creek.<br>Steel sheet pile revetment. | Section 107, 1960 Rivers and Harbors Act. |
| 7. | | **CASEVILLE HARBOR, MI** | |
| | Oct. 23, 1962 | Channel 10 t0 8 feet deep protected by Breakwater. | H. Doc. 64, 87th Cong., 1st Sess.[1] |
| 8. | | **CHARLEVOIX HARBOR, MI** | |
| | Aug. 14, 1876 | Channel from Lake Michigan to Round Lake protected where needed by piers and revetments. | S. Ex. Doc. 16, 44th Cong., 1st 0ess. and Annual Report 1876, p. 523. |
| | Aug. 2, 1882 | Channel from Round Lake to Lake Charlevoix. | |
| | Jun 13, 1902 | Project depth increased to 15 feet. | No Prior Survey of Estimates. |
| | Jun. 20, 1938 | Project depth increased to 18 feet. | No Prior Survey of Estimates. |
| | Nov. 17, 1988 | Restore recreational uses or provide comparable recreational uses at the South Pier. | S. Doc. 163, 75th Cong., 3rd Sess.[1]<br>H. Doc. 1098, 100th Cong., 2d Sess. Sec. 25 of the WRDA of 1988. |
| | Mar. 29, 1977 | Project depth increased to 24 and 23 feet, and construction of revetment upstream of Highway Bridge. | Section 107, 1960 Rivers and Harbors Act. |
| 9. | | **CLINTON RIVER, MI** | |
| | Aug. 5, 1886 | Channel in River and Lake St. Clair, Pile Dike, Closing channels and making Cutoff, and revetments as needed. | S. Doc. 199, 46th Cong., 2d Sess. Annual Report, 1880, p. 2062, and H. Doc. 210, 44th Cong.,2d Sess. |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 10. | | **CORNUCOPIA HARBOR, WI** | |
| | Aug. 26, 1936 | Entrance channel 50 feet wide and 10 feet deep between existing piers from bay to a turning basin 200 feet long, 8 feet deep, with maximum width of 180 feet, with 150- and 300-foot inner channels each 50 feet wide and 8 feet deep. | S. Committee, 75th Cong., 1st Sess. |
| | Sep. 3, 1954 | Reconstruction and Federal maintenance of ease and west entrance piers, a 25-foot extension of west pier and a 300-foot extension of existing westerly inner channel at a depth of 8 feet and a width of 50 feet. | H. Doc. 434, 83rd Cong., 2d Sess.[1] |
| 11. | | **DETROIT RIVER, MI** | |
| | Jun. 13, 1902<br>Mar. 3, 1905<br>Jun. 25, 1910 | Amherstburg Channel and removal of Grosse Ile Shoal. | H. Doc. 712, 56th Cong., 1st. Sess. and 40, 58th Cong., 3rd Sess. |
| | Mar. 4, 1913 | Fighting Island Channel. | H. Doc. 17, 62d Cong., 1st Sess. |
| | Mar. 2, 1907<br>Jun. 25, 1910<br>Mar. 2, 1919 | Livingstone Channel. | H. Doc. 266, 59th Cong., 1st Sess.; 676, 61st Cong., 2d Sess.; and 322, 65th Cong., 1st Sess. |
| | Jul. 3, 1930 | Channel Depths of 26 and 25 feet. | H. Doc. 253, 70th Cong., 1st. Sess. |
| | Aug. 30, 1935 [3] | Channel to Wyandotte 21 feet deep and 300 feet wide through Middle Ground opposite Head of Fighting Island. | Rivers and Harbors Committee Doc. 1, 72d Cong., 1st Sess.[1] |
| | Aug. 26, 1937 | Trenton Channel and Turning Basin (West of Grosse Ile). | H. Doc. 205, 75th Cong., 1st Sess. |
| | Mar. 2, 1945 | American Channel North of Belle Isle between Windmill Point and Fairway Slip, Detroit. | H. Doc. 734, 79th Cong., 2d Sess. |
| | Jul. 24, 1946 [22] | Deepen Westerly 300 feet of Amherstburg Channel and Ballards Reef Channel below Livingstone Channel to 27 feet to provide depths adequate for 24-foot draft navigation when governing Lakes are at Datum, with necessary widening at approaches and bends and construction of necessary compensating works, Detroit River. | H. Doc. 335, 80th Cong., 1st Sess. |
| | May 17, 1950 [4] | Extend Turning Basin in Trenton Channel 600 feet. Dredge through East Draw of lower Grosse Ile Bridge and extend 300-foot width of Channel North of lower Grosse Ile Bridge. | S. Doc. 30, 81st Cong., 1st Sess.[1] |
| | Mar. 21, 1956 [22] | Channel Depth of 28.5 feet throughout downbound and Two-Way Channels, except in upper (27.7-foot depth) and lower (29-foot depth), Livingstone Channel, and in upbound Channel; 27-foot depth in Ballards Reef Channel below junction with Livingstone Channel, 27.5-foot depth in westerly 300-foot width of Limekiln Crossing and Amherstburg Reaches, and 28.5-foot depth in westerly 300-foot width of Hackett Beach, with necessary compensation works. Also 28.5-foot depth in Lake Erie from Detroit River to Pelee Passage Shoal, inclusive. | S. Doc. 71, 84th Cong., 1st Sess.[1] |
| | Jul. 14, 1960 | Trenton Channel: Deepen to 25 feet, where necessary, Wyandotte Reach from Detroit River to Upper Grosse Ile Bridge, about 5.5 miles, deepen to 28 feet and widen to 300 feet below Upper Grosse Ile Bridge to and including a Turning Basin 28 feet deep and 15 feet across in area outside project limits. | H. Doc. 319, 86th Cong., 2d Sess.[1] |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Aug. 13, 1968 [22] | Trenton Channel: Deepen to 28 feet and widen to 300 feet from Upper Turning Basin at Trenton to Gibraltar, about 20,500 feet from downstream: Construct a Turning Basin at Gibraltar at a depth of 28 feet, width of 830 feet, and length of 1,500 feet: Build compensating works to maintain water levels. | H. Doc. 338, 90th Cong., 2d Sess.[1] |
| 12. | | **DULUTH-SUPERIOR HARBOR, MN AND WI** | |
| | Jun. 3, 1896 | Dredging. | H.Ex. Doc. 59, 53d Cong., 3rd Sess. and Annual Report, 1895, p. 2538. |
| | Jun. 13, 1902 | Rebuilding piers at Superior Entry. | |
| | Mar. 2, 1907 | Enlarge plan for Superior Entry and additional dredging near draw span of Burlington Northern railway bridge. | H. Doc. 82, 59th Cong., 2d Sess. |
| | May 28, 1908 [5] | Dredging additional area of basin inside Duluth entrance to 22-foot depth. | H. Doc. 221, 60th Cong., 1st Sess. |
| | Jul. 27, 1916 | Enlarging Superior Harbor Basin. | H. Doc. 651, 64th Cong., 1st Sess. |
| | Mar. 2, 1919 | Removal of shoal point at southerly end of East Gate Basin. | H. Doc. 1018, 64th Cong., 1st Sess. |
| | Jan. 21, 1927<br>Jul. 30, 1930 [3] | Howards Bay Channel, 20 feet deep. | H. Doc. 145, 69th Cong., 1st Sess., and Rivers and Harbors Committee Doc. 32, 71st Cong., 2d Sess. |
| | Aug. 30, 1930 [3] | Deepening and widening channels and basins. | H. Doc. 482, 72d Cong., 2d Sess. |
| | Jul. 16, 1952 [4,6] | Deepen Superior Front Channel and a portion of East Gate Basin to 25 feet. | H. Doc. 374, 82d Cong., 2d Sess. |
| | Jul. 14, 1960 [7,22] | Present project dimensions of channels and basin. | H. Doc. 150, 86th Cong., 1st Sess.; H. Doc. 196, 86th Cong., 1st Sess. |
| | Oct. 4, 1961 | Abandons northerly portion of 21st Avenue West Channel. | |
| | Nov. 17, 1986 | Deepen portions of the North and South Channels, the entire Upper Channel and Minnesota Channel to 27 feet; widen the Cross Channel turning basin to 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet, and construct an upland CDF. | H. Doc. 204, 99th Cong., 2d Sess. Sec. 202a of WRDA of 1986. |
| 13. | | **FOX RIVER, WI** | |
| | Aug. 5, 1886 | Improvement of Fox River. | Annual Report, 1885, pp. 2041-2045 (plan of a board approach Dec. 10, 1884, as modified by Corps of Engineers, May 14, 1886). |
| | Sep. 19, 1890 | Dredging Fond du Lac Harbor on Lake Winnebago. | H. Ex. Doc. 24, 51st Cong., 1st Sess. |
| | Jun. 3, 1896 | Improvement of Wolf River. | Annual Report, 1890, p. 2390. |
| | Jun. 3, 1896 | Improvement of Stockbridge, of Calumet and Miller Bay, and of Brothertown Harbor, on Lake Winnebago. | No prior survey or estimates. |
| | Jun. 13, 1902 | | No prior survey or estimates. |
| | Mar. 2, 1907 | | |
| | Mar. 3, 1925 [8,22] | Increased depth in rock cuts on lower river, widen Neenah Channel, and a concrete retaining wall at Kaukauna. | No prior survey or estimates. |
| | Jun. 26, 1934 [9] | Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors. | H. Doc. 294, 68th Cong., 1st Sess.[1] |
| | Jul. 3, 1958 [10] | Sec. 108, Federal project structure, appurtenances, and real property of Upper Fox River, WI, be disposed of to State of Wisconsin. | S. Bill 3910, 85th Cong., 2d Sess. |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Oct. 31, 1992 | Sec. 332 authorized transfer of navigation system to Wisconsin subject to agreement, Federal government to continue water regulation/dam operation. | Public Law 102-580 (WRDA of 1992). |
| 14. | | **FRANKFORT HARBOR, MI** | |
| | Jun. 23, 1866 [11] | A New Outlet 12 feet deep protected by Piers and Revetments. | |
| | Mar. 3, 1925 | Exterior Breakwaters, removal of portions of Piers, Project Dimensions of Outer Basin. | H. Doc. 482, 5th Cong., 2d Sess. |
| | Aug. 26, 1937 | Dredge the area in Lake Betsie. | |
| | Oct. 27, 1965 | Deepen approach and entrance channels. Extend Inner Basin and Dredge recreational anchorage area. | H. Doc. 208, 68th Cong., 1st Sess.<br>H. Doc. 511, 74th Cong., 2d Sess., S. Doc 16, 89th Cong., 1st Sess.[1] |
| 15. | | **GRAND HAVEN HARBOR, MI** | |
| | Jun. 23, 1866 | Piers and Revetments. | S. Ex. Doc 42, 35th Cong., 1st. Sess. |
| | Jun. 14, 1880 | Piers and Revetments. | |
| | Sep. 19, 1890 | Piers and Revetments. | S. Ex. Doc 42, 35th Cong., 1st. Sess. |
| | Jul. 13, 1892 | Piers and Revetments. | |
| | Jul. 3, 1930 | Present Project dimensions of Harbor channel to Grand Trunk Car Ferry Slip and River Channel. Eliminating all of that portion of Grand River above Bass River, Consolidation of Projects for Harbor and River. | S. Ex. Doc 42, 35th Cong., 1st. Sess.<br>S. Ex. Doc 42, 35th Cong., 1st. Sess. |
| | Aug. 26, 1937 | Channel to Spring Lake. | S. Doc. 88, 71st Cong., 2d Sess. |
| | Mar. 2, 1945 | Present Project Dimensions of Harbor Channel from Car Ferry Slip to Grand Trunk Railway Bridge and Turning Basin. | Rivers and Harbors Committee Doc. 1, 75th Cong., 3rd Sess.[1] |
| | Nov. 17, 1986 | Deepen the harbor entrance channel and harbor river channel to 29 and 27 feet, respectively; provide a new and larger turning basin, trapezoidal in shape, 1,200 feet long at the channel, 300 feet long at the shore, 800 feet at a right angle to the channel, and 18 feet deep. | H. Doc. 661, 76th Cong., 3rd Sess.[1]<br>H. Doc. 227, 98th Cong., 2d Sess.<br>Sec. 202a of WRDA of 1986. |
| 16. | | **GRAND MARAIS HARBOR, MI** | |
| | Jun. 14, 1880 | Existing project, except for pile dike. | Specified in Act, Annual Report 1881, p. 2050 |
| | Jun. 14, 1880 | For pile dike. | Annual Report, 1895, p. 351 |
| | May 17, 1950 | 800-foot extension of West Pier. | H. Doc. 751, 80th Cong., 2nd Sess. |
| 17. | | **GRAND MARAIS HARBOR, MN** | |
| | Mar. 3, 1879 | Breakwaters and dredging of anchorage of 26 acres to 16 feet. | H. Ex. Doc. 75, 43rd Cong., 2d Sess,: |
| | Aug. 30, 1935 | Seawalls across ledge in southeast corner of harbor, enlarging anchorage basin and deepening of entrance. | Annual Report, 1875, p. 184. |
| | May 17, 1950 | Small boat basin with breakwater. | Rivers and Harbors Committee Doc. 22, 72d Cong., 1st Sess.[1]<br>H. Doc. 187, 81st Cong., 1st Sess.[1] |
| 18. | | **GRAND TRAVERSE BAY HARBOR, M1** | |
| | Mar. 2, 1945 | Two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between | |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | | piers and 10 feet in basin. Projects area extended 200 feet upstream in 1966. | H. Doc. 446. 78th Cong., 2nd Sess. |
| 19. | | **GRAYS REEF PASSAGE, MI** | |
| | Aug. 30, 1995 | Improvement of Passage over a 3,00 Foot Width And a Depth of 25 Feet. | |
| | | | Annual Report, 1867, p. 70. Unpublished report approved Aug. 3, 1892 |
| 20. | | **GREEN BAY HARBOR, WI** | |
| | Jun. 23, 1866 | Outer Channel and revetment at Grassy Island.[12] | Annual Report, 1867, p. 70. |
| | Jul. 13, 1892 | Inner channel.[13] | Unpublished report approved Aug. 3, 1892. |
| | Jun. 26, 1910 | Turning basin at DePere. | H. Doc. 222, 61st Cong., 2d Sess. |
| | Aug. 8, 1917 | Maintenance of turning basin at DePere. | H. Doc. 1017, 64th Cong., 1st Sess. |
| | Mar. 3, 1925 | Increasing depth of inner channel and turning basin to 18 feet. | H. Doc. 294, 68th Cong., 1st Sess. |
| | Aug. 30, 1935 [2] | Deepen outer channel to 22 feet with widening and straightening inside of Tail Point Bend, widen channel in Fox River through city of Green Bay to 22 feet. | Rivers and Harbors Committee Doc. 40, 72d Cong., 2d Sess. |
| | Aug. 26, 1937 | Turning basin above Chicago & North Western R.R. Bridge. | |
| | Mar. 2, 1945 | Turning basin at mouth of East River. | Rivers and Harbors Committee |
| | Oct. 23, 1962 | Deepen and widen 9 miles of entrance channel to 26 by 500 feet; 3.6 miles of entrance channel to 24 by 300 feet; and 3.2 miles of existing Fox River to 24 feet deep. | Doc. 73, 74th Cong., 2d Sess. H. Doc. 95, 76th Cong., 1st Sess. H. Doc. 470, 87th Cong., 2d Sess.[1] |
| | Nov. 17, 1986 | Deepen the Fox River channel at Green Bay, WI, to 27 feet. | H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986, Sec. 601c). |
| 21. | | **HARBOR BEACH HARBOR, MI** | |
| | Mar. 3, 1871 | Adopted Site and made provision for harbor. Closing North Entrance and dredging Main Entrance and Anchorage area. | Annual Report, 1873,p. 282 H. Doc. 1700, 64th Cong., 2d Sess. |
| | Jan. 21, 1927 | Removal of portion of Breakwater in interest of sanitation. | |
| | Jul. 16, 1984 | Deepen the waterway within the Marina Facility. | H.R. 5653, 98th Cong., 2d Sess,; P.O. 98-360 (98 Stat. 405) Sec. 105. |
| 22. | | **HOLLAND HARBOR, MI** | |
| | Aug. 30, 1852 | Artificial channel between Lakes Macatawa and Michigan.[12] | S. Ex. Doc. 42, 35th Cong., 1st Sess. |
| | Mar. 2, 1867 | Piers and Revetments.[12] | |
| | Mar. 3, 1899 | Extending Inner Piers. | Annual Report, 1866, p. 106. |
| | Mar. 3, 1905 | Converging Breakwater. | H. Doc. 272, 51st Cong., 2d Sess.; and Annual Report 1887, p. 2950. |
| | Jul. 3, 1930 | Channel to Holland and Turning Basin at Holland. | Annual Report, 1905, p. 2176; |
| | Aug. 30, 1935 | Present Project Dimensions of Channels at Turning Basin. | H. Doc. 588, 69th Cong., 2d Sess. |
| | Sep. 3, 1954 [22] | Widen Bend in Revetted Entrance Channel into Lake Macatawa, Dredge Channel in Black River, and Widen and Extend Turning Basin. | Rivers and Harbors Committee Doc. 48, 74th Cong., 1st Sess. H. Doc. 282, 83rd Cong., 2d Sess. |
| | | **THE INLAND ROUTE, MI** | |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 23. | | Channel 30 feet wide and 5 feet deep through Lakes and Rivers with suitable jetties. | |
| | Sep. 3, 1954 | Lock and Dam. | H. Doc. 142, 82d Cong., 1st Sess.[1] |
| | Sep. 2, 1964 | | Chief of Engineers. |
| 24. | | **KEWAUNEE HARBOR, WI** | |
| | Mar. 3, 1881 | Entrance piers. | Annual Report, 1881, p. 2082. |
| | Jun. 25, 1910 | Turning basin. | H. Doc. 324, 60th Cong., 1st Sess. |
| | Aug. 30, 1935 [2,14] | North breakwater, remove old north pier, widen and deepen entrance channel and turning basin to 20 feet and remove outer south shoal. | Rivers and Harbors Committee Doc. 43, 72d Cong., 1st Sess.[1] S. Doc. 19, 86th Cong., 1st Sess.[1] |
| | Jul. 14, 1960 | Enlarge existing turning basin, extend existing project into north basin, and increase depth of north basin to 20 feet at a maximum width of 500 feet and eliminate removal of outer shoal. | |
| 25. | | **KEWEENAW WATERWAY, MI** | |
| | Sep. 19, 1890 | Acquisition of waterway; for a 16-foot channel of 70- foot bottom width, renew canal revetments, reconstruct and extend piers at upper entrance to 30-foot depth of water, and at proper time for increase of channel depth to 20 feet with bottom width of not less than 120 feet (increase in width and depth of channel approved May 15, 1898). | H. Ex. Doc. 105, 49th Cong., 2d Sess.; and Annual Report, 1887, p. 1977. |
| | Jun. 25, 1910 | Anchorage basin just within lower entrance about one-half mile long, 800 feet wide; a mooring pier on its westerly side 2,000 feet in length, and for purchase of necessary land. | H. Doc. 325, 60th Cong., 1st Sess. |
| | Mar. 2, 1919 | Princess Point Cutoff Channel. | H. Doc. 835, 63rd Cong., 2d Sess. |
| | Aug. 30, 1935 [15] | General deepening, widening and straightening of channels and basins to provide 25-foot depth with additional overdepth at entrances, extend lower entrance breakwater, and necessary alteration or replacement of structures due to deepening channels. | H. Doc. 55, 73rd Cong., 1st Sess.[1] |
| | Nov. 17, 1986 | Deauthorization of the uncompleted portion of the project authorized by the 1935 Rivers and Harbors Act. | H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). |
| 26. | | **LAKE ST. CLAIR, MI, CHANNELS** | |
| | | Two Dikes. | Annual Report, 1885, p. 2150. |
| | Aug. 5, 1886 | Deepening Canal and dredging Channel at Grosse Pointe. | H. Doc. 297, 51st Cong., 2d Sess. |
| | Jul. 13, 1892 | Second Canal for downbound vessels. | H. Doc. 234, 56th Cong., 2d Sess. |
| | Jun. 13, 1902 | 21-foot depth in Grosse Pointe Channel for about 5.25 miles. | H. Doc. 188, 65th Cong., 1st Sess. |
| | Mar. 2, 1919 | 25-foot depth through Canals and Channel through Lake St. Clair. | H. Doc. 253, 70th Cong., 1st Sess. |
| | Jul. 3, 1930 Aug. 30, 1933 [3] | Removal of Center Dike and widening Channel to 700 feet. | Rivers and Harbors Committee Doc. 3, 72d Cong., 1st Sess. |
| | Mar. 21, 1956 | Deepening Channel to 27.5 feet and abandonment of Channel above mouth of Southeast bend cutoff Channel. | S. Doc. 71, 84th Cong., 1st Sess.[1] |
| | | **LELAND HARBOR, MI** | |
| 27. | | Entrance Channel protected by Piers. | |
| | Aug. 30, 1935 | Outer Breakwater, Anchorage Area, Approach Channel | Rivers and Harbors Committee |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Oct. 23, 1962 | and removal of North Pier. | Doc. 23, 74th Cong., 1st Sess.<br>H. Doc. 413, 87th Cong., 2d Sess. |
| | | **LES CHENEAUX ISLANDS CHANNELS, MI** | |
| 28. | | (See Section 39 of Text) | |
| | Mar. 15, 1967 | Removing shoals and bend widening over small boat course to provide 7-foot depth over 100-foot minimum width. | Section 107, 1960 River and Harbor Act. |
| 29. | | **LEXINGTON HARBOR, MI** | |
| | Oct. 27, 1965 | Approach Channel and Maneuver Area Protected by Breakwaters.[1] | H. Doc. 301, 88th Cong., 2d Sess.[1] |
| | | **LITTLE LAKE HARBOR, MI** | |
| 30. | Mar. 2, 1945 | 12-foot deep Channel from Lake Superior into Little Lake Breakwaters and Revetments. | H. Doc. 446, 78th Cong., 2d Sess.[1] |
| 31. | | **LUDINGTON HARBOR, MI** | |
| | Mar. 2, 1867 | Entrance Piers. | Annual Report, 1867, p. 114.[16] |
| | Mar. 3, 1899 | Pier Extension, Reconstruction and repairs to existing structures and present project dimensions of Channel. | H. Doc. 273, 54th Cong., 2d Sess.; and Annual Report, 1897, p. 2951. |
| | Mar. 2, 1907 | Breakwaters, Shore Connections, and Removal of outer ends of the two inner piers. | H. Doc. 62, 59th Cong., 1st Sess.; and Rivers and Harbors Committee Doc. 3, 59th Cong., 2d Sess.[16] |
| | Dec. 31, 1970 | Deepen Channels and widen opening between breakwaters. | H. Doc. 342, 91st Cong., 2d Sess.[1] |
| 32. | | **MANISTEE HARBOR, MI** | |
| | Mar. 2, 1867 | Entrance Piers. | Annual Report, 1867, p. 115. |
| | Sep. 19, 1890 | Extending Channel 8,000 feet to connect with Manistee Lake, and further Pier extension. | Annual Report, 1891, P. 2678. |
| | Jul. 25, 1912 | Depth of 20 feet in Outer Harbor 570 feet wide to Outer end of South Pier 18 feet deep in river, South Breakwater with shore connection, and extend North Pier if required. | H. Doc. 599, 62d Cong., 2d Sess. |
| | Jul. 3, 1920 | 23-foot depths in entrance channel and 21-foot depths in River Channel. | S. Doc. 131, 71st Cong., 2d Sess. |
| | Mar. 2, 1945 | Remove old South Revetment, Construct new South Pier and Revetment, and widen river entrance Channel. | H. Doc. 380, 77th Cong., 1st Sess. |
| | Jul. 14, 1960 | Present project dimensions of Channel through Outer Basin and River, and Federal participation in cost of replacing Maple Street Bridge. | H. Doc. 358, 86th Cong., 2d Sess. |
| 33. | | **MANITOWOC HARBOR, WI** | |
| | Mar. 2, 1907 | Breakwaters. | H. Doc. 62, 59th Cong., 1st Sess., as modified by Rivers and Harbors Comm. Doc. 3, 59th Cong., 2d Sess. |
| | Aug. 30, 1935 [17] | Present project dimensions of channel through outer basin, removal of old north stub pier, and approach channel to a proposed city terminal south of shore end of south breakwater. | Rivers and Harbors Committee Doc. 39, 73rd Cong., 2d Sess. |
| | Aug. 26, 1937 | Channel in river. | |
| | Oct. 23, 1962 [29] | Deepen Lake approach to 25 feet by 800 feet wide, deepen outer harbor to 25 feet, river channel to 23 feet to 8th Street, and Upper River Channel to 22 feet to Soo Line R.R. | Rivers and Harbors Committee Doc. 80, 74th Cong., 2d Sess.<br>H. Doc. 479, 87th Cong., 2d Sess. |
| | Dec. 31, 1968 | Dredge River Channel to 12 feet from Soo Line R.R. 720 | |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | (Sec. 107 of 1960 R & H) | feet upstream. | Jun. 1967 Detailed Project Report Apr. 1982 Supplement.[1] |
| | Jun. 26, 1979 | Construct 765-foot long stone Breakwater, and rubblemound bulkhead; construct 360-foot long entrance Breakwater; dredge 16,500 cubic yards for entrance channel. | Sec. 107, 1960 Rivers and Harbors Act. |
| 34. | | **MARQUETTE HARBOR, MI** | |
| | Mar. 2, 1867 | Breakwaters, 2,000 feet long. | |
| | Aug. 11, 1888 | Extending the breakwater 1,000 feet. | H. Ex. Doc. 56, 39th Cong., 2d Sess., pts. 1 and 2; and Annual Report, 1866, pp. 8 and 77. Annual Report, 1889, pp. 272 and 2021. |
| | Jun. 25, 1910 | Additional 1,500-foot extension to breakwater and removing a shoal in northerly part of harbor. | H. Doc. 573, 61st Cong., 2d Sess. |
| | Aug. 30, 1935 | Deepening harbor to 25 feet. | Rivers and Harbors Committee Doc. 20, 72d Cong. , 1st Sess. |
| | Jul. 11, 1960 | Deepening harbor to 27 feet. | H. Doc. 154, 86th Cong., lst Sess.[1] |
| 35. | | **MENOMINEE HARBOR AND RIVER, MI AND WI** | |
| | Mar. 3, 1871 | Entrance piers. | |
| | Jun. 13, 1902 | Consolidation of project for harbor and river, and a channel 18 feet deep. | Annual Report, 1867, p. 132. H. Doc. 419, 56th Cong., 1st Sess. |
| | Mar. 4, 1913 | Partial restoration of work above bridge which had been | |
| | Jul. 3, 1930 | eliminated by Act of May 3, 1905. | H. Doc. 171, 70th Cong., 1st Sess. |
| | Aug. 30, 1935 | 20-foot depth in channel and 18-foot depth in turning basin. | Rivers and Harbors Committee |
| | | 21-foot depth in channel and turning basin and enlarge turning basin. | Doc. 28, 73rd Cong., 2d Sess. H. Doc. 228, 76th Cong., 1st Sess. |
| | Mar. 2, 1945 | Extend channel 12 feet deep to vicinity of Marinette Yacht Club. | H. Doc. 113, 86th Cong., 1st Sess. |
| | Jul. 14, 1960 | Deepen existing approach channel to 26 feet, entrance and river channels to 24 feet and enlarge turning basin. | Detailed Project Report, Dec. 1966. |
| | Jun. 27, 1967 (Sec. 107) | Deepen 1,100 feet of river channel generally north of Marinette Corp. facilities to 19 feet. | |
| 36. | | **MILWAUKEE HARBOR, WI** | |
| | Aug. 30, 1852 | North Pier.[12] | S. Doc. 175, 25th Cong., 2d Sess. |
| | Mar. 3, 1883 | Inner 7,600 feet of breakwater.[12] | Annual Report, 1881, p. 2122. |
| | Mar. 2, 1907 | South pier. Extending north breakwater 1,000 feet. | Annual Report, 1906, p. 1752 (No prior survey or estimate affecting breakwater extensions). |
| | Sep. 22, 1922 | Extend north breakwater; a south breakwater; present project dimensions of inner entrance channel. | H. Doc. 804, 66th Cong., 2d Sess. |
| | Aug. 30, 1935 [22] | Dredging a portion of outer harbor to 21-foot depth. | H. Doc. 289, 72d Cong., 1st Sess. |
| | Mar. 2, 1945 [18] | Dredging river channels to 21-foot depth. | S. Doc. 29, 76th Cong., 1st Sess. |
| | Jul. 14, 1960 | Deepen South Menominee and Burnham Canals to 21 feet. | H. Doc. 285, 86th Cong., 2d Sess. |
| | Oct. 23, 1962 | Deepen an approach channel to 30 feet by 800 feet wide and 300 feet wide through breakwater; deepen entrance | H. Doc. 134, 87th Cong., 1st Sess.[1] |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | | channel 28 feet through piers, outer harbor to 28 feet south of entrance channel, and a channel to 27 feet in Milwaukee River to Buffalo Street, and in Kinnickinnic River to Chicago & North Western R.R. bridges. | |
| 37. | | **MONROE HARBOR, MI** | |
| | Feb. 24, 1835 [19] | 9-foot channel, protecting Revetments and Piers. | Annual Report, 1872, p. 237. |
| | Jul. 3, 1930 | 21-foot channel, dikes and turning basin.[20] | Rivers and Harbors Committee Doc. 22, 71st Cong., 1st Sess. |
| | Jul. 14, 1932 [21] | Modified Conditions of Local Cooperation imposed by Act of Jul. 3, 1930. | Rivers and Harbors Committee Doc. 12, 72d Cong., 1st Sess.; 45, 75th Cong., 1st Sess.[1] |
| | Nov. 17, 1986 | Deepen portion of existing navigation channel to 27 feet; deepen lake channel to 28 feet; widen the channel from 200 to 500 feet; dredge a new turning basin 24 feet deep, 1,600 feet wide at river's mouth; and construct a 190 acre CDF in Plum Creek Bay to enable creation of a 700 acre marsh behind the CDF. | H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). |
| 38. | | **MUSKEGON HARBOR, MI** | |
| | Jun. 13, 1902 | Piers and Revetments. | H. Doc. 104, 56th Cong., 2d Sess. |
| | Mar. 3, 1925 | Breakwaters. | H. Doc. 494, 67th Cong., 4th Sess. |
| | Aug. 30, 1935 | Repairing Revetments around Car Ferry Slip. | Rivers and Harbors Committee Doc. 64, 75th Cong., 1st Sess.[1] |
| | Oct. 23, 1962 | Channel deepening and present project dimensions of channel. Piers and Revetments. | H. Doc. 474, 87th Cong., 2d Sess.[1] |
| 39. | | **NEW BUFFALO HARBOR, MI** | |
| | Oct. 23, 1962 | Entrance channel 10 feet deep by 80 to 180 feet wide and 850 feet long to mouth of Galien River, new north and south breakwaters 1,305 and 740 feet, respectively<br>Deepening inner channel to Galien River to 8 feet and 80 feet wide and 1, 250 feet long. | H. Doc. 474, 87th Cong., 2d Sess. |
| 40. | | **ONTONAGON HARBOR, MI** | |
| | Jun. 25, 1910 | Channel 17 feet deep and 150 feet wide through bar and 15 feet deep and 100 feet wide between piers, and pier maintenance. | H. Doc. 602, 61st Cong., 2d Sess. |
| | Aug. 26, 1937 | Modified project widths and provide inner basin. | S. Committee print, 74th Cong., 2d Sess. |
| | Oct. 23, 1962 [29] | Enlarging and deepening the existing harbor basin. | H. Doc. 287, 87th Cong., 2d Sess. |
| | Nov. 17, 1986 | Deauthorization of the turning basin feature of the project authorized by the 1962 Rivers and Harbors Act. | H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). |
| | Jan. 3, 1996 | Reauthorization of the turning basin feature which was deauthorized (Sec. 1002) in WRDA 86. | Sec. 363 (e) of WRDA 1996 |
| 41. | | **PENTWATER HARBOR, MI** | |
| | Mar. 2, 1867 | Piers and revetments, dredging. | H. Ex. Doc. 70, 39th Cong., 2d Sess. |
| | Mar. 3, 1873 | Piers and revetments, dredging. | H. Ex. Doc. 70, 39th Cong., 2d Sess. |
| | Jul. 5, 1881 | Piers and revetments, dredging. | |
| | Jul. 13, 1892 | Piers and revetments, dredging. | H. Ex. Doc. 70, 39th Cong., 2d Sess. |
| | Mar. 25, 1907 | Present project depth of channel. | H. Ex. Doc. 70, 39th Cong., 2d Sess.<br>H. Doc. 181, 39th Cong., 2d Sess.[1] |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 42. | | **PETOSKEY HARBOR, MI** | |
| | Aug. 18, 1894 | Breakwaters according to larger of two projects. | Annual Report 1890, p. 2673<br>Annual Report 1895, p. 2819 |
| | Jun. 13, 1902 | Removal of north breakwater and extension of west breakwater if cost did not exceed $170,000. | Annual Report 1896, p. 2722 |
| 43. | | **POINT LOOKOUT HARBOR, MI** | |
| | Mar. 2, 1945 | Breakwaters, Anchorage Area, Channel Dredging. | H. Doc. 446, 78th Cong., 2d Sess. |
| 44. | | **PORT AUSTIN HARBOR, MI** | |
| | Mar. 2, 1945 | Breakwater, Anchorage Basin, Channel Dredging. | H. Doc. 446, 78th Cong., 2d Sess. |
| | Jul. 16, 1984 | Construct a breakwater access for recreation purposes. | H. R. 5653, 98th Cong., 2d Sess. |
| | Jul. 11, 1987 | Breakwater. | P.L. 98-360 (98Stat. 405) Sec. 106<br>P.L. 100-71 |
| 45. | | **PORT SANILAC HARBOR, MI** | |
| | Mar. 2, 1945 | Entrance Channel 12 feet deep, Anchorage Basin, Breakwater. | H. Doc. 446, 78th Cong., 2d Sess. |
| 46. | | **PORT WING HARBOR, WI** | |
| | Jun. 13, 1902 | Construction of parallel piers and dredging. | H. Doc. 114, 56th Cong., 1st Sess. |
| | Jun. 30, 1948 | Dredging inner channels and abandonment of certain revetments and channels. | H. Doc. 668, 80th Cong., 2d Sess. |
| | Aug. 5, 1977 | Deauthorization of 50 feet of entrance channel widening | |
| 47 | | **PRESQUE ISLE HARBOR, MI** | |
| | Jun. 3, 1896 | Breakwater, 1000 feet long. | H. Doc. 318, 54th Cong., lst. Sess.; |
| | Jun. 13, 1902 | Shore extension, 216 feet long. | Annual Report, 1903, pp. 474, 1823 |
| | Aug. 30, 1935 | For dredging and rubblemound extension to breakwater 1,600 feet long; Changed designation of project. | H. Doc. 473, 72d Cong., 2d Sess. |
| | Jul. 14, 1960 | Deepening harbor from 26 and 28 feet to 28 and 30 feet, respectively. | H. Doc. 145, 86th Cong., 1st Sess. |
| 48. | | **ROUGE RIVER, MI** | |
| | Aug. 8, 1917 | 21-foot channel via the Shortcut Canal | H. Doc. 1063, 64th Cong., 2d Sess.[23] |
| | Aug.30, 1935[2,24,25] | 25-foot channel at mouth of Old Channel, 1,425 feet long and adjacent to latter; 21-foot channel extending from junction of Old Channel and Shortcut Canal into Old Channel to Detroit, Toledo & Ironton R.R. Bridge. | |
| | Jul. 3, 1958 [2] | Old Channel; 100 feet wide from Peerless Cement Corp. to Junction with Shortcut Canal widened to 150 feet at 2 bends. | H. Doc. 125, 85th Cong., 1st. Sess. |
| | Oct. 23, 1962 [2] | 25-foot channel over modified limits from Detroit River to Jefferson Avenue (via Shortcut Canal). | H. Doc. 509, 87th Cong., 2d Sess.[1] |
| 49. | | **SAGINAW RIVER, MI** | |
| | Jun. 25, 1910 | Channel 200 feet wide, with depth of 18.5 feet in Bay and 16.5 feet in River. | H. Doc. 740, 61st Cong., 2d Sess. |
| | Jul. 3, 1930 | Project Depth of 18.5 feet extended up River to Saginaw. | Rivers and Harbors Committee Doc. 30, 71st Cong., 2d Sess. |
| | Aug. 26, 1937 | Turning Basin. | Rivers and Harbors Committee Doc. 21, 75th Cong., 1st Sess. |
| | Jun. 20, 1938 | Present project channel dimensions from Bay to Sixth Street Bridge in Saginaw. | H. Doc. 576, 75th Cong., 3rd Sess. |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Sep. 3, 1954 | New Channel in Bay, 350 feet wide and 24 feet deep from 24-foot contour to River Mouth, Project Depth of 24 feet in River Channel up to Detroit & Mackinac Railway Bridge, Project Depth of 22 feet in River Channel up to Sixth Street Bridge, Turning Basins at Essexville and Carrollton, and elimination of present Channel in Bay. | H. Doc. 500, 83rd Cong., 2d Sess. |
| | Oct. 23, 1962 | Deepen Bay Channel, Deepen River Channel to Detroit & Mackinac Bridge, Extend 22-foot project above Sixth Street Bridge, Deepen Essexville Turning Basin, and Construct 2 new Turning Basins.[3] | H. Doc. 554, 87th Cong., 2d Sess. |
| | Oct. 27, 1965 | Deepen River Channel to 25 feet, from Detroit & Mackinac Bridge to New York Central Railroad Bridge. | H. Doc. 240, 89th Cong., 1st Sess.[1] |
| 50. | | **ST. CLAIR RIVER, MI** | |
| | Jul. 13, 1892 | 20-foot Channel in the River. | H. Doc. 207, 51st Cong., 2d Sess. |
| | Jul. 8, 1930 | Deepen Channel to 25 and 26 feet, and Compensating Works. | H. Doc. 253, 70th Cong., 1st Sess. |
| | Mar. 2, 1945 | Widening Channel at Southeast Bend to 700 feet. | H. Doc. 309, 77th Cong., 1st Sess. |
| | Jul. 24, 1946 [22] | Widen and deepen Southeast Bend and improve Outlet of North Channel, St. Clair River. | H. Doc. 335, 80th Cong., 1st Sess. |
| | Mar. 21, 1956 [22] | Deepen and further improve Channels in St. Clair River between limits of 27.1 to 30 feet to provide safe navigation by vessels with drafts of 25.5 feet. A cutoff Channel in Canada at Southeast Bend and abandon old Southeast Bend Channels. | S. Doc. 71, 84th Cong., 1st Sess. |
| | Nov. 17, 1986 | Deauthorization of the work authorized by the Rivers and Harbors Act of Jul. 24, 1946. | H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). |
| 51. | | **ST. JOSEPH HARBOR, MI** | |
| | Mar. 3, 1875 | Interior Revetments.[26] | H. Ex. Doc. 160, 43rd Cong., 2d Sess., and Annual Report, 1875, pt. 1, p. 162. |
| | Jun. 14, 1880 | Benton Harbor Canal.[26] | Annual Report, 1880, pp. 2030, 2031, 2049, and 2055. |
| | Mar. 3, 1899 | Present project dimensions of piers and a turning basin. | H. Doc. 307, 55th Cong., 2d Sess., and Annual Report, 1898, p. 2496. |
| | Aug. 30, 1935 | Present project dimensions of the channel and turning basin near mouth of Paw Paw River. | Rivers and Harbors Committee Doc. 52, 74th Cong., 1st Sess. |
| | Jun. 2, 1937 | Abandon easterly 1,000 feet of canal above west line of 9th street. | |
| | Mar. 2, 1945 | Turning basin above mouth of Morrison Channel and eliminate turning basin near mouth of Paw Paw River. | H. Doc. 129, 76th Cong., 1st Sess. |
| | Jul. 3, 1958 | Maintenance of turning basin near mouth of Paw Paw River | S. Doc. 95, 84th Cong., 2d Sess.[1] |
| 52. | | **SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI** | |
| | Jun. 3, 1896 | Entrance Channel, Piers and Revetments. | H. Doc. 912, 54th Cong., 1st Sess.; Annual Report, 1896, Vol. 2, Pt. 5, p. 2739. |
| | Mar. 2, 1907 | Deepening entrance to 16 feet. | Annual Report, 1907, p. 6416. |
| | Jun. 25, 1910 | Deepening Channel in River to 14 feet. | H. Doc. 635, 61st Cong., 2d Sess. |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| 53. | | **SAXON HARBOR, WI** | |
| | Jul. 3, 1958 | Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and a diversion of Oronto Creek to Parkers Creek by 3 short reaches of channel excavation and a levee. | River and Harbors Act, H. Doc. 169, 85th Cong., lst Sess.,[1] Annual Report for 1965, p. 1025. |
| 54. | | **SEBEWAING RIVER, MI** | |
| | Jun. 3, 1896 | Entrance Channel 18 feet deep, 100 feet wide and 15,000 feet long in Saginaw Bay. | H. Doc. 71, 54th Cong. 1st Sess. |
| 55. | | **SOUTH HAVEN HARBOR, MI** | |
| | Aug. 11, 1888 | Channel from Inner End of Piers to Highway Bridge.[12] | No Prior Survey or Estimate. |
| | Mar. 3, 1905 | Present dimensions of Piers and for a Turning Basin. | H. Doc. 119, 58th Cong., 2d Sess. |
| | Aug. 30, 1935 | Present project dimensions of Channel and Turning Basin. | Rivers and Harbors Committee Doc. 9, 73rd Cong., 1st Sess.[1] and Unpublished review Report of Chief of Engineers, dated Dec. 21, 1934. |
| | Oct. 31, 1992 | Turning Basin deauthorized. | Public Law 102-580 (Section 116 of WRDA of 1992). |
| 56. | | **STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI** | |
| | Mar. 3, 1873 | Breakwaters.[12] | H. Ex. Doc. 34, 42d Cong., 2d Sess.; Annual Report, 1872, p. 171. |
| | Jul. 13, 1892 | Acquisition of the canal. | H. Ex. Doc. 106, 49th Cong., 2d Sess. |
| | Jun. 13, 1902 | Canal revetments and consolidation of canal and harbor works. | H. Doc. 117, 56th Cong., 2d Sess. |
| | Aug. 30, 1935 | Present project dimensions of channels and elimination of turning basin immediately west of revetted canal. | Rivers and Harbors Committee Doc. 9, 74th Cong., 1st Sess. |
| | Mar. 2, 1945 | Turning basin between city and Bushman wharves. | H. Doc. 421, 78th Cong., 2d Sess. |
| 57. | | **TWO HARBORS, MN** | |
| | Aug. 5, 1886 | Breakwater and dredging. | H. Doc. 146, 86th Cong., 1st Sess.[1] |
| | Aug. 5, 1886 | Construction of two breakwater piers. | |
| | Aug. 30, 1935 | Shore connection to east breakwater and dredging maneuvering area. | |
| | Nov. 7, 1945 | Construct new east breakwater and enlargement of maneuvering basin. | |
| | Jul. 14, 1960 | Deepen harbor project depths from 26 and 28 feet to 28 and 30 feet, respectively | |
| 58. | | **TWO RIVERS HARBOR, WI** | |
| | Mar. 3, 1871 | South pier, 750 feet of north pier, and about 44 feet of north revetment.[12] | Annual Report, 1871, p. 123 (as modified by Chief of Engineers, |

**AUTHORIZING LEGISLATION**

**TABLE 21-B**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | | | Feb. 27, 1897). |
| | Mar. 2, 1907 | Remainder of north pier and stilling basin. | H. Doc. 730, 59th Cong., 1st Sess., Modification of Plan A. |
| | Aug. 30, 1935 [22] | Deepening entrance channel and inner basin to 18 feet. | Rivers and Harbors Committee Doc. 25, 73rd Cong., 2d Sess. |
| | Jul. 3, 1958 | Extend existing project in West Twin River to 18 feet deep and in East Twin River to 10 feet deep to 22nd Street Bridge. | H. Doc. 362, 84th Cong., 2d Sess.[1] |
| 59. | | **WHITEFISH POINT HARBOR, MI** | |
| | Mar. 2, 1945 | Breakwaters. Entrance Channel, Anchorage Basin. | H. Doc. 446, 78th Cong. 2d Sess. |
| | Aug. 17, 1967 | Breakwater Inside Harbor. | Chief of Engineers. |
| 73. | | **ST. MARYS RIVER, MI** | |
| | Jul. 11, 1870 | Weitzel Lock (Replaced in 1943 by MacArthur Lock), widen and deepen existing State Channel.[26] | Report by Maj. O.M. Poe, Corps of Engineers, not published. |
| | Aug. 5, 1886 | Poe Lock.[1] | H. Ex. Doc. 72, 49th Cong., 2d Sess. |
| | Jul. 13, 1892 | Dredging through shoals above falls and shoals below falls between lower end of Canal and upper entrance Channel into Lake Nicolet (formerly Hay Lake). | H. Ex. Doc. 207, 51st Cong., 2d Sess., and Annual Report, 1891, p. 2810. |
| | Jun. 13, 1902 | Enlarging the Old Channel. | H. Doc. 138, 56th Cong., 2d Sess., and 215, 58th Cong., 3rd Sess. |
| | Jun. 13, 1902 | Lake Nicolet and Neebish Channels work in that section of River below Locks. | H. Doc. 128, 56th Cong., 2d Sess. |
| | Mar. 2, 1905 | | H. Doc. 215, 56th Cong., 3rd Sess. |
| | Mar. 3, 1907 | Davis Lock Second Canal, and Emergency Dam. | H. Doc. 333, 59th Cong., 2d Sess. (Plan 3). |
| | Mar. 3, 1909 | Lease of Waterpower at Falls, Lease entered into with Michigan Northern Power Company provided for construction of remedial and compensating works. | |
| | Jul. 25, 1912 | Fourth Lock (Renamed 'Sabin' Lock in 1943). | |
| | Mar. 4, 1915 | Deepen Tailrace of Power Plant. | H. Doc. 65, 62d Cong., 1st Sess. |
| | Sep. 22, 1922 | Widen upper approach to Canals through Vidal Shoals, extend anchorage and maneuver area below locks. | District Engineer Report, Oct. 29, 1920. |
| | Jan. 21, 1927 | Remove Round Island, middle ground extension of Northwest Canal Pier, and widen Channels Middle Neebish Route. | H. Doc. 270, 69th Cong., 1st Sess. |
| | Jul. 3, 1930 | Deepen Channels throughout downbound Route. | |
| | Jun. 26, 1934 [9] | Operation and Care of Canal and Locks provided from War Department Appropriations for Rivers and Harbors. | H. Doc. 253, 70th Cong., 1st Sess. |
| | Aug. 30, 1935 | Widen Brush Point Turn and Channel from Brush Point to Point Louise. | Rivers and Harbors Committee Doc. 53, 74th Cong., 1st Sess. |
| | Mar. 7, 1942 | Construct new (MacArthur) Lock on site of former Weitzel Lock, deepen approach Channels to 27 feet, and reconstruct approach Piers. | H. Doc. 218, 77th Cong., 1st Sess. |
| | Jun. 15, 1943 | Name 'MacArthur' Lock and changed name of 'Fourth' Lock to 'Sabin' Lock. | |
| | Mar. 2, 1945 | Remove Bridge Island and construct new Hydroelectric Power Plant. | |

**TABLE 21-B** **AUTHORIZING LEGISLATION**

| See Sec. | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Jul. 24, 1946 | Replace Poe Lock at St. Marys Falls Canal with a new structure 800 feet long, 100 feet wide and 32 feet deep with necessary construction of Nose and Center Piers, and widen and deepen Channel across Point Iroquois Shoals and in Lake Nicolet to provide wider anchorage and maneuver areas in St. Marys River. | H. Doc. 679, 78th Cong., 2d Sess., and 339, 77th Cong., 1st Sess. H. Doc. 335, 80th Cong., 1st Sess. |
| | Mar. 21, 1956 | Deepen to provide a Project Safe Draft of 25.5 feet over full width to downbound and 2-way Channels (including anchorage areas) and over Westerly 300-foot width of upbound Middle Neebish Channel, when levels of Lakes Superior and Huron are at their respective LWD's. | S. Doc. 71, 84th Cong., 1st Sess.[1] |
| | Jul. 9, 1956 | Repeal Authorization of Bridge as a part of Project, authorize alteration with cost to be apportioned by Sec. 6, Truman Hobbs Act, Jun. 21, 1940. | None. |
| | Nov. 17, 1986 | Construct a second large lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks. | H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). |

[1]Contains latest published map.
[2]Including Emergency Relief Administration Work authorized May 28, 1935.
[3]Included in Public Works Administration Program September 6, 1933.
[4]This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.
[5]Administrative Act, Section 4.
[6]Public Law 568, 82d Congress.
[7]Public Law 388, 87th Congress.
[8]This portion inactive.
[9]Permanent Appropriations Repeal Act.
[10]Transfer completed June 1962.
[11]Amended 1868, 1879, 1892.
[12]Completed under previous project.
[13]Included in Public Works Administration Program January 3, 1934.
[14]Inactive portion; removal of 200 linear feet of north pier, widening inner 200 feet of channel through outer basin, and closing gap in north shore connection of breakwater.
[15]Latest published map is in Annual Report, 1914, p. 2974.
[16]Latest published map in Annual Report, 1914, p. 2914.
[17]Superseded by Act of October 23, 1962.
[18]Uncompleted portion was deauthorized in 1977 (dredging Milwaukee River from Buffalo Street Bridge to North Humboldt Avenue Bridge).
[19]Modified by Act of June 10, 1872.
[20]Riprapping of protecting dikes portion of project is inactive.
[21]War Department Appropriations Act.
[22]Uncompleted portion deauthorized December 31, 1989, under Section 1001, P.L. 99-662.
[23]Contains latest published maps. See also map with Rivers and Harbors Committee Doc. 19, 72d Cong., 1st Sess.
[24]Except for dredging 25-foot channel to 1,150 feet upstream of mouth of old channel, work authorized in this Act is considered inactive.
[25]This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.
[26]Completed under previous projects. Public Law 130, 75th Cong., 1st Sess.
[27]Work recommended in H. Doc. 588, 64th Cong., 1st Sess.
[28]Deauthorized in 1977.
[29]This modification deauthorized December 31, 1989, under Section 1001, P.L. 99-662.
[30]Latest published map is in H. Doc. 588, 64th Cong., 1st Sess.
[31]Latest published map is in H. Doc. 2053, 64th Cong., 2d Sess.

**AUTHORIZING LEGISLATION**

**TABLE 21-C**

| Project | Status | For Last Full Report See Annual Report for | Cost to Sep. 30, 2009 Construction | Cost to Sep. 30, 2009 Operation & Maintenance |
|---|---|---|---|---|
| Algoma Harbor, WI | Completed | 2002 | 292,010[1] | 1,734,656 |
| Alpena Harbor, MI | Completed | 2008 | 337,394[2] | 2,777,970 |
| Alternative Technology Project, Duluth | Active | --- | 0 | 984,820[3] |
| Ashland Harbor, MI | Completed | 2007 | 1,695,645 | 5,110,333 |
| Bayfield Harbor, WI | Completed | 1979 | 183,855 | 205,770[3] |
| Bell River, MI | Completed | 1980 | 24,301 | 135,377 |
| Beaver Bay, MN | Active | 1982 | 293,000 | 2,818 |
| Big Suamico River, MI | Completed | 2003 | 20,243 | 1,953,690 |
| Black River (lcona Co), MI | Inactive | 1907 | 0 | 878 |
| Black River (P.H.), MI | Completed | 2005 | 830,165[4] | 2,425,863[5] |
| Cedar River Harbor, MI | Completed | 2007 | 408,000 | 4,090,480 |
| Channels in Straits of Mackinac, MI | Completed | 1991 | 2,832,629 | 263,180 |
| Cheboygan Harbor, MI | Completed | 1998 | 504,236 | 1,077,684[23] |
| Chippewa Harbor, Isle Royale, MI | Completed | 1959 | 125,629 | 17,829 |
| Clinton River Spillway, MI | Completed | 2002 | 3,495,008 | 5,890 |
| DeTour Harbor, MI | Completed | 1989 | 2,559,346 | 172,543[3] |
| Eagle Harbor, MI | Completed | 1996 | 205,164[6] | 164,703[3] |
| Great Lakes Sediment Transport Model | Active | --- | 0 | 1,669,758 |
| Greilickville Harbor, MI | Completed | 2000 | 369,557[7] | 452,641 |
| Hammond Bay Harbor, MI | Completed | 1998 | 1,092,366 | 1,091,903[3] |
| Harrisville Harbor, MI | Completed | 2002 | 2,639,392 | 1,644,411 |
| Kenosha Harbor, MI | Completed | 2005 | 988,969[8,9] | 13,822,401[10] |
| Knife River Harbor, MN | Completed | 2003 | 528,945 | 408,023 |
| Lac Labelle Harbor, MI | Completed | 2006 | 269,270[11] | 956,800 |
| La Point Harbor, WI | Completed | 2000 | 139,874 | 214,650 |

**TABLE 21-C** **AUTHORIZING LEGISLATION**

| Project | Status | For Last Full Report See Annual Report for | Cost to Sep. 30, 2009 Construction | Cost to Sep. 30, 2009 Operation & Maintenance |
|---|---|---|---|---|
| Little Bay De Noc, Gladstone Harbor, MI | Completed | 1966 | 332,832 | 105,634 |
| Lutsen Harbor, MN | Active | 1982 | 357,000 | 0 |
| Mackinac Island Harbor, MI | Completed | 1989 | 334,089 | 1,816,628 |
| Mackinaw City Harbor, MI | Completed | 1986 | 136,286[12] | 147,093[3] |
| Manistique Harbor, MI | Completed | 2003 | 1,299,355[13] | 7,315,711 |
| Northport Harbor, WI | Inactive | ---- | 0 | 0 |
| Oconto Harbor , WI | Completed | 2003 | 130,754[14] | 2,503,685[15] |
| Pensaukee Harbor, WI | Completed | 1996 | 34,035 | 703,936[3] |
| Pine River, MI | Completed | 1980 | 13,649 | 102,484 |
| Portage Lake Harbor, MI | Completed | 2008 | 256,129 | 9,026,976 |
| Port Washington Harbor, WI | Completed | 2006 | 4,206,204[16] | 4,026,766[17] |
| Sebewaing River, MI (Flood Control) | Completed | 2005 | 365,642 | 487,996 |
| Sheboygan Harbor, WI | Completed | 2008 | 1,136,088[18] | 12,720,342[19] |
| Silver Bay Harbor, MN | Completed | 1999 | 3,835,235 | 0 |
| St. James, Beaver Island, MI | Completed | 1957 | 49,171[20] | 580,975 |
| St. Joseph River, MI | Completed | 1975 | 54,555 | 19,185 |
| Tawas Bay Harbor, MI | Completed | 1996 | 2,110,745 | 116,333[3] |
| Washington Island, WI | Completed | 1950 | 62,838 | 108,823[3] |
| White Lake Harbor, MI | Completed | 2008 | 457,562 | 12,619,847 |

**AUTHORIZING LEGISLATION**

**TABLE 21-C**

| Project | Status | For Last Full Report See Annual Report for | Cost to Sep. 30, 2009 Construction | Cost to Sep. 30, 2009 Operation & Maintenance |
|---|---|---|---|---|

[1] Includes $92,774 for previous projects.

[2]Includes $18,889 for previous projects.

[3]Includes FY 01 cost not reported.

[4]Includes $85,849 for previous projects.

[5]Includes $12,008 for previous projects.

[6] Excludes $27,800 for previous projects.

[7]Excludes $127,000 Contributed Funds

[8]Includes $452,839 for previous projects.

[9] Excludes $3,000 for Diked Disposal.

[10] Includes $21,818 for previous projects and $4,378,600 for Diked Disposal.

[11] Excludes $38,190 Contributed Funds.

[12] Excludes $210,500 Contributed Funds.

[13]Includes $3,955 for previous projects.

[14]Includes $84,569 for previous projects.

[15]Includes $8,181 for previous projects.

[16]Includes $188,495 for previous projects

[17]Includes $15,123 for previous projects and $10,621 for Diked Disposal.

[18]Includes $487,817 for previous projects

[19]Includes $87,131 for previous projects, $907,792 for Diked Disposal and $609,028 for Major Rehab.

[20]Excludes $7,500 Contributed Funds.

## TABLE 21-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

| Project | Status | For Last Full Report See Annual Report for | Cost to Sep. 30, 2009 Construction | Cost to Sep. 30, 2009 Operation & Maintenance |
|---|---|---|---|---|
| **Kawkawlin River, MI [1,2]** | **Completed** | **1999** | **1,000,000** | **470,500** |
| **Kalamazoo River (Battle Creek) MI [3,4]** | **Deferred** | **1975** | **4,471,235** | **----** |
| **Paw Paw Lake, MI** | **Completed** | **1989** | **3,589,000** | **----** |
| **Saginaw River-1958 Act Flint MI** | **Completed** | **2003** | **24,928,359** | **6,453,831** |
| **Upper Peninsula of Michigan, MI[5]** | **Active** | **----** | **----** | **20,288,263** |
| **Upper River Rouge, MI[6]** | **Inactive** | **1968** | **7,935** | **----** |
| **River Rouge, MI** | **Completed** | **1981** | **31,960,332** | **----** |

**[1]Excludes $204,559 Contributed Funds.**

**[2]Excludes 228,748 Contributed Funds.**

**[3]Includes $108,335 Contributed Funds.**

**[4]Uncompleted portion deauthorized Dec. 31, 1989, in accordance with Section 1001 of the W.R.D.A. of 1986 (PL 99-662).**

**[5]Project authorized in FY02. No costs were expended in FY02.**

**[6]Planning indefinitely suspended due to lack of local cooperation.**

## TABLE 21-F MULTIPLE PURPOSE PROJECTS, INCLUDING POWER
## ST. MARYS RIVER, MI: EXISTING PROJECT
(SEE SECTION 73 OF TEXT)

| Lock | | Davis | Sabin | MacArthur | New Poe |
|---|---|---|---|---|---|
| Miles Above Mouth | | 47 | 47 | 47 | 47 |
| Clear Width of Chamber | Feet | 80 | 80 | 80 | 110 |
| Length Between Gate Quoins | Feet | 1,350 | 1,350 | 800 | 1,200 |
| Lifts | Feet | 21.7 | 21.7 | 21.7 | 21.7 |
| Depth Over Upper Breast Walls[1] | Feet | 24.3 | 24.3 | 31 | 32 |
| Depth Over Lower Breast Walls[1] | Feet | 23.1 | 23.1 | 31 | 32 |
| Foundation | | Rock | Rock | Rock | Rock |
| Type of Construction | | Concrete | Concrete | Concrete | Concrete |
| Estimated Cost | | $6,200,000[2] | $3,275,000[3] | $12,909,440 | $39,000,000 |
| Actual Cost | | $2,200,000[5] | $1,750,000[6] | $12,718,806[4,7] | $34,813,066 |
| Completed (Open to Commerce) | | Oct. 21, 1914 | Sep. 18, 1919 | Jul. 11, 1943 | Jun. 26, 1969 |
| Emergency Dam for | | South Canal | | North Canal | |
| Miles Above Mouth | | 47 | | 47 | |
| Estimated Cost | | -[9] | | $300,000 | |
| Type | | Steel Stoplogs Recessed Into Lock Masonry | | Steel Stoplogs Recessed Into Lock Masonry | |
| Cost Completed | | -[9] | | $169,224[8] | |
| Year Completed | | 1943 | | 1922 (Modified 1963) | |

[1]At low water datum 600.6 above and 578.4 below.

[2]Includes cost of North Canal.

[3]Includes cost of canal excavations to provide necessary approaches to lock, canal walls, piers, and emergency dam, $662,919.

[4]Excludes cost of deepening and enlarging South Canal, $1,653,378.

[5]Excludes cost of North Canal, $2,572,611.

[6]Excludes cost of canal excavation to provide necessary approaches to lock, canal walls, piers, and emergency dam, $662,919.

[7]Excluding cost of lower guard gates which were never installed.

[8]Including engineering office and inspection.

[9]Not separate from cost of locks.

Note: Limiting draft to locks is determined by depth over breast walls.

## AUTHORIZING LEGISLATION

## TABLE 21-G

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Beaver Bay, MN (Mar. 2, 1945 R&H Act) | 1982 | Jul 1995 | 295,818 | 0 |
| Berrien County, MI (St. Joseph Shore) beach erosion control (1958 Flood Control Act) | 1963 | Nov 1986 | 0 | 0 |
| Black River Harbor, Alcona County, MI (Authorized Dec.17, 1979, under Section 201 of the 1965 Flood Control Act) | 1971 | Dec 1989 | 0 | 0 |
| Black River Harbor, MI (Aug. 30, 1935 R&H Act) | 1976 | Nov 1977 | 0 | 0 |
| Cross Village, MI (October 13, 2001 WRDA 96, Sec 328) | 1983 | Oct 2001 | 364,000 | 0 |
| Detroit River, Trenton Chnl., MI (May 17, 1950 R&H Act) | 1976 | Aug 1977 | 0 | 0 |
| Detroit River, Trenton Chnl., MI (Uncompleted portion) (Aug. 13, 1968 R&H Act) | 1976 | Dec 1989 | 159,300,000 | 0 |
| Duluth-Superior Inner Harbor, MN and WI (Jul. 14, 1960 R&H Act) | 1990 | Dec 1989 | 14,562,100 | 0 |
| Forestville Harbor, MI (1968 R&H Act) | 1969 | Nov 1986 | 0 | 0 |
| Grand Haven Harbor, MI (Mar. 2, 1945 R&H Act) | 1976 | Nov 1977 | 0 | 0 |
| Grand River at Grandville, MI (Oct. 27, 1965 Flood Control Act) | 1966 | Nov 1977 | 0 | 0 |
| Great Lakes Connecting Channels, MI[1] (Uncompleted portion) (R&H Acts of 1946 and 1956) | 1990 | Dec 1989 | 93,993,349 | 0 |
| Green Bay Harbor, Brown County, WI (1962 Modification) | 1999 | April 1999 | 4,030,000 | 1,970,000 |
| Harbors of Washington Island, WI (R&H Act of 1937) | 1950 | Dec 1989 | 62,838 | 0 |
| Holland Harbor Entrance Channel, MI (Uncompleted portion) (Sep. 3, 1954 R&H Act) | 1962 | Dec 1989 | 0 | 0 |
| Kalamazoo River, Battle Creek, MI (Uncompleted portion) (1954 Flood Control Act) | 1975 | Dec 1989 | 6,656,668 | 108,332 |

**TABLE 21-G** **DEAUTHORIZED PROJECTS**

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Kalamazoo River, Kalamazoo, MI (Jul. 3, 1958 Flood Control Act) | 1975 | Dec 1989 | 416,822 | 0 |
| Kenosha Harbor, WI (Uncompleted portion) (Oct. 23, 1962 R&H Act) | 1990 | Dec 1989 | 552,000 | 43,000 |
| Kewaunee River, WI (1960 R&H Act) | 1976 | Aug 1977 | 0 | 0 |
| Lansing (Grand River), MI (Jul. 3, 1958 Flood Control Act) | 1971 | Jun 1981 | 7,000 | 0 |
| Lower Fox River, WI (Uncompleted portion) (Mar. 3, 1925 R&H Act) | 1990 | Dec 1989 | 3,753,334 | 0 |
| Lutsen Harbor, MN (Mar. 2, 1945 R&H Act) | 1990 | Jul 1995 | 357,000 | 0 |
| Manitowoc Harbor, WI (Oct. 23, 1962 R&H Act) | 1990 | Dec 1989 | 0 | 0 |
| Milwaukee Outer Harbor, WI (Uncompleted portion) (R&H Act of 1935) | 1990 | Dec 1989 | 6,937,804 | 478,000 |
| Northport Harbor, WI (Authorized in 1972 under Section 201 of the 1965 Flood Control Act) | - | Dec 1989 | 132,000 | 0 |
| Ontonagon Harbor, MI (R&H Act of 1962) | 1990 | Dec 1989 | 27,482 | 0 |
| Pentwater Harbor, MI (Jul. 13, 1892 R&H Act) | 1976 | Nov 1977 | 0 | 0 |
| Port Washington Harbor, WI (Portion) (Sec. 501(17) of WRDA 1996) | 2003 | Jan 1996 | 0 | 0 |
| Racine Harbor, WI (Mar. 2, 1907; Aug. 26, 1937; and Mar. 2, 1945 R&H Acts, and Section 107 of the 1960 R&H Act) | 1963 | May 1986 | 9,441,554 | 0 |
| Red Run Drain, Lower Clinton River, MI (1970 Flood Control Act) | 1983 | Nov 1986 | 3,823,000 | 0 |
| Rogers City Harbor, MI (Jun. 25, 1910 R&H Act) | 1926 | Aug 1977 | 5,892 | 0 |
| Rouge River, MI (Oct 23, 1962 R&H Act) | 1976 | Aug 1977 | 22,000 | 0 |
| Rouge River, MI (Jul. 3, 1958 R&H Act) | 1976 | Aug 1977 | 12,000 | 0 |
| Rouge River, MI (Aug. 30, 1935 R&H Act) | 1976 | Aug 1977 | 0 | 0 |

## AUTHORIZING LEGISLATION

### TABLE 21-G

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Saginaw River, MI (Midland on Tittabawassee River) | 1983 | May 1997 | 5,125,000 | 1,611,500 |
| St. Clair River Compensating Works, MI (Jul. 3, 1930 R&H Act) | 1976 | Aug 1977 | 0 | 0 |
| South Milwaukee Harbor, WI (1836 Flood Control Act) | 1906 | Aug 1977 | 0 | 0 |
| St. Marys River (MacArthur Lock Guard Gates), MI (Mar. 7, 1942 R&H Act) | 1977 | Oct 1978 | 0 | 0 |
| Two Rivers Harbor, WI (Uncompleted portion) (Aug. 30, 1935 R&H Act) | 1990 | Dec 1989 | 147,463 | 0 |

[1]Includes Detroit and St. Clair Rivers.

## TABLE 21-H FEATURES OF EXISTING PROJECT

| Name of Channel | Length of Channel (Feet) | Miles from River Mouth | Upbound or Down-bound Vessels | Project Width (Feet) | Project Depth (Feet) | Project Datum Planes IGLD 1985 (Feet) | Year Com-plete |
|---|---|---|---|---|---|---|---|
| **DETROIT RIVER, MI** (SEE SECTION 11 OF TEXT) | | | | | | | |
| Channel north of Belle Isle[1] | ---[2] | 30 | Both | 200 | 21.0 | 571.9 | 1964 |
| Channel at head of Detroit River | 38,800 | 32 | Both | 800 | 28.5 | 572.1-571.5 | 1964 |
| Misc. shoals and obstructions | 44,500 | 25 | Both | --- | 28.5 | 571.5-570.9 | 1964 |
| Belle Isle to Fighting Island Channel | | | | | | | |
| Fighting Island Channel | 24,800 | 17 | Both | 800 | 28.5 | 570.4 | 1962 |
| Ballards Reef Channel north of | 12,200 | 12 | Both | 600 | 28.5 | 570.4 | 1964 |
| Junction with Livingstone Channel | | | | | | | |
| Livingstone Channel Upper | 26,000 | 10 | Down | 450 | 27.7 | 570.4-569.2 | 1964 |
| Livingstone Channel Lower: | | | | | | | |
| CS 260+00 to 368+87 | 10,887 | 5 | Down | 450-800 | 29.0 | 569.2 | 1961 |
| CS 368+87 to 492+00 | 12,313 | --- | Both | 800-1,200 | 29.0 | 569.2 | 1961 |
| East Outer Channel | 42,000 | --- | Both | 1,200 | 28.5 | 569.2 | 1964 |
| Misc. shoals and obstructions, | --- | --- | Both | --- | 28.5-29.5[3] | 569.2 | 1964 |
| Detroit River to Pelee Passage | | | | | | | |
| Pelee Passage Shoal | --- | --- | Both | --- | 29.5 | 569.2 | --- |
| Amherstberg Channel: | | | | | | | |
| Upper Section, Ballards Reef Channel | 6,500 | 10 | Up | 600 | 27.5 | 570.4-570.1 | 1960 |
| Middle Section | 12,000 | --- | Up | 600 | 21-27.5[4] | 570.1-569.5 | 1960 |
| Lower Section, Hackett Range | 24,000 | --- | Up | 600 | 21-28.5[5] | 569.5-569.2 | 1960 |
| West Outer Channel | 21,000 | --- | Down | 800 | 22.0 | 569.2 | 1929 |
| Trenton Channel: | | | | | | | |
| Wyandotte Reach | 31,500 | 17 | Local | 300 | 27.0 | | 1964[6] |
| Trenton Channel (Upper) | 5,100 | --- | Local | 300 | 28.0 | 570.3-570.2 | 1964 |
| Trenton Reach (Lower) | 600 | --- | Local | 250-300 | 28.0 | 570.2-569.4 | 1941 |
| Grosse Ile Shoal | 600 | 14 | Local | --- | 20.0 | 570.4 | 1904 |
| **ST. CLAIR RIVER, MI** (SEE SECTION 50 OF TEXT) | | | | | | | |
| Channel at foot of Lake Huron | 26,500 | 44 | Both | 800 | 30.0 | 577.5-577.1 | 1961 |
| Channel north of Blue Water Bridge | 4,100 | 39 | Both | 800 | 30.0 | 577.1-576.5 | 1962 |
| Port Huron to Stag Island: | | | | | | | |
| Widening at Upper and Lower | 38,000 | 38 | Both | 1,000- | 27.4 | 577.1-575.3 | 1961 |
| Ends of Stag Island | 37,600 | 31 | Both | 1,400 | 27.3 | 575.3-574.3 | 1962 |
| St. Clair to Russell Island | 77,000 | 24 | Both | 900-1,000 | 27.3 | 574.3-572.6 | 1962 |
| Russell Island to Southeast Bend | 20,600 | 11 | Both | 1,000 | 27.2 | 572.6-572.3 | 1962 |
| Southeast Bend: | | | | 700-1,000 | | | |
| CS 324+00 to 250+00 | 7,400 | 5 | Both | | 27.1 | 572.3-572.2 | 1962 |
| Cutoff Channel | 30,300 | --- | Both | 700 | 27.1 | 572.2 | 1962 |
| North Channel Outlet | 8,000 | --- | Small | 700 | 10.0 | 572.2 | --- |
| | | | Craft | 100 | | | |

[1]This is a side channel.
[2]Extends from deep water near Windmill Point to a point opposite Fairview Slip, about 3,000 feet.
[3]Project depth 29.5 feet over Rock Shoals and 28.5 feet over other than Rock Shoals.
[4]Project depth 21 feet in easterly 300-foot width of channel and 27.5 feet in westerly 300-foot width.
[5]Project depth 21 feet in easterly 300-foot width of channel and 28.5 feet in westerly 300-foot width.
[6]Project complete except for work authorized by Rivers and Harbors Act of 1950.

**TABLE 21-I**

# FOX RIVER, WI: LOCKS AND DAMS
(SEE SECTION 13 OF TEXT)

| Name of Lock and Dam | Miles from Green Bay | Nearest Town | Dis-tance (miles) | Clear Width (feet) | Depth at Normal Pool: Avail-able Length (feet) | Lift (feet) | Breast Wall[1] (feet) | Lower Miter Sill (feet) | Character of Foundation | Kind of Dam | Type of Construction | Year Com-plete | Actual Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DePere lock[2] | 7.1 | DePere | --- | 36.0 | 146.0 | 8.9 | 10.3 | 12.0 | Rock | --- | Concrete | 1936 | $229,308 |
| DePere dam[2] | 7.2 | DePere | --- | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1929 | 209,536 |
| Little Kaukauna lock[2] | 13.0 | DePere | 6 | 36.0 | 146.0 | 7.2 | 8.0 | 9.5 | Clay | --- | Concrete | 1938 | 362,427 |
| Little Kaukauna dam[2] | 13.1 | DePere | 6 | --- | --- | --- | --- | --- | Clay & Gravel | Fixed[3,4] | Piers and concrete | 1926 | 179,398 |
| Rapide Croche lock[2] | 19.2 | Wrightstow | 2 | 36.0 | 146.0 | 8.3 | 8.8 | 9.3 | Rock | --- | Concrete | 1934 | 228,738 |
| Rapide Croche dam[2] | 19.3 | Wrightstow | 2 | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1930 | 118,975 |
| Kaukauna fifth lock[2] | 22.8 | Kaukauna | --- | 35.6 | 144.0 | 9.1 | 6.7 | 9.3 | Rock | --- | Composite | 1898 | 13,310[5] |
| Kaukauna fourth lock[2] | 23.1 | Kaukauna | --- | 36.6 | 144.1 | 10.2 | 6.9 | 6.0 | Rock | --- | Stone masonry | 1879 | 37,536 |
| Kaukauna third lock[2] | 23.3 | Kaukauna | --- | 30.6 | 144.0 | 10.2 | 6.9 | 6.3 | Rock | --- | Stone masonry | 1879 | 39,948 |
| Kaukauna second lock[2] | 23.4 | Kaukauna | --- | 35.0 | 144.0 | 9.6 | 6.0 | 6.0 | Rock | --- | Stone masonry | 1903 | 24,313 |
| Kaukauna first lock[2] | 23.6 | Kaukauna | --- | 35.1 | 144.4 | 11.0 | 6.9 | 6.0 | Rock | --- | Stone masonry | 1883 | 38,704 |
| Kaukauna dam[2] | 24.0 | Kaukauna | --- | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1931 | 123,763 |
| Kaukauna guard lock | 24.0 | Kaukauna | --- | 40.0 | --- | --- | 9.4 | --- | Rock | --- | Stone masonry | 1891 | 12,630 |
| Little Chute combined lock: | | | | | | | | | | | | | |
| Lower | 24.4 | Little Chute | 1 | 35.4 | 146.5 | 10.9 | 6.0 | 8.6 | Rock | --- | Stone masonry | 1879 | 102,304 |
| Upper | 25.4 | Little Chute | 1 | 36.3 | 144.1 | 10.6 | 7.6 | 6.0 | Hardpan | --- | Stone masonry | 1879 | --- |
| Little Chute second lock[2] | 26.4 | Little Chute | --- | 35.0 | 144.2 | 13.8 | 8.0 | 6.1 | Rock | --- | Stone masonry | 1881 | 48,555 |
| Luttle Chute first (guard) lock[1] | 26.5 | Little Chute | --- | 35.4 | --- | --- | 6.6 | --- | Rock | --- | Stone masonry | 1904 | 7,817[5] |
| Little Chute dam[2] | 26.6 | Little Chute | --- | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1932 | 82,554 |
| Cedars lock[2] | 27.3 | Little Chute | 1 | 35.0 | 144.0 | 9.8 | 6.8 | 7.3 | Rock | --- | Stone masonry | 1888 | 34,972 |
| Cedars dam[3] | 27.4 | Little Chute | 1 | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1933 | 84,973 |
| Appleton fourth lock[2] | 30.7 | Appelton | 1 | 35.0 | 144.0 | 7.6 | 8.1 | 7.9 | Rock | --- | Stone masonry | 1907 | 40,893 |
| Appleton lower dam[2] | 30.9 | Appleton | 1 | --- | --- | --- | --- | --- | Rock | Fixed[3,4] | Concrete | 1934 | 73,903 |
| Appleton third lock[2] | 31.3 | Appleton | --- | 35.0 | 144.0 | 8.7 | 6.0 | 8.6 | Rock | --- | Stone masonry | 1900 | 32,238 |
| Appleton second lock[2] | 31.6 | Appleton | --- | 35.1 | 144.6 | 9.6 | 6.9 | 6.0 | Clay | --- | Stone masonry | 1901 | 22,940 |
| Appelton first lock[2] | 31.9 | Appleton | --- | 35.0 | 144.7 | 10.0 | 6.6 | 6.0 | Rock | --- | Stone masonry | 1884 | 36,004 |
| Appleton upper dam | 32.2 | Appleton | --- | --- | --- | --- | --- | --- | Rock | Fixed[3] | Concrete | 1940 | 151,558 |
| Menasha lock[2] | 37.0 | Menasha | --- | 35.4 | 144.0 | 8.5 | 7.2 | 8.0 | Clay | --- | Composite | 1899 | 19,326[5] |
| Menasha dam[2] | 37.8 | Menasha | --- | --- | --- | --- | --- | --- | Hardpan | Fixed[3] | Concrete | 1937 | 84,686 |

[1]Depth shown is on breast wall, which is controlling depth for upper pool.
[2]Original structure built prior to assumption of control by United States on Sep. 18, 1872.
[3]Provided with sluices.
[4]Flash boards used.
[5]Partially rebuilt.

**TABLE 21-J RECONNAISSANCE & CONDITION SURVEYS**

| Name of Project | Date Survey Conducted |
|---|---|
| ASHLAND HARBOR, WI | JUN 2009 |
| BAYFIELD HARBOR, WI | SEP 2009 |
| BIG SUAMICO HARBOR, WI | SEP 2009 |
| BLACK RIVER HARBOR, MI (Port Huron) | AUG 2009 |
| CEDAR RIVER HARBOR, MI | SEP 2009 |
| EAGLE HARBOR, MI | AUG 2009 |
| HARBOR BEACH HARBOR, MI | JUN 2009 |
| HARRISVILLE HARBOR, MI | JUN 2009 |
| KENOSHA HARBOR, WI | SEP 2009 |
| KNIFE RIVER HARBOR, MN | JUL 2009 |
| LA POINT HARBOR, WI | JUL 2009 |
| LAC LABELLE HARBOR, MI | AUG 2009 |
| OCONTO HARBOR, WI | SEP 2009 |
| PORTAGE LAKE HARBOR, MI | SEP 2009 |
| WHITE LAKE HARBOR, MI | JUL 2009 |

## TABLE 21-K .....NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Navigation activities pursuant to Section 107. Public Law 86-645 (pre-authorization).** | | | | |
| **Navigation activities pursuant to Section 107 of the River and Harbor Act of 1960, as amended.** | | | | |
| Coordination Account | Coordination | 11,380 | --- | 11,380 |
| City of Mackinac Island Harbor Breakwater, MI | Feasibility Activities | 0 | --- | 0 |
| Detroit River Navigation Improvement, MI | Feasibility Activities | 0 | --- | 0 |
| Duluth (McQuade Road) Harbor, MN | Construction | 105,993 | 200,357 | 306,350 |
| Escanaba, MI | Feasibility Activities | 0 | --- | 0 |
| Grand Portage Harbor, MN | Feasibility Activities | 0 | --- | 0 |
| Harbor of Refuge, Grand Marias, MN | Feasibility Activities | 5,942 | --- | 5,942 |
| Knife Harbor, MN | Feasibility Activities | 5,106 | --- | 5,106 |
| Lakeshore State Park, Milwaukee, WI | Design & Implementation | 17,129 | --- | 17,129 |
| North Michigan College, Traverse City | Feasibility Activities | 74,087 | 44,608 | 118,695 |
| Ontonagon River, MI | Feasibility Activities | 3,296 | --- | 3,296 |
| Rouge River, MI | Feasibility Activities | 0 | --- | 0 |
| Saugatuck Harbor, Kalamazoo River, MI | Feasibility Activities | 0 | --- | 0 |
| Two Harbors, MN | Design & Implementation | 16,344 | --- | 16,344 |
| Total | | 239,277 | 244,965 | 484,242 |

## TABLE 21-L EMERGENCY SHORE PROTECTION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Authority for emergency streambank and shoreline protection of public works and non-profit services (Section 14 Flood Control Act of 1946, as amended).** | | | | |
| Coordination Account | Coordination | 7,090 | 0 | 7,090 |
| Belle Isle Park, City of Detroit, MI | Planning and Design Analysis | 0 | --- | 0 |
| Big Rapids, MI | Planning and Design Analysis | 0 | --- | 0 |
| Combined Sewer Outfall #6, South Bend, MI | Planning and Design Analysis | 0 | --- | 0 |
| Detroit River Shoreline, MI | Construction | 0 | --- | 0 |
| Gibraltar, MI | Planning and Design Analysis | 0 | --- | 0 |
| Grand River (NOWS) Grand Haven, MI | Design and Implementation | 8 402 | 0 | 8,402 |
| Kenosha Harbor, Retaining Wall, WI | Design and Implementation | 9,936 | 0 | 9,936 |
| Kinnickinnic River, Milwaukee County, WI | Construction | 122,634 | 183,928 | 306,562 |
| Leeper Park Island Wall, South Bend, IN | Construction | 0 | --- | 0 |
| Marquette Lakeshore Boulevard, MI | Planning and Design Analysis | 0 | -- | 0 |
| Mosel, Sheboygan County, WI | Construction | 0 | 0 | 0 |
| North Shore Drive, City of South Bend, IN | Planning and Design Analysis | 0 | --- | 0 |
| Rouge River, City of Southfield, MI | Construction | 0 | --- | 0 |
| St. Joseph River, Niles, MI | Planning and Design Analysis | 0 | --- | 0 |
| St. Joseph River, South Bend, IN | Construction | 0 | 0 | 0 |
| Sturgeon River, Houghton, MI | Planning and Design Analysis | 643 | 0 | 643 |
| Thieme Drive, Ft. Wayne, IN | Feasibility Activities | 11,338 | 0 | 11,338 |
| Water Treatment Plant, St. Joseph, MI | Design and Implementation | 10,337 | 1,479 | 11,816 |
| Total | | 170,380 | 185,407 | 355,787 |

## TABLE 21-M BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Beach Erosion activities pursuant to Section 103 of the 1962 River and Harbor Act.** | | | | |
| Bay Point Peninsula, City of Luna Pier | Feasibility Activities | 0 | --- | 0 |
| Lakewalk Park, Duluth, MN | Feasibility Activities | 0 | --- | 0 |
| Total | | 0 | --- | 0 |
| **Shoreline Erosion Control Development and Demonstration Activities pursuant to Section 227 of the Water Resources Development Act of 1966** | | | | |
| Shoreline Erosion Control Development & Demonstration Prgm | | 0 | --- | 0 |

## TABLE 21-N MITIGATION OF SHORE DAMAGES

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Mitigation of Shore Damages pursuant to Section 111 of the River and Harbor Act of 1968** | | | | |
| Coordination Account | | 10,923 | --- | 10,923 |
| Manistee Harbor & River Channel, MI | | 38,512 | | 38,512 |
| Ontonagon Harbor, MI | | 24,370 | --- | 24,370 |
| Port Sanilac Harbor, MI | | 23,255 | --- | 23,255 |
| Total | | 97,060 | | 97,060 |

## TABLE 21-O ENVIRONMENTAL RESTORATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Project modification activities pursuant to Section 1135(b) of the Water Resources Development Act of 1986, as amended** | | | | |
| Coordination Account | Coordination | 21,907 | --- | 21,907 |
| AuGres River, Arenac County, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Bad River, Ashland County, WI | Feasibility Activities | 0 | --- | 0 |
| Black Mallard Creek, MI | Feasibility Activities | 0 | --- | 0 |
| Carp Lake River, MI | Construction | 0 | --- | 0 |
| Flint River & Swartz Creek, Flint, MI | Preliminary Restoration Plan | 8,822 | --- | 8,822 |
| Harlow Creek, Marquette County, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Kid's Creek, Boardman River, MI | Feasibility Activities | 0 | --- | 0 |
| Lake Poygan, WI | Feasibility Activities | 11,787 | --- | 11,787 |
| Lower Rouge, Rotunda DR and 94 MI | Feasibility Activities | 0 | --- | 0 |
| Rapid River, MI | Planning and Design Analysis | 0 | --- | 0 |
| Rouge River Oxbow, Wayne Co., MI | Feasibility Activities | 0 | --- | 0 |
| SB Galien River, Berrien County, MI | Construction | 0 | --- | 0 |
| Schmidt Creek, MI | Feasibility Activities | 0 | --- | 0 |
| Sea Lamprey Barrier, Manistique, MI | Preliminary Restoration Plan | 118,485 | --- | 118,485 |
| Sea Lamprey Barrier, Paw Paw Lake, MI | Planning and Design Analysis | 0 | --- | 0 |
| Sea Lamprey Trap, St. Mary's River, MI | Construction | 92 | 1,339 | 1,431 |
| Sucker River, Alger County, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Trail Creek, LaPorte County, IN | Feasibility Activities | 23,798 | --- | 23,798 |
| Upper Rouge, MI Ave to Rotunda Dr., MI | Feasibility Activities | 3,170 | --- | 3,170 |
| Total | | 188,061 | 1,339 | 189,400 |

## TABLE 21-O ENVIRONMENTAL RESTORATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Aquatic Ecosystem Restoration – Projects for aquatic ecosystem restoration and protection projects, for the purpose of improving the environment pursuant to Section 206 of the Water Resources Development Act of 1996.** | | | | |
| Coordination Account | Coordination | 12,185 | --- | 12,185 |
| Belle Isle Piers, Detroit, MI | Plans and Specifications | 0 | --- | 0 |
| Berrien County, Watervliet Dam, MI | Planning and Design Analysis | 0 | --- | 0 |
| Cass River, Cit of Vassar, MI | Feasibility Activities | 0 | | 0 |
| Centerville Creek, Cleveland, WI | Preliminary Restoration Plan | 0 | --- | 0 |
| Clearwater Lake, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Concordia University, WI | Preliminary Restoration Plan | 0 | --- | 0 |
| Detroit River, City of Trenton, MI | Feasibility Activities | 0 | --- | 0 |
| Dowagiac River, Cassopolis, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Homer Lake, St. Joseph River | Planning and Design Analysis | 2,356 | --- | 2,356 |
| Houghton Lake, MI | Preliminary Restoration Plan | 0 | --- | 0 |
| Koontz Lake, IN | Plans and Specifications | 0 | --- | 0 |
| Lower Menomonee River Valley, Milwaukee,WI | Preliminary Restoration Plan | 0 | --- | 0 |
| Mallett's Creek, Wastenaw County | Preliminary Restoration Plan | 0 | --- | 0 |
| Marion Mill Pond, Village of Marion, Osceola | Feasibility Activities | 0 | --- | 0 |
| Menomonee, WI | Feasibility Activities | 0 | --- | 0 |
| Oak Creek, WI | Planning and Design Analysis | 0 | --- | 0 |
| Otsego Lake, MI | Planning and Design Analysis | 4,327 | --- | 4,327 |
| Pike River, WI | Preliminary Restoration Plan | 0 | --- | 0 |
| Secord and Smallwood Lakes, Gladwin Co.MI | Feasibility Activities | 0 | --- | 0 |
| Trinity Creek, City of Mequon, WI | Planning and Design Analysis | 0 | --- | 0 |
| Underwood Creek, Wauwatosa, WI | Preliminary Restoration Plan | 0 | --- | 0 |
| Total | | 18,868 | 0 | 18,868 |

## TABLE 21-O ENVIRONMENTAL RESTORATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Aquatic plant control activities pursuant to Section 302 of the River and Harbor Act of 1965 (PL 89-298).** | | | | |
| Aquatic Plant Control | | --- | --- | --- |
| Total | | --- | --- | --- |
| **Environmental infrastructure pursuant to Section 219e of the Water Resources Development Act of 1999, as amended** | | | | |
| Genesee County Drain, Genesee County, MI | Design Review | 252,494 | 94,570 | 347,064 |
| Nagaunee, MI | Design Review | 398,052 | 128,750 | 526,802 |
| Twelve Towns Darin Retention Treatment | Design Review | 0 | 0 | 0 |
| Total | | 650,546 | 223,320 | 873,866 |
| **Environmental infrastructure pursuant to Section 506 of the Water Resources Development Act of 2000, as amended** | | | | |
| Great Lakes Fishery & Ecosystem Restoration | | 273,425 | --- | 273,425 |
| Total | | 273,425 | --- | 273,425 |
| **Environmental infrastructure pursuant to Section 154 of the Consolidated Appropriations Act of 2001, as amended.** | | | | |
| Northern Wisconsin Env Assistance | Various Stages | 4,834,847 | --- | 4,834,847 |
| Total | | 4,834,847 | --- | 4,834,847 |
| **Environmental infrastructure pursuant to Section 569 of the Water Resources Development Act of 1999, as amended.** | | | | |
| Northeastern Minnesota, MN (MV&LR) | Various Stages | 583,551 | --- | 583,551 |
| Northeastern Minnesota, MN - American Recovery & Reinvestment Act (ARRA) | | 51,819 | | 51,819 |
| Total | | 635,370 | --- | 635,370 |
| **Ecosystem Restoration – Section 204 beneficial use of dredged material in connection with dredging. Projects in connection with dredging use of dredged material activities pursuant to Section 204 of the Water Resources Development Act of 1992, as amended.** | | | | |
| Cat Island Chain, Brown County, WI | Feasibility Activities | 10,466 | --- | 10,466 |
| 21st Ave; West Channel, Duluth, MN | Design and Implementation | 3,057 | --- | 3,057 |
| Coordination Account | Coordination | 6,475 | --- | 6,475 |
| Total | | 19,998 | --- | 19,998 |

## TABLE 21-P FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

| PROJECT/STUDY/LOCATION | STATUS | Federal Costs for FY 09 | Non-Federal Costs for FY 09 | Total Costs for FY 09 |
|---|---|---|---|---|
| **Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.** | | | | |
| Coordination Account | Coordination | 14,379 | --- | 14,379 |
| Cass River, Spaulding Township, MI | Feasibility Activities | 22,127 | --- | 22,127 |
| Detroit Beach, Lake Erie, Frenchtown Twp., MI | Feasibility Activities | 3,558 | 11,105 | 14,663 |
| Fairfield Ditch, Ft. Wayne, IN | Feasibility Activities | 0 | --- | 0 |
| Flooding Warning System, Ft Wayne, IN | Feasibility Activities | 0 | --- | 0 |
| Macomb County, MI | Feasibility Activities | 3,878 | --- | 3,878 |
| Oak Creek, Milwaukee County, WI | Feasibility Activities | 0 | --- | 0 |
| Red Mill Pond Dam, LaPorte, IN | Feasibility Activities | 0 | --- | 0 |
| Root River, Milwaukee County, WI | Feasibility Activities | 0 | --- | 0 |
| St. Mary's River, Ft. Wayne, IN | Feasibility Activities | 88,605 | 20,729 | 109,334 |
| Underwood Creek, Village of Elm Grove, WI | Feasibility Activities | 0 | -------- | 0 |
| Total | | 132,547 | 31,834 | 164,381 |
| **Flood control activities pursuant to Section 5003 of WRDA 2007.** | | | | |
| Hamilton Dam, MI | Feasibility Activities | 459 | 0 | 459 |
| Total | | 459 | 0 | 459 |
| **Flood control activities – American Recovery and Reinvestment Act of 2009** | | | | |
| Ecorse Creek, MI | | 57,162 | 0 | 57,162 |
| Total | | 57,162 | 0 | 57,162 |

# CHICAGO, ILLINOIS, DISTRICT

The district comprises Cook, McHenry, Lake, Kane, Du Page, and Will Counties in Illinois, and Lake and Porter Counties in Indiana, and a portion of La Porte County along Lake Michigan in Indiana.

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**Navigation**

**1. BURNS WATERWAY HARBOR, IN**

**Location.** Northwestern Indiana on the southern shore of Lake Michigan in Porter County, 28 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

**Previous Projects.** None.

**Existing Project.** Provides for (a) a rubblemound north breakwater 4,630 feet long and a rubblemound breakwater west arm 1,200 feet long, for a total breakwater length of 5,830 feet; (b) an approach channel 30 feet deep and 400 feet wide; (c) an outer harbor 28 feet deep; (d) an east harbor arm 27 feet deep and 620 feet wide; and (e) a west harbor arm 27 feet deep and 620 feet wide. The project was authorized by the River and Harbor Act of October 27, 1965.

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Eleven berths are available at the facilities owned and administered by the Indiana Port Commission. One berth, committed to grain, is located on the outer harbor. Four berths on the East Harbor Arm are dedicated to handling dry and liquid bulk commodities. The East Harbor Arm also includes a small-boat harbor designed to accommodate working tugs for vessel assistance and barge movement. On the West Arm there are six berths. Although one berth is available for dry bulk cargoes, these berths are primarily used for the shipment and receipt of general cargo. Additionally, the Indiana Port Commission, through a lease, administers the west side of the West Harbor Arm for barge fleeting. The remaining available harbor berthing on the east side of the East Harbor Arm is privately owned.

**Operations and Results During Period.** Dredging was performed near the Bailey (NIPSCO) Intake Structure and at the Harbor Channel at a cost of $722,444 for hired labor, $112,535 for work by other Corps of Engineers, $282 for contracted engineering services and $2,433,820 for construction contracts. Structural stone material costs were $270,081. Total costs for the fiscal year 2009 were $3,539,162 federal.

**Condition at End of Fiscal Year.** Total costs to September 30, 2009 were $55,355,310 of which $13,599,900 was for new work ($13,584,000 federal and $15,900 non-federal) and $41,755,410 ($41,647,048 federal and $108,362 non-federal) for maintenance.

**2. BURNS WATERWAY SBH, IN**

**Location.** Northwestern Indiana on the southeast shore of Lake Michigan in Porter County, at the mouth of the Burns Waterway, approximately 27 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

**Previous Projects.** None

**Existing Project.** Provides for (a) a rubblemound west breakwater 1,043 feet long; (b) a rubblemound north breakwater 678 feet long; and (c) channel improvements of 5,200 linear feet with 145,000 cubic yards of dredged material used for beach nourishment. Maintenance efforts to close an underwater penetration and stabilize the west end of the north breakwater were done in 2009. (See table 22-C).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** There are several marinas located along Burns Waterway and Burns Ditch. The principal marina, which is owned and operated jointly by the City of Portage and the Little Calumet River Basin Commission, was built in 1996 to comply with the local cooperation agreement. The commodities handled at this harbor are fresh fish caught as a result of charter boat fishing.

**Operations and Results During Period.** North breakwater repair costs were $218,683 for work by other Corps of Engineers and $60,786 for hired labor. Total Costs for fiscal year 2009 were $279,469.

**Condition at End of Fiscal Year.** Total costs of the existing project to September 30, 2009 were $8,172,758 of which $3,770,558 was for new work ($2,000,000 federal and $1,770,558 non-federal), and $4,402,200 for maintenance (federal).

**3. BURNS WATERWAY HARBOR (MAJOR REHAB), IN**

**Location.** Northwestern Indiana on the southern shore of Lake Michigan in Porter County.

**Existing Project.** The rehabilitation project consists of constructing a segmented reef breakwater system, 75 feet lakeward of the northern section of the existing rubblemound breakwater. The project provides for seven reef segments, one 1,575 feet long and six 375 feet long with 25 feet spacing between segments

**Local Cooperation.** None required.

**Operations and Results During the Period.** New Work: Following construction completion in 1998, project closeout was completed in 1999.

**Condition at the End of Fiscal Year.** The construction contract was financially completed. The total cost of the existing project to September 30, 2009 was $13,384,200.

**4. CALUMET HARBOR AND RIVER, IL and IN**

**Location.** Northeastern Illinois, on the southwest shore of Lake Michigan in Cook County, 15 miles south of Chicago Harbor, within the corporate limits of the City of Chicago, except for breakwaters, and approach channel and an anchorage area which are in Indiana. (See NOAA Nautical Chart Numbers 14926 and 14929.)

**Previous Projects.** For details see page 1400 of Annual Report for 1962.

**Existing Project.** Provides for (a) a stone-filled timber crib breakwater 6,714 feet long; (b) a stone-filled double-row steel sheet pile detached breakwater 5,007 feet long; (c) an approach channel 29 feet deep and 3,200 feet wide; (d) an outer harbor anchorage area 28 feet deep and 3,000 feet wide; (e) an entrance channel 27 feet deep and 230 to 290 feet wide; (f) a channel in the Calumet River 27 feet deep and at least 200 feet wide to the north side of 130th Street; (g) three turning basins designated as numbers, 1, 3, and 5; and (h) a channel extending into Lake Calumet at a width of about 1,000 feet. The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, August 30, 1935, July 14, 1960, October 23, 1962, and October 27, 1965 (See tables 22-B,C).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** Thirty six docks, wharves, and terminals are available. The Illinois International Port District owns four wharves, two grain elevators, one dock, and one terminal. The United States Government owns one stone dock. The most important cargoes handled are general cargo, grain, iron ore and concentrates, coal, and cement. Some docks are vacant and some docks are dedicated to handling barge traffic from the Illinois Waterway Project.

**Operations and Results During Period.** Dredging and repairs were performed at a cost of $679,487 for hired labor, $656,886 for work by other Corps of Engineers, $43,435 for AE Services, $399,392 for other Federal agencies, $65,757 for other contracted services and $419,322 for supplemental materials. Total costs for the fiscal year FY09 were $2,264,279 federal.

**Condition at End of Fiscal Year.** The existing project is complete. Total costs of the existing project to September 30, 2009 were $91,237,512 of which $22,578,567 was for new work ($19,541,964 federal funds and $3,036,603 public works funds), $63,230,944 for maintenance ($62,394,277 federal and $836,667 non-federal funds) and $5,428,001 federal funds for rehabilitation.

**5. CHICAGO HARBOR, IL**

**Location**. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

**Previous Projects.** See page 1396 of Annual Report for 1962.

**Existing Project.** Provides for (a) a stone-filled timber crib shore and extension breakwater 2,250 feet long; (b) a stone-filled timber crib exterior breakwater 5,421 feet long; (c) a rubble mound and stone-filled concrete caisson southerly extension to the exterior breakwater 4,944 feet long, exclusive of a 582-foot entrance gap enclosing an outer basin of about 970 acres; (d) a stone-filled timber crib north pier 960 feet long; (e) a stone-filled timber crib north inner breakwater 4,034 feet long with a 304-foot shore return and a 754-foot gap; (f) a stone-filled timber crib south inner breakwater 2,544 feet long, enclosing an inner basin of approximately 224 acres; (g) a lake approach channel 29 feet deep and 800 feet wide; (h) a channel and maneuver area inside the exterior breakwater and southerly extension breakwater 28 feet deep with a maximum width of 1,300 feet; (i) an entrance channel 21 feet deep and (j) the Chicago Harbor Lock. The Chicago Lock was constructed in 1938 by the Metropolitan Water Reclamation District of Greater Chicago. The deep-draft lock is 600 feet long, 80 feet wide, and 23 feet deep over the sill and is of steel cellular design.

The project was authorized by the River and Harbor Acts of July 11, 1870, June 14, 1880, March 3, 1899, July 25, 1912, March 2, 1919 and October 23, 1962 (See table 22-B).

Lock operation and maintenance responsibilities, in the interest of navigation, were transferred to the Federal Government pursuant to Public Law 98-63 approved July 30, 1983; Section 107 of Public Law 97-88; and the Memorandum of Agreement between the Department of Army and the Metropolitan Water Reclamation District of Greater Chicago.

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** There are five docks with 18 berths for passenger excursion boats and 10 berths for visiting large vessels. The most important cargoes handled through the lock are petroleum products, in addition to sugar and non-metallic minerals.

**Operations and Results During Period.** The Chicago Harbor Lock was operated by contract at a cost of $1,042,779. The miscellaneous equipment and services required for the support of the lock and control house were procured at a cost of $114,788. Work by other Corps of Engineers was $357,516. Hired labor was $400,931. Total costs for FY09 were $1,976,394 federal.

**Condition at End of Fiscal Year.** The existing project is complete. Total costs to September 30, 2009 were $79,969,378 of which $4,788,827 was for new work; $73,693,951 was for operation and maintenance; $1,326,600 for rehabilitation and $160,000 Harbor and Dams funds. The approved Major Rehabilitation of the Lock (Gates, Control House and Concrete Repair) has not been completed.

**6. CHICAGO RIVER, IL**

**Location.** Northeastern Illinois, in Cook County within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927 and 14928.)

**Previous Projects.** See page 1394 of Annual Report for 1962.

**Existing Project.** Provides for (a) a channel 21 feet deep in the main river from its mouth at Rush Street to the junction of the North and South Branches (0.7 miles); (b) a channel 21 feet deep in the North Branch from the junction to North Avenue (2.22 miles); (c) a channel 21 feet deep on the North Branch Canal (1.04 miles); (d) a 21-foot deep North Branch Turning Basin just south of North Avenue. The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, March 2, 1907, and July 24, 1946 (See tables 22-B, C).

**Local Cooperation.** Fully complied with for completed modifications.

**Terminal Facilities.** Six docks are available. The most important cargoes handled are sand, gravel and crushed rock, non-metallic minerals and scrap iron.

**Operations and Results During Period.** Water control activities and routine operations were performed by hired labor at a cost of $125,222; by other Corps of Engineers at a cost $216,524; and by other federal agencies at a cost of $166,706. Total costs for FY09 were $508,452 Federal.

**Condition at End of Fiscal Year.** Channel maintenance for the reach from Clark Street to head of navigation has been deferred pending location and approval of suitable dredged material disposal site. Head of navigation for deep-draft vessels is North Avenue, 5.97 miles from the Michigan Avenue bridge. Total costs of the existing project to September 30, 2009 were $21,112,674 of which $1,500,565 was for new work and $19,612,109 was for maintenance.

**7. INDIANA HARBOR, IN**

**Location.** Northwestern Indiana, on the southwest shore of Lake Michigan in Lake County, 19 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14926 and 14929.)

**Previous Projects.** For details see page 1943 of Annual Report for 1915, and page 1520 of Annual Report for 1938.

**Existing Project.** Provides for (a) a northerly rubblemound breakwater 1,120 feet long; (b) an easterly concrete capped caisson breakwater 201 feet long with a rubblemound extension 2,324 feet long; (c) a lake approach channel 29 feet deep and 800 feet wide; (d) an anchorage and maneuver basin 28 feet deep; (e) a main canal entrance channel 27 feet deep and 280 feet wide; (f) a main canal 22 feet deep; (g) a turning basin 22 feet deep; (h) the Forks Turning Basin 22 feet deep; (i) the Lake George Branch 22 feet deep; and (j) the Calumet River Branch 22 feet deep. The project was authorized by the River and Harbor Acts of March 4, 1913, March 2, 1919, March 20, 1922, July 3, 1930, August 30, 1935, August 28, 1937, and July 14, 1960 (See tables
22-B, C).

**Local Cooperation.** Substantially complied with. See FY 1986 Annual Report for full requirements.

**Terminal Facilities.** Fifteen docks and wharves are available. Six docks handle iron ore and limestone. Six docks are for handling petroleum products and three docks for handling gypsum, scrap metal and steel, and bulk products. However, not all docks are presently being used for the shipment or receipt of waterborne commodities.

**Operations and Results During Period.** Routine operations were conducted at a cost of $151,761 for work by other Corps of Engineers. Contracted engineering services were $26,441; and work by other Federal agencies was $186,361. An O & M contract for $668,514 was awarded to operate the water treatment plant. The preparation of an operations plan for the Confined Disposal Facility was continued at a cost of $602,882 for hired labor. Total costs for FY09 were $1,635,959 federal.

**Condition at End of Fiscal year.** The existing project is complete. Total costs of the existing project to September 30, 2009 were $24,065,102 of which $4,909,648 ($4,897,148 federal and $12,500 non-federal contributed funds) was for new work and $19,155,454 (federal) for maintenance. Channel maintenance has been deferred pending construction of suitable Confined Disposal Facility.

## 8. INDIANA HARBOR AND CANAL CONFINED DISPOSAL FACILITY (CDF), IN

**Location.** Southwestern shore of Lake Michigan within the City of East Chicago, Lake County, Indiana, 4-1/2 miles east of the Indiana-Illinois state line and 17 miles from downtown Chicago, Illinois. A CDF will be constructed at the Energy Cooperative Incorporate (ECI) site in East Chicago, Illinois.

**Existing Project.** IHC is an authorized Federal navigation project with an entrance channel and outer harbor protected by breakwaters, and an inner harbor which includes the Indiana Harbor Canal and its two branches, the Lake George Branch, which extends west for a distance of 6,800 feet, and the Calumet River Branch which extends to the south for about 2 miles where it joins the Grand Calumet River. The harbor has not been dredged since 1972, when the United States Environmental Protection Agency determined that disposal in Lake Michigan was no longer acceptable due to the polluted character of the harbor sediments.

A 4.8 million cubic yards capacity CDF will be constructed on the 164 acres of land adjacent to the Lake George Branch of the IHC, formerly occupied by an oil refinery owned by the Atlantic Richfield Company and subsequently acquired by ECI. The ECI property currently has open Resource Conservation and Recovery Act (RCRA) status due to the contaminated soil and groundwater that exists on the site. Use of this site for the CDF is contingent upon the construction of specific RCRA closure and corrective action features that will be integral aspects of the CDF construction. The elements of the CDF include construction of an impervious cutoff wall built around the 11,000 linear feet perimeter of the site to approximately 30-35 feet depths, tied into the clay layer below; groundwater monitoring and extraction wells and pumps to maintain an inward gradient and prevent any contaminated groundwater from leaving the site; an air monitoring system; an on-site water treatment facility to treat excess water from the dredged materials, precipitation falling on the site and groundwater; dikes built in two stages (20 feet and 15 feet), constructed of impervious clay; a re-handling area; and a cap constructed using 3 feet of clay, 6 inches of sand, 2 feet of clean fill and 6 inches top soil with grass cover. This cap configuration, used for both the CDF and the buffer areas, will satisfy the RCRA closure requirement for the ECI site.

**Local Cooperation.** The local sponsor is the East Chicago Waterway Management District (ECWMD). The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the ECWMD is required to pay a cash contribution to bring the total non-federal share to pay 100 percent of the costs of construction and maintenance of CDF allocated to additional capacity provided for material from berthing areas and non-channel dredging. The ECWMD is required to pay 100 percent of the costs allocated to general navigation facilities during construction for the local service facilities (non-federal berthing areas) and 100 percent of costs for the local service facilities. The Project Cooperation Agreement for the project was executed 7 August 2000. Congressional language was enacted effective May 12, 2005, which provides for the project costs to be 100% Federal from that date. A PCA amendment is under development to reflect the changes that occur on both the Federal and Non-Federal parties on roles and responsibilities, project costs, and any other impacts, as a result of this language.

**Operations and Results During the Period.** Engineering and design work continued to include data collection for Ambient Air Monitoring and Interim Ground Water Treatment. The South cut-off Wall and

Ground Water Gradient Control contracts are complete. The Dikes III contract is under construction. The interim groundwater treatment plant was operating. The costs of the project in FY09 were $13,373,703 for construction services, $147,463 for work by other federal agencies, $189,875 for contracted engineering services, $12,175 for work by other Corps of Engineers, $1,668,799 for hired labor and $80,339 for other contracted services. Total costs for FY09 were $16,104,794 of which $15,472,354 was federal and $632,440 was non-federal.

**Condition at the End of Fiscal Year.** Total cost of the existing project to September 30, 2009 was $92,384,225 ($79,635,637 federal and $12,748,588 non-federal.)

**9. LAKE MICHIGAN DIVERSION**

**Location**. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

**Previous Projects.** See page 22-3 of Annual Report for 1988.

**Operations and Results During Period.** Operations: Water accounting data collection and analysis was performed at a cost of $384,104 for hired labor, $222,490 for contracted engineering services and $101,535 for work by other federal agencies. Total costs for FY09 was $708,129 federal.

**Condition at End of Fiscal Year.** Total cost of the existing project to September 30, 2009 was $11,655,755.

**10. MICHIGAN CITY HARBOR, IN**

**Location.** Northwestern Indiana, on the southeast shore of Lake Michigan in La Porte County, 38 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

**Previous Projects.** See page 1407 of Annual Report for 1962.

**Existing Project.** Provides for (a) a stone-filled timber crib detached breakwater 1,304 feet long; (b) a pile and steel sheeting west pier 835 feet long; (c) a stone-filled timber crib, pile and steel sheeting east pier 2,276 feet long; (d) a stone-filled timber crib east breakwater 1,000 feet long; (e) an entrance channel 18 feet deep and 425 feet wide; (f) a turning basin No. 1, 18 feet deep; (g) a channel in Trail Creek 18 feet deep; (h) an outer basin 12 feet deep in the northerly portion and 8 feet deep in the southerly portion; and (i) a channel in Trail Creek 6 feet deep and 50 feet wide from turning basin No. 2 to the E Street bridge. The project was authorized by the River and Harbor Acts of March 3, 1899, March 3, 1905, January 21, 1927, August 30, 1935, and Section 107 of July 14, 1960, River and Harbor Acts, September 30, 1966 (See tables 22-B, C).

**Local Cooperation.** Fully complied with.

**Terminal Facilities.** There are several marinas in the lower mile of Trail Creek. The commodity handled at this harbor is fresh fish.

**Operations and Results During Period.** Dredging operations which were conducted over two years ended. The only cost of $15,593 was for hired labor. Total costs for FY09 were $15,593 federal.

**Condition at End of Fiscal Year.** Total costs of existing project to September 30, 2009 were $25,165,555 of which $1,574,158 was for new work ($1,543,646 federal and $30,512 non-federal funds), $21,988,320 for maintenance ($21,933,320 federal and $55,000 non-federal) and $1,618,670 for rehabilitation (federal funds).

**11. WAUKEGAN HARBOR, IL**

**Location.** Northeastern Illinois on the west shore of Lake Michigan in Lake County, 38 miles north of Chicago Harbor. (See NOAA Nautical Chart Numbers 14904 and 14905.)

**Previous Projects.** See page 1392 of Annual Report for 1962.

**Existing Project.** Provides for (a) a northerly stone-filled timber crib breakwater 588 feet long; (b) a stone-filled reinforced concrete caisson shore connection 270 feet long; (c) a stone-filled double-row steel sheeting shore connection 640 feet long; (d) a single-row steel sheeting shore connection 398 feet long; (e) a stone-filled timber crib north pier 998 feet long; (f) a single-row steel sheet piling north pier 444 feet long; (g) a steel piling revetment 632 feet long; (h) a stone-filled timber crib pier 1,399 feet long; (i) a stone-filled double-row pile and sheeting south pier 1,712 feet long; (j) an entrance channel 22 feet deep and 390 feet wide; (k) a channel between the piers 18 feet deep and 200 feet wide; (l) an inner basin 18 feet deep; and (m) an

anchorage area in the southwest corner of the inner basin 8 feet deep. An authorized, but as yet constructed project modification provides for (a) an entrance channel 27 feet deep, (b) a channel between the piers 23 feet deep and (c) an inner basin and channel extension 23 feet deep. The project was authorized by the River and Harbor Acts of June 3, 1902, July 13, 1930, and March 2, 1945, and on December 17,1970 by delegated authority under Section 201 of the Rivers and Harbor Act of October 27, 1965. (See tables 22-B, C). The portion of the project authorized by the 1970 modification is being restudied to confirm economic feasibility.

**Local Cooperation.** Fully complied with for completed portions. The Dec. 17, 1970 modification, which provides for modifications to the channel, is subject to the conditions that local interests furnish assurances that they will hold the United States government free from damages from construction and maintenance of the improvement and that certain lands, easements and rights-of-way be provided.

**Terminal Facilities.** Four docks are available. The commodities handled at this harbor are gypsum and building cement.

**Operations and Results During Period.** Dredging was performed on the approach channel at a cost of $311,080 for the hired labor and $392,995 for the construction contract. Other Corps work was $31,123 and other construction costs were $13,105. Total costs for FY09 were $748,303 federal.

**Condition at End of Fiscal Year.** The existing project is complete except for the 1970 modification, which is being restudied. Maintenance of the channel between the pier to the head of navigation has been deferred pending location, approval and probable construction of a suitable dredged material disposal site. Total costs of existing project to September 30, 2009 were $26,254,571 of which $823,026 was for new work and $25,431,545 was for maintenance.

**12. RECONNAISSANCE AND CONDITION SURVEYS**
**(O & M 470-076517 and O & M 470-076518)**

In Fiscal Year 2009 Project Condition Surveys were performed at a cost of $241,627.

**13. NATIONAL EMERGENCY PREPAREDNESS (O & M 510-084901)**

Fiscal Year 2009 costs for management, mobilization planning, and continuity of operations were $1,975.

**Alteration of Bridges**

**14. OTHER AUTHORIZED BRIDGE ALTERATIONS**

See table 22-D.

**Beach Erosion Control**

**15. CALUMET REGION, IN**

**Location.** Northwestern Indiana in the counties of Lake, Porter, Newton, Benton, and Jasper.

**Existing Project.** The project was authorized by Water Resources Development Act 1992, Section 219, as amended by WRDA 1996, Section 504 and WRDA 1999, Section 502, FY04 Appropriation Bill, Section 145. This project consists of providing technical planning, design and construction to non-federal interests who have environmental infrastructure needs. These needs include the development of wastewater treatment and related facilities and water supply, treatment and distribution facilities.

**Local Cooperation.** The local sponsors are Gary Sanitary District, Hammond Sanitary District, Chesterton, Cedar Lake, East Chicago, Whiting, Hobart, Lake Station, Griffith, Portage and Lake County – Ranburn Woods.

**Operations and Results During Period.** Construction funds were expended on Lake Station for $788,695, Cedar Lake for $13,868, and Portage for $1,576,081. AE Engineering services for all projects were $42,271. Hired labor costs were $456,398. Total costs for the fiscal year FY09 were $3,777,562 of which $2,877,313 was Federal and $900,249 was non-federal.

**Condition at End of Fiscal Year.** The total cost of the existing project to September 30, 2009 was $16,964,554 of which $11,879,792 was federal and $5,094,762 was non-federal.

**16. CASINO BEACH, IL**

**Location.** Along the Lake Michigan shoreline at Jackson Park in Chicago, Illinois.

**Existing Project.** The Casino Beach project was authorized by Section 501 (a) of the 1986 Water Resources Development Act. The project consists of rehabilitating 1,800 feet of the Casino jetty by encasing the existing timber pile and stone structure in steel sheet

piling and a concrete cap.

**Local Cooperation.** The local project sponsor is the Chicago Park District. The local sponsor is required to provide all lands, easements and rights-of-way; complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; and make cash contribution toward the cost of construction.

**Operations and Results During Period.** No work was performed in FY2009.

**Condition at End of Fiscal Year.** Construction is complete. The total cost of the existing project to September 30, 2009 was $2,465,517 federal and $2,499,481 non-federal.

**17. CHICAGO SHORELINE, IL**

**Location.** Along the Lake Michigan shoreline in Chicago, Illinois.

**Existing Project.** The Chicago Shoreline project was authorized by the 1996 and 1999 Water Resources Development Act (WRDA). The project area includes 9.2 miles of revetment reconstruction within 24 miles of publicly owned shoreline. The Federally supportable plan consists of constructing rubblemound revetments along 16,750 and 25,400 feet of the shoreline in the Lincoln Park and Burnham Park areas, respectively. Other project features include: revetments near the Adler Planetarium and at Meigs Field; a breakwater to protect the South Filtration Plant near 78th Street; and nourishment of a short reach of shoreline near Fullerton Avenue and near 31st Street. The local sponsor prefers to substitute steel sheet pile step stone revetments (the locally preferred plan, or LPP) for the rubblemound revetments in the Lincoln and Burnham Park areas. They have agreed to pay the increased cost above the federally supportable plan. The LPP is the authorized plan.

**Local Cooperation.** This project has three separate Project Cooperation Agreements (PCA's). The first PCA, for the Reach 5 breakwater reconstruction, was executed on 28 April 1997. The second PCA, for Section 215 work, was executed on 7 August 1998, and covers construction of three portions of the project: 1,000 feet of revetment at Belmont Harbor in Reach 2, an 800 foot stretch of shoreline at 31st Street beach in Reach 4 (both of these are being constructed by the non-federal sponsor), and revetment reconstruction from 31st to 33rd streets in Reach 4 (Corps work). The project Cooperation Agreement for the balance of the project work was executed on 17 May 1999, implementing
section 206 of WRDA 92 which allows the non-federal sponsor to perform a significant portion of the work. Design and construction of the project is well underway. Project construction is estimated to be completed in the year 2015.

The local sponsor is required to provide all lands, easements, and rights-of-way; complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; perform work for credit towards their cash contribution; and make cash contribution toward the cost of any outstanding balance.

**Operations and Results During Period.** Construction continued for the Diversey Revetment. Engineering and design work was continued for the Fullerton-Theatre on the Lake. Engineering and design work was continued for the 43rd to 45th Street project. The expenditures for FY09 were $6,759,840 for construction services, $1,178 for work by other Corps of Engineers, $3,051 for contracted engineering services and $944,713 for hired labor. Total expenditures for the fiscal year FY09 were $8,487,062 of which $7,708,782 was Federal and $778,280 was non-federal.

**Condition at End of Fiscal Year.** The total expenditures of the existing project to September 30, 2009 were $285,054,756 of which $182,538,380 is Federal and $70,532,240 is non-federal cash and $31,984,136 is non-federal in-kind services.

**18. CHICAGO SANITARY & SHIP CANAL DISPERSAL BARRIER (I), IL**

**Location.** Barrier I is located in the Chicago Sanitary & Ship Canal (CSSC) at River Mile 296.5. The CSSC is a man-made waterway in Northeastern Illinois that connects the Chicago River to the Des Plaines River.

**Existing Project.** The CSSC was authorized by Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-636, 11/29/90, as amended through 10/26/96); Section 2309 of P.L. 109-234, Emergency Supplemental Appropriations Act and Section 3061 of WRDA 2007. This act authorized Barrier I and Barrier II to be combined as a single project. This consolidation occurred in FY 2009. The project consists of an array of DC electrodes which were installed on the channel bottom of the CSSC.

When power is provided, an electric field is created within the water that repels fish in order to prevent or reduce the dispersal of non-indigenous aquatic species between the Great Lakes and the Mississippi River drainage basins.

**Local Cooperation.** None required.

**Operations and Results During Period.** A major rehabilitation of Barrier I which was begun in September 2009 was completed in October 2009. This rehabilitation extended the service life of the barrier for 3 to 5 more years. Upon return to service after the rehabilitation, Barrier I was maintained in continuous operation. The costs for FY09 were $169,992 for contracted engineering services, $71,584 for hired labor, $227,224 for work by other Corps of Engineers, $144,655 for supplemental materials and $26,293 for other contracted services. Total costs for FY09 were $639,748 Federal.

**Condition at End of Fiscal Year.** The total cost of the existing project up to September 30, 2009 is $5,064,140 of which all is Federal.

## 19. CHICAGO SANITARY & SHIP CANAL DISPERSAL BARRIER (II), IL

**Location.** Barrier II is located in the Chicago Sanitary and Ship Canal at River Mile 296.25.
The Chicago Sanitary & Ship Canal (CSSC) is a man-made waterway in Northeastern Illinois that connects the Chicago River to the Des Plaines River.

**Existing Project.** The CSSC was authorized by Section 1135, Water Resources Development Act 1986 (Continuing Authority Program), Section 345 of PL. 108-335, District of Columbia Appropriations Act, 2005 and Section 3061 of WRDA 2007. This act authorized Barrier I and Barrier II to be combined as a single project. This consolidation occurred in FY 2009. A second permanent dispersal barrier is needed to provide continued protection against nuisance species. Barrier II will also be an electric field barrier, but will include design improvements identified during monitoring and testing of the demonstration barrier. Barrier II is being constructed in two phases, IIA and IIB. The first phase consists of construction of two underwater electrode arrays and one control house. This control house will be able to operate one of the two arrays. The second phase consists of construction of a second control house that will allow both arrays to be operated at the same time.

**Local Cooperation.** None required. WRDA 2007 made Barrier II a fully Federal project.

**Operations and Results During Period.** Barrier IIA began continuous operation in April 2009. In August 2009 the operating parameters of the barrier were increased based on initial results of an ongoing research effort to identify optimal operating parameters to deter all sizes of fish. The efficacy study authorized in WRDA 2007 was initiated in January 2009. Design of Barrier IIB building was completed and a construction contract for the building was advertised. The costs during FY09 were $1,158,892 for construction, $312,209 for contracted engineering services, $2,112,927 for hired labor, $180,101 for work by other corps of Engineers, and $1,187,568 for other contracted services. Total project costs for FY09 were $5,026,423 of which $4,951,697 was Federal and $74,726 was non-federal.

**Condition at End of Fiscal Year.** The total cost of the existing project to September 30, 2009 was $14,832,250 of which $12,686,165 was Federal and $2,146,085 was non-federal.

## 20. COOK COUNTY ENVIRONMENTAL INFRASTRUCTURE, IL

**Location.** Northeastern Illinois in Chicago proper and in Chicago suburbs.

**Existing Project.** The Cook County Environmental Infrastructure project was authorized by WRDA 1992 (PL 102-580), Section 219(f)(54), as amended in the Consolidated Appropriations Act of 2001, (PL 106-554), see HR 4577, Chapter 14, Division B, Section 108; Section 142 of the FY 2004 Energy and Water Resources Appropriation (PL 108-137). This project provides technical planning, design and construction assistance to non-federal interests who have environmental infrastructure needs in Cook County, IL. These needs may be related, but not limited, to the development and protection of water supply and waste water systems; combined sewer overflows; and remediation of adverse water quality impacts and storm water impacts to waste water systems. Currently the projects identified applicable to this authorization are LaGrange, Calumet Park, Flossmoor, Brookfield Zoo, Chicago Heights, Olympia Fields, LaGrange Park, Berwyn, Countryside, Justice-Willow Springs, Hickory Hills, and Olympia Fields.

**Local Cooperation.** Varies by community.

**Operations and Results During Period.** Completed construction of sewer improvements at two schools in Calumet Park. Completed construction of 12-inch water main installation at Brookfield Zoo. Awarded two construction contracts for water main installation and water system automation for Village of Flossmoor. Continued coordination with LaGrange Park, Countryside, Berwyn and Olympia Fields on possible future stormwater drainage and water system improvement projects. Total costs for FY09 were $456,154 federal and $185,687 non-federal.

**Condition at End of Fiscal Year.** The total costs of the existing projects to September 30, 2009 were $2,416,379 of which $1,919,844 was federal and $496,535 was non-federal.

**21. ILLINOIS BEACH STATE PARK, IL**

**Location.** Northeastern Illinois on the west shore of Lake Michigan along the 9-mile reach of shoreline immediately south of the Illinois-Wisconsin State line. (See NOAA Nautical Chart Numbers 14901 and 14904.)

**Previous Projects.** None.

**Existing Project.** Provides for annual beach nourishment and construction of a sediment trap at the south end of the State Park. The project would entail placement of coarse-graded sediment at six stockpile sites at the rate of 124,000 cubic yards in the first year, 104,000 cubic yards in the second year, and 60,000 cubic yards in the third year. Thereafter, 60,000 cubic yards would be placed at the northernmost stockpile annually. The sediment trap would consist of a rubble-mound groin, with a total length of 600 feet from the base of the dunes (400 feet lakeward from the shoreline), with a crest height of about +8 feet above Low Water Datum (LWD). The project was conditionally authorized in Section 501 (b) of the 1986 Water Resources Development Act subject to a report by the Corps of Engineers and approval by the Secretary of the Army. A Feasibility Review Conference was held in April 1991. As a result, the District Engineer was directed to terminate work on this project and to submit a letter report to the Congress summarizing the feasibility study and the results of the Washington level review. Work on the feasibility report was resumed in FY 1994 as directed by the Assistant Secretary of the Army for Civil Works in response to a letter from Congressman John Porter, 10th Congressional District of Illinois.

**Local Cooperation.** The local project sponsor would be required to provide all lands, easements and rights-of-way; accomplish all required relocations; hold and save the United State free from damages; and provide a cash contribution.

**Operations and Results During Period.** No work was performed in FY09.

**Condition at End of Fiscal Year.** Total cost of the existing Feasibility study to September 30, 2009 was $344,291.

**22. INDIANA DUNES NATIONAL LAKESHORE BANK PROTECTION, BEVERLY SHORES, IN**

**Location.** Northwestern Indiana, on the southeast shore of Lake Michigan in Porter County, about 35 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14095 and 14926.)

**Existing Project.** Provides for placement of 13,000 feet of stone revetment and periodic repair of riprap to maintain the full length of Lake Front Drive in Beverly Shores, Indiana. The current project was authorized by Public Laws 97-88 and 98-63.

**Local Cooperation.** Fully complied with. Project lands are held by the National Park Service.

**Operations and Results During Period.** No work was performed during this FY09 reporting period.

**Condition at End of Fiscal Year.** Total costs of existing project to September 30, 2009 were $2,956,000 of which $660,000 was for new work and $2,296,000 was for maintenance.

**23. INDIANA SHORELINE EROSION, IN**

**Location**. On the south end of Lake Michigan along a two-mile reach of shore west of Michigan City Harbor, Indiana. (See NOAA Nautical Chart Numbers 14095 and 14926.)

**Existing Project.** The project consists of beach nourishment along approximately two miles of beach between Michigan City Harbor and Beverly Shores, Indiana, requiring an initial placement of 264,500 cubic yards of sand. Periodic replenishment of about 264,500 cubic yards of sand at five year intervals would be required throughout the life of the project. The project was authorized for construction by Section 501 of the Water Resources Development Act of 1986. Estimated federal cost (1997) for new work is $184,000,000, including future beach nourishment.

**Local Cooperation.** Special use permit has to be issued by National Park Service for construction.

**Operations and Results During Period.** Continued monitoring of project and development of the Coastal Monitoring Report. Total Federal costs for FY09 were $1,546,084 for construction, $136,682 for hired labor and $81,936 for work by other federal agencies.

**Condition at End of Fiscal Year.** Plans and specs for construction were completed in FY09 and two options were added for additional sand in FY10. Construction contract was awarded for base and option one. The total cost of the existing project to September 30, 2009 is $13,751,080 (Federal).

## 24. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

See table 22-E.

## 25. BEACH EROSION CONTROL UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103 of the Rivers and Harbors Act of 1962, as amended. None.

## Flood Control

## 26. CHICAGO RIVER, IL (NORTH BRANCH)

**Location.** Northern Illinois in Cook and Lake Counties.

**Existing Project.** Provides for clearing the channel of the North Branch of the Chicago River of fallen trees, roots, and other debris and objects which contribute to the flooding, unsightliness, and pollution of the river. The project extends from Wolf Point in Chicago, Illinois, to its source just south of Rockland Road east of Libertyville, Illinois. The project was authorized by the River and Harbor Act of December 31, 1970 (Section 116) and amended by the River and Harbor Act of March 7, 1974 and the Water Resources Development Act of 1986.

**Local Cooperation.** The 1970 Act provided that local interests furnish without cost to the United States all lands, easements, rights-of-way, and disposal areas necessary for construction of the project; hold and save the United States free from damages due to construction; maintain and operate all works after completion without cost to the United States; and agree to bear all costs in excess of $200,000 for completing construction. The 1974 Act provided that the United States will maintain the channel free of trees, roots, debris and objects at a cost not to exceed $150,000 per year with non-federal interests paying 25 percent of the cost of maintenance. The 1986 Water Resources Development Act changed the cost sharing to require that non-federal interests pay 50 percent of the cost of maintenance plus the cost of disposal. The requirements are fully complied with.

**Operations and Results During Period.** No work was performed during this reporting period.

**Condition at End of Fiscal Year.** Total cost of existing project to September 30, 2009- was $4,775,691 of which $231,884 was for new work ($191,884 federal funds and $40,000 contributed funds), and $4,543,807 was for maintenance ($2,768,632 federal funds and $1,775,175 non-federal contributed funds).

## 27. DES PLAINES RIVER II, ILLINOIS

**Location.** Northeastern Illinois counties of Lake and Cook. Its 69 miles length flow through 73 communities, which are part of the Chicago metropolitan area.

**Existing Project.** The Des Plaines flood control project was authorized by Section 101(b) (10) of the 1999 Water Resources Development Act. The optimized project provides a maximum 0.12 foot reduction in stage for the 100-year flood, and the levee features meet the FEMA criteria for 100-year protection. The project consists of six features to construct (three in Lake County and three in Cook County), environmental mitigation, and a flood warning plan. The project adds 1,975 acre-feet of storage by constructing 6 features: a lateral storage area in Van Patton Woods (412 acre-feet); enlarging the existing North Fork Mill Creek Dam by elevating the crest of spillway (500 acre-feet); and excavating the existing reservoirs at Buffalo Creek (476 acre-feet) and at Big Bend Lake (587 acre-feet). The remaining 2 project features are levees with appurtenant interior drainage features. Levee 37 raises portions of Des Plaines River Road and Milwaukee Avenue between Palatine Road and Euclid Avenue from 0.5 to 5 feet over a total length of 8,500 feet. Levee 50 is a combination levee/flood wall in the City of Des Plaines between Dempster Road and the Chicago and Northwestern railroad. The length of this levee would be about 2,600 feet and the length of the floodwall would be 2,115 feet.

**Local Cooperation.** The nonfederal sponsor is the Illinois Department of Natural Resources (IDNR). IDNR is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

**Operations and Results During the Period.** Constructed two of three sections of Levee 37 along with design work for Big Bend Lake expansion. In FY09 at a total federal cost of $12,047,374, a cost of $1,452,078 for hired labor (CG), $10,585,296 for construction contracts (CG) and $10,000 for work by other Corps of Engineers.

**Condition at End of Fiscal Year.** Total cost of the existing project to September 30, 2009 is $20,139,407 of which ($3,105,721 (GI), $16,658,069 (CG) and a non-Federal cost $375,617 (GI).

**28. LAKE GEORGE, HOBART, IN**

**Location.** Lake George in Hobart, Indiana and Deep River watershed upstream of the lake through Lake Station, Indiana.

**Existing Project.** The project consists of the removal of silt, aquatic growth and other material and the construction of silt traps or other devices to prevent and abate the deposition of sediment. Project was authorized by Section 602 of the Water Resources Development Act (WRDA) of 1986.

**Local Cooperation.** Section 602(b), Water Resources Development Act of 1986 applies. By letter dated March 9, 1987 the City of Hobart, Indiana indicated that it was a potential local project sponsor and applied for credit for previous work applicable to the project under the provisions of Section 104 (d) of the 1986 WRDA. By letter dated March 19, 1999, the City of Hobart, Indiana withdrew interest in the project.

**Operations and Results During Period.** Project was terminated in FY99.

**Condition at End of Fiscal Year.** Pre-construction engineering and design was terminated. Total cost of the existing project to September 30, 2009 is $1,314,167.

**29. LITTLE CALUMET RIVER, IN**

**Location. N**orthwest Indiana between the Illinois-Indiana State line and the Conrail Railroad in east Gary, Indiana.

**Existing Project.** The project consists of replacing 9.5 miles of existing spoil bank levees with 12.1 miles of new levees, floodwalls, closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue in Gary, Indiana; construction of 9.7 miles of set-back levees in Gary; a diversion structure at Hart Ditch; permanent evacuation of 29 structures in the Black Oak area of Gary; flood proofing 38 residential structures in Gary; modifying 7 miles of channel and 3 accompanying bridge culvert modifications; modifying one highway bridge; construction of 16.8 miles of hiking/biking trails and 550 acres of recreation support facilities; and preservation of 788 acres of wetlands with wildlife mitigation measures. The project was authorized by Section 401 of the Water Resources Development Act of 1986. The construction contract for Stages II-3A, III and V-1 levee segment and the Stage I-4 demolition contract were completed .Completed construction on East Remediation, and Stage IV-2B.

**Local Cooperation.** The local sponsor is the Little Calumet River Basin Development Commission. The local cooperation agreement was signed on August 16, 1990. The local sponsor is required to provide all lands, easements and rights-of-ways; provide all required relocations; and hold and save the United States from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a five percent cash contribution for structural flood control measures, fifty percent for recreation features and twenty-five percent for fish and wildlife enhancements. A memorandum of agreement with the local sponsor to design non-federal improvements was signed on May 20, 1992.

**Operations and Results During Period.** Continued construction on Stage VI-1North, Stage VI-1 South, Stage VI-2 and Landscaping Contract 2. Initiated construction of Burr Street Betterment Levee Phase II. Completed Wetland Mitigation construction. Initiated engineering and design for Stage V-2 in the west reach. Project costs for FY 2009 were $13,420,989 for construction services, $2,053,329 for hired labor, $35,292 for work by other federal agencies, $325,495 for work by other Corps of Engineers, $8,732 for contracted engineering services and $3,677 for other contracted services.

**Condition at End of Fiscal Year**. Continuing with

construction contracts. Total cost of existing project to September 30, 2009 were $160,309,779 of which $145,818,449 was federal, $12,294,653 was non-federal and $2,196,677 was non-federal betterment.

**30. LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN**

**Location.** Lake County in Northwest Indiana as it flows through the Towns of Griffith and Highland, Indiana.

**Existing Project.** The Cady Marsh Ditch flood control project was authorized by Section 401 (a) of the 1986 Water Resources Development Act. The project provides for diverting flood flows from Cady Marsh Ditch to the Little Calumet River through a diversion system under Arbogast Avenue in Griffith. Specifically, the project consists of improving 1,290 feet of Cady Marsh Ditch between Colfax and Arbogast Avenues in Griffith, constructing approximately 5,000 feet of large conduit pipes under Arbogast Avenue, excavating an open channel approximately 2,850 feet long from the north end of Arbogast Avenue to the Little Calumet River, and constructing interior drainage improvements.

**Local Cooperation.** The local project sponsor is the Town of Griffith, IN. The local sponsor is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

**Operations and Results During the Period.** Initiated engineering and design for the Cady Marsh Ditch Channel and interior drainage improvements. Continued construction on the Genis Pump Station. Completed work on the 10 foot Diversion Tunnel under Arbogast Road construction contract. Project costs for FY 2009 were $243,168 for hired labor, $99,000 for construction services and $58,621 for work by other Corps of Engineers.

**Condition at End of Fiscal Year.** Construction is in progress. Total costs of the existing project to September 30, 2009 were $25,410,789 of which $20,497,092 was federal and $4,913,697 was non-federal.

**31. McCOOK AND THORNTON RESERVOIRS, IL**

**Location.** Near the communities of McCook, Justin and Bedford Park, Illinois at the existing Metropolitan Water Reclamation Solids Management Area (McCook Quarry). The Thornton Reservoir will be located in the community of Thornton, Illinois at the existing Thornton Quarry.

**Existing Project.** The project consists of converting two quarries into flood storage reservoirs. The McCook Reservoir will have a storage volume of 21,400 acre-feet (7 billion gallons); the Thornton Reservoir will have a volume of 24,200 acre-feet (7.9 billion gallons). The reservoirs will store floodwater from tunnels constructed or under construction by the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago as part of the Tunnel and Reservoir Project (TARP). The project was authorized by Section 3 of the Water Resources Development Act of 1988.

**Local Cooperation.** The Metropolitan Water Reclamation District of Greater Chicago will be the local sponsor and provide the required local cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost. The Project Cooperation Agreement for the McCook Reservoir was executed on May 10, 1999. The project Cooperation Agreement for the Thornton Reservoir was executed on September 18, 2003. Design and construction of the McCook Reservoir is being managed by the Chicago District. Design and construction of the Thornton Reservoir is being managed by the project sponsor.

**Operations and Results During the Period.** Completed construction on the Stage 2 Cutoff Wall, Stage 1 Grout Curtain and the Stage 1b Rock Wall stabilization contracts. Continued Main Gates fabrication and engineering and design work for the Main Tunnel Plans and Specs. Completed engineering design work for the Main Tunnel Access Shaft and Stage 2 Grout Curtain Plans and Specs. Project costs for FY09 were $38,114,571 for construction services, $3,143,010 for hired labor, $1,367,349 for contracted engineering services, $108,855 for work by other Corps of Engineers and $1,593 for work by other contracted services for a total of $42,735,378 Federal.

**Condition at End of Fiscal Year.** Construction and engineering and design work are in progress. Total costs of the existing project to September 30, 2009 were $228,184,826 of which $194,031,598 was federal and $34,153,228 was non-federal.

## 32. NORTH BRANCH, CHICAGO RIVER, IL

**Location**. North of the City of Chicago in suburban Cook and Lake Counties.

**Existing Project.** The project was authorized by the Water Resources Development Act of 1986 and consists of constructing two excavated floodwater storage reservoirs on the West Fork and one excavated reservoir on the Middle Fork. Section 401 of the 1986 Act also included authorization to reimburse non-federal interests 50 percent of the costs of planning and construction for three existing reservoirs on the West Fork, known as Techny Reservoirs, and the existing Mid Fork Reservoir on the Middle Fork. In July 1990, the federal government reimbursed the non-federal interests $4,467,298 for the Techny and Mid Fork Reservoirs. The total federal cost was $4,537,435 for these reservoirs. Reservoir 27 in the Village of Bannockburn, is located on the West Fork, 12.7 miles above its confluence with the North Branch Chicago River. It has a floodwater storage capacity of 525 acre-feet. The reservoir construction was completed in June 1990. Reservoir 29A is located 9.6 miles above the mouth of the West Fork and 3.1 miles south of Reservoir 27. The floodwater storage capacity is 575 acre-feet. Two project features, channel relocation and construction of two bridges, are a non-federal responsibility. Reservoir 29A was substantially completed in September 1994. Reservoir 15 is located near the City of Green Oaks on the Middle Fork, 22.1 miles above its confluence with the North Branch Chicago River. The floodwater storage capacity is 500 acre-feet. The reservoir is approximately 42 feet deep except in the sedimentation pool area which is about 15 feet deeper. Construction of Reservoir 15 was completed in May 1992. The local sponsor has contributed $550,100 for the non-federal improvements for Reservoir 29A.

**Local Cooperation.** The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost.

**Operations and Results During Period.** Total costs in FY09 were for hired labor at $72,176 Federal.

**Condition at End of Fiscal Year.** The existing project is 100% complete. Total costs of the existing project to September 30, 2009 were $31,143,046 of which $24,390,663 is Federal and $2,259,085 is non-federal contributions. This total also includes the $4,493,298 non-federal cost for the Techny and Mid Fork Reservoirs. Non-federal betterment funds of $550,101 have been expended on bridge and channel betterments at Reservoir 29A. A total of $7,576,668 in non-federal funds has been expended on investigations in connection with the clean-up of soils contaminated with lead shot pellets at Reservoirs 29A. Non-federal betterment funds in the amount of $38,500 were expended for work on an impact assessment. A total of $11,166 (non-federal betterment) was spent at Reservoir 27 for the Illinois Tollway project.

## 33. O'HARE RESERVOIR, IL

**Location.** Northwestern Cook County, Illinois about 1 mile northwest of Chicago O'Hare International Airport in an unincorporated portion of Elk Grove Township.

**Existing Project.** The project consists of a 1,050 acre-foot capacity reservoir, excavated to a depth of 80 feet. The reservoir has been constructed at the terminus of the existing system of 6.6 miles of deep tunnels, constructed under the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago Tunnel and Reservoir Project (TARP). The project was authorized by Section 401 of the Water Resources Development Act of 1986.

**Local Cooperation.** The local sponsor is the Metropolitan Water Reclamation District of Greater Chicago. The local cooperation agreement for the first construction contract, creek relocation, was signed on July 31, 1990. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a cash contribution of five percent of the total project costs. The local cooperation agreement for the remainder of the project, reservoir excavation and lining, was signed July 29, 1991.

**Operations and Results During Period.**
No work was performed in FY09.

**Condition at End of Fiscal Year.** The total costs of the existing project to September 30, 2009 were $39,300,198 of which ($30,614,201 federal and $6,033,516 non-federal and non-federal improvement costs were $2,652,481)

**34. OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

See table 22-F.

**35. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION**

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

| Program | Fiscal Year Costs to September 30, 2008 |
|---|---|
| Disaster Preparedness | $1,975 |

Flood control activities pursuant to **Section 205** of Flood Control Act of 1965, as amended:

Fiscal Year 2009 costs were $164,142 Federal. A total of $15,000 was spent on the Section 205 Coordination Account. Libertyville Estates, IL, construction phase continued at the cost of $8,438 Federal. Monticello Avenue, Chicago, continued at the cost of $2,826 Federal. City of Oak Forest, IL continued at $17,540 Federal. Deer Creek construction continued at a cost of $120,268 Federal.

**Section 14,** Emergency Streambank and Shoreline Protection:

Fiscal Year 2009 costs were $655,232 Federal and $0 non-federal. A total of $2,403 was spent on Section 14 Coordination Account. North Park University continued at a cost of $639,961 Federal and $374,524 non-federal. Lake Michigan interceptor in Highland Park, Il continued at a cost of $12,867 Federal.

**Section 1135**, Project modification to improve Environment:

Fiscal Year 2009 Federal costs were $355,796 and non-Federal costs were $0. Indian Ridge Marsh continued at a cost of $355,796 Federal.

**Section 206**, Aquatic Ecosystem Restoration:

Fiscal Year 2009 costs were $1,163,414 Federal and $70,466 non-federal. Eugene Field, IL continued at a cost of $29,661 Federal. Ping Tom Park IL, continued at a cost of $4,839 Federal. Hoffman Dam, IL, DPR continued at a cost of $4,620 Federal.

Wolf Lake, IN, continued at a cost of $134,361 Federal and $70,466 non-federal. Lockport Prairie Nature Preserve, IL, DPR was continued at $6,375 Federal. Cedar Lake, IN, DPR was continued at a cost of $176 Federal. Orland Park continued at $980,493 Federal. Fort Sheridan Forest Preserve Coastal Habitat continued at $288,510 Federal.

**Section 107**, Navigation Harbor:

Fiscal Year 2009 costs were $0 Federal and $0 non-federal.

**36. ENVIRONMENTAL**

Lake Michigan Waterfront project in Indiana had costs of $79,983 Federal. The South Fork South Branch in Illinois had costs of $36,808 Federal.

**General Investigations**

**37. SURVEYS**

Fiscal Year 2009 costs were $1,887,771 Federal and 0 non-federal. Itemized as follows:

| | Federal | Non-federal |
|---|---|---|
| Flood Damage Prevention Studies | $499,561 | $ 0 |
| Shoreline Protection | $2,783 | $ 0 |
| Special Studies | $959,608 | $ 0 |
| Review Authorized Projects | $0 | $ 0 |
| Miscellaneous Activities | $26,458 | $ 0 |
| Coordination Studies | $374,361 | $ 0 |

**38. COLLECTION AND STUDY OF BASIC DATA**

Fiscal Year 2009 costs were $392,729 federal and $0 non-federal itemized as follows:

| | Federal | Non-federal |
|---|---|---|
| International Water Studies | $6,000 | $ 0 |
| Flood Plain Management Services | $34,951 | $ 0 |
| Hydrologic Studies | $0 | $ 0 |

**American Recovery and Reinvestment Act**

**39. INVESTIGATIONS**

Expenditures for General Investigations projects for FY 2009 totaled $21,545.

**40. CONSTRUCTION**

Expenditures for General Construction projects for FY 2009 totaled $1,690,367.

**41. OPERATION AND MAINTENANCE**

Expenditures for Operations and Maintenance projects for FY 2009 totaled $419,995.

**Veteran's Administration Project Activities**

**42. CONSTRUCTION PROJECTS**

Project costs for FY09 were $2,061,373 for construction services and $317,965 for hired labor.

## TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 1. | Burns Waterway | New Work: | | | | | | |
| | Harbor, IN | Approp. | 0 | 0 | 0 | 0 | 13,584,000 | |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 13,584,000 | |
| | **(O&M)** | Maint: | | | | | | |
| | **(111-002250)** | Approp. | 1,049,000 | 3,526,000 | 5,392,000 | 2,479,400 | 42,372,264 | |
| | | Cost | 427,115 | 3,936,538 | 3,857,610 | 3,539,162 | 41,647,048 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 15,900 | |
| | | Cost | 0 | 0 | 0 | 0 | 15,900 | |
| | | Maint: | | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 108,362 | |
| | | Cost | 0 | 0 | 0 | 0 | 108,362 | |
| 2. | Burns Waterway | New Work: | | | | | | |
| | Small Boat Harbor, IN | Approp. | 0 | 0 | 0 | 0 | 2,000,000 | |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 2,000,000 | |
| | **(O&M)** | Maint: | | | | | | |
| | **(111-087387)** | Approp. | 0 | 0 | 60,000 | 1,421,000 | 5,544,935 | |
| | | Cost | 0 | 897 | 58,796 | 279,469 | 4,402,200 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 1,770,558 | |
| | | Cost | 0 | 0 | 0 | 0 | 1,770,558 | |
| 3. | Burns Waterway | New Work: | | | | | | |
| | Harbor (Major Rehab), IN | Approp. | 0 | 0 | 0 | 0 | 13,384,200 | |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 13,384,200 | |
| | (Contributed | New Work: | | | | | | |
| | (O&M) | Contrib. | 0 | 0 | 0 | 0 | 0 | |
| | | Cost | 0 | 0 | 0 | 0 | 0 | |
| 4. | Calumet Harbor and | New Work: | | | | | | |
| | River, IL and IN | Approp. | 0 | 0 | 0 | 0 | 22,578,567 | 1/ |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 22,578,567 | 1/ |
| | **(O&M)** | Maint: | | | | | | |
| | **(111-002410)** | Approp. | 712,000 | 3,555,000 | 3,453,000 | 4,348,260 | 65,283,428 | 2/ |
| | | Cost | 599,786 | 3,450,727 | 2,891,014 | 2,264,279 | 62,394,277 | 2/ |
| | | Rehab: | | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 5,428,001 | 3/ |
| | | Cost | 0 | 0 | 0 | 0 | 5,428,001 | 3/ |
| | (Contributed | Maint: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 836,667 | |
| | | Cost | 0 | 0 | 0 | 0 | 836,667 | |

## TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 5. | Chicago Harbor, IL | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 0 | 0 | 4,788,827 | 4/ |
| | **(O&M)** | Cost | 0 | 0 | 0 | 0 | 4,788,827 | 4/ |
| | **(111-045009)** | Maint: | | | | | | |
| | | Approp. | 5,546,000 | 1,620,000 | 1,735,000 | 1,873,760 | 73,849,267 | |
| | | Cost | 5,568,957 | 2,622,712 | 1,657,319 | 1,976,394 | 73,693,951 | |
| | | Rehab: | | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,326,600 | |
| | | Cost | 0 | 0 | 0 | 0 | 1,326,600 | |
| | (Harbor and Dam Funds) | Maint: | | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 160,000 | |
| | | Cost | 0 | 0 | 0 | 0 | 160,000 | |
| 6. | Chicago River, IL | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 0 | 0 | 1,500,565 | 5/ |
| | **(O&M)** | Cost | 0 | 0 | 0 | 0 | 1,500,565 | 5/ |
| | **(111-003810)** | Maint: | | | | | | |
| | | Approp. | 343,000 | 336,000 | 416,000 | 432,180 | 19,619,296 | 6/ |
| | | Cost | 342,194 | 313,682 | 361,722 | 508,452 | 19,612,109 | 6/ |
| 7. | Indiana Harbor, IN | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 0 | 0 | 4,897,148 | 7/ |
| | **(O&M)** | Cost | 0 | 0 | 0 | 0 | 4,897,148 | 7/ |
| | **(111-018120)** | Maint: | | | | | | |
| | | Approp. | 296,000 | 543,000 | 704,000 | 2,921,380 | 20,588,879 | 8/ |
| | | Cost | 349,669 | 513,410 | 599,478 | 1,635,959 | 19,155,454 | 8/ |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 12,500 | |
| | | Cost | 0 | 0 | 0 | 0 | 12,500 | |
| 8. | Indiana Harbor, Confined | New Work: | | | | | | |
| | Disposal Facility, IN | Approp | 7,920,000 | 20,250,000 | 17,776,000 | 9,890,000 | 80,270,000 | |
| | (Federal Funds) | Cost | 6,854,992 | 7,955,309 | 24,215,797 | 15,472,354 | 79,635,637 | |
| | **(CG 212-075535)** | | | | | | | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 3,000,000 | -35,595 | 35,595 | 2,500,128 | 14,779,582 | |
| | | Cost | 1,139,425 | 1,389,345 | 494,518 | 632,440 | 12,748,588 | |
| 9. | Lake Michigan | Maint: | | | | | | |
| | Diversion, IL | Approp. | 485,000 | 545,000 | 688,000 | 782,040 | 12,075,240 | |
| | (Federal Funds) | Cost | 405,215 | 496,705 | 609,621 | 708,129 | 11,655,755 | |
| | **(O&M)** | | | | | | | |
| | **(111-008218)** | | | | | | | |
| 10. | Michigan City | New Work: | | | | | | |
| | Harbor, IN | Approp. | 0 | 0 | 0 | 0 | 1,543,646 | 9/ |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 1,543,646 | 9/ |
| | **(O&M)** | | | | | | | |
| | **(111-011060)** | | | | | | | |

## TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| | | Maint: | | | | | | |
| | | Approp. | 444,000 | 0 | 935,000 | 0 | 22,245,961 | |
| | | Cost | 402,447 | 55,327 | 402,219 | 15,593 | 21,933,320 | |
| | | Rehab: | | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 1,618,670 | |
| | | Cost | 0 | 0 | 0 | 0 | 1,618,670 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 30,512 | |
| | | Cost | 0 | 0 | 0 | 0 | 30,512 | |
| | | Maint: | | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 55,000 | |
| | | Cost | 0 | 0 | 0 | 0 | 55,000 | |
| 11. | Waukegan Harbor, IL | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 0 | 0 | 823,026 | 10/ |
| | **(O&M)** | Cost | 0 | 0 | 0 | 0 | 823,026 | 10/ |
| | **(111-019560)** | Maint: | | | | | | |
| | | Approp. | 2,091,000 | 329,000 | 1,215,000 | 999,600 | 26,733,200 | 11/ |
| | | Cost | 511,885 | 1,084,992 | 1,018,771 | 748,303 | 25,431,545 | 11/ |
| 15. | Calumet Region, IN | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 639,000 | 1,843,000 | 3,936,000 | 2,500,000 | 17,763,000 | |
| | **(CG 772-076276)** | Cost | 579,590 | 3,318,265 | 3,787.514 | 2,887,313 | 11,879,792 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 2,178,350 | 1,540,335 | 1,603,830 | 333,877 | 5,833,042 | |
| | | Cost | 118,998 | 1,759,150 | 2,316,365 | 900,249 | 5,094,762 | |
| 16. | Casino Beach, IL | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 0 | 0 | 2,525,000 | |
| | **(CG 412-013047)** | Cost | 0 | 0 | 0 | 0 | 2,465,517 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 2,499,481 | |
| | | Cost | 0 | 0 | 0 | 0 | 2,499,481 | |
| 17. | Chicago Shoreline, IL | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 18,301,950 | 10,136,000 | 8,856,000 | 4,000,000 | 187,146,750 | |
| | **(CG 412-013099)** | Cost | 9,333,283 | 12,989,883 | 9,788,274 | 7,708,782 | 182,538,380 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contr.Credits | 0 | 0 | 0 | 0 | 70,638,615 | |
| | | Cost | 497,035 | 2,683,328 | 313,870 | 778,280 | 70,532,240 | |
| 18. | Chicago Sanitary & Ship Canal Dispersal Barrier I | New Work: | | | | | | |
| | (Federal Funds) | Approp. | 400,000 | 500,000 | 738,000 | 0 | 5,301,000 | |
| | **(CG 771-076236)** | Cost | 163,570 | 205,756 | 545,921 | 639,748 | 5,064,140 | |
| | (Contributed | New Work: | | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 0 | |
| | | Cost | 0 | 0 | 0 | 0 | 0 | |

## TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 19. | Chicago Sanitary & Ship Canal Dispersal Barrier II | New Work: | | | | | |
| | (Federal Funds) | Approp. | 0 | 0 | 7,872,000 | 6,250,000 | 20,946,640 |
| | **(CG 771-178420)** | Cost | 817,829 | 317,842 | 1,258,289 | 4,951,697 | 12,686,165 |
| | **(CG 771-114532)** | | | | | | |
| | (Contributed | New Work: | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 2,274,073 |
| | | Cost | 626,118 | 121,262 | 43,481 | 74,726 | 2,146,085 |
| 20. | Cook County, IL | New Work: | | | | | |
| | (Federal Funds) | Approp. | 341,000 | 440,000 | 234,000 | 120,000 | 2,001,000 |
| | **(CG 772-169675)** | Cost | 3,239 | 782,755 | 100,684 | 456,154 | 1,919,844 |
| | | New Work: | | | | | |
| | | Contrib. | 0 | 135,610 | 257,658 | 22,848 | 585,523 |
| | | Cost | 0 | 164,360 | 52,738 | 185,687 | 496,535 |
| 21. | Illinois Beach State | New Work: | | | | | |
| | Park, IL | Approp. | 0 | 0 | 0 | 0 | 345,150 |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 344,291 |
| | **(GI 132-079225)** | | | | | | |
| 22. | Indiana Dunes National | New Work: | | | | | |
| | Lakeshore, Beverly | Approp. | 0 | 0 | 0 | 0 | 660,000 |
| | Shores, IN | Cost | 0 | 0 | 0 | 0 | 660,000 |
| | (Federal Funds) | Maint: | | | | | |
| | **(O&M)** | Approp. | 0 | 0 | 0 | 0 | 2,296,000 |
| | | Cost | 0 | 0 | 0 | 0 | 2,296,000 |
| 23. | Indiana Shoreline | New Work: | | | | | |
| | Erosion, IN | Approp. | 272,000 | 1,000,000 | 984,000 | 1,600,000 | 15,430,800 12/ |
| | (Federal Funds) | Cost | 56,920 | 227,454 | 1,764,702 | 164,306 | 13,751,080 12/ |
| | **(CG 411-013038)** | | | | | | |
| 26. | Chicago River North | New Work: | | | | | |
| | Branch, IL | Approp. | 0 | 0 | 0 | 0 | 191,884 |
| | (Federal Funds) | Cost | 0 | 0 | 0 | 0 | 191,884 |
| | **(O&M)** | Maint: | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 2,768,850 |
| | | Cost | 0 | 0 | 0 | 0 | 2,768,632 |
| | (Contributed | New Work: | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 40,000 |
| | | Cost | 0 | 0 | 0 | 0 | 40,000 |
| | | Maint: | | | | | |
| | | Contrib. | 0 | 0 | 0 | 0 | 1,785,441 |
| | | Cost | 0 | 0 | 0 | 0 | 1,775,175 |

TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 27. | Des Plaines River (PED), IL | New Work: | | | | | |
| | (Federal Funds) | Approp. | 495,000 | 750,000 | 362,000 | 478,000 | 3,018,968 |
| | **(GI 122-013620)** | Cost | 445,962 | 669,568 | 513,473 | 499,561 | 3,105,721 |
| | | New Work: | | | | | |
| | (Contributed | Contrib. | 0 | 0 | 0 | 0 | 414,989 |
| | Funds) | Cost | 27,950 | (-232,202) | 126,666 | 66,711 | 375,617 |
| | **(CG 511-010249)** | New Work: | | | | | |
| | (Federal Funds) | Approp. | 3,559,000 | 6,000,000 | 6,001,000 | 7,500,000 | 25,135,968 |
| | | Cost | 843,681 | 696,771 | 1,158,166 | 12,047,374 | 16,658,069 |
| | (Contributed | New Work: | | | | | |
| | Funds) | Contrib. | 0 | 0 | 0 | 0 | 0 |
| | | Cost | 0 | 0 | 0 | 0 | 0 |
| 28. | Lake George, Hobart, IN | New Work: | | | | | |
| | (**CG 511-008196)** | Approp. | 0 | 0 | 0 | 0 | 1,320,000 |
| | Federal Funds | Cost | 1,500 | 0 | 0 | 0 | 1,314,167 |
| 29. | Little Calumet River, IN | New Work: | | | | | |
| | (Federal Funds) | Approp. | 8,435,000 | 14,000,000 | 14,760,000 | 24,000,000 | 158,832,300 13/ |
| | **(CG 511-075325)** | Cost | 8,311,393 | 10,501,940 | 13,703,774 | 15,847,514 | 145,818,449 13/ |
| | (Contributed | New Work: | | | | | |
| | Funds Required) | Contrib. | 2,503,000 | 636,335 | 1,220,000 | 2,576,000 | 14,347,207 |
| | | Cost | 2,125,250 | 6,211 | 1,364,067 | 1,573,853 | 12,294,653 |
| | (Non-Federal | New Work: | | | | | |
| | Improvements) | Contrib. | 0 | 0 | 0 | 0 | 2,207,500 |
| | | Cost | 0 | 0 | 0 | 0 | 2,196,677 |
| 30. | Little Calumet River, | New Work: | | | | | |
| | Cady Marsh Ditch, IN | Approp. | 8,118,000 | 4,000,000 | 0 | 0 | 23,673,600 |
| | (Federal Funds) | Cost | 8,667,703 | 679,580 | 146,949 | 400,789 | 20,497,092 |
| | **(CG 511-012385)** | | | | | | |
| | (Contributed Funds) | Contrib. | 2,250,000 | 125,000 | -5,276 | 0 | 4,939,753 |
| | | Cost | 2,597,645 | 241,421 | 36,309 | 2,000 | 4,913,697 |
| 31. | McCook and Thornton | New Work: | | | | | |
| | Reservoirs, IL | Approp. | 25,825,000 | 25,825,000 | 29,490,000 | 28,709,000 | 188,933,400 |
| | (Federal Funds) | Cost | 17,660,719 | 17,660,719 | 29,357,029 | 42,735,378 | 194,031,598 |
| | **(CG 511-012574)** | New Work: | | | | | |
| | (Contributed | Contrib. | 0 | 0 | 0 | 600,000 | 40,498,400 |
| | Funds) | Cost | (-7,075,941) | 3,396,294 | 236,595 | 4,936,556 | 34,153,228 |

## TABLE 22-A COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sept. 30, 2009 |
|---|---|---|---|---|---|---|---|
| 32. | North Branch | New Work: | | | | | |
| | Chicago River, IL | Approp. | 0 | 0 | 0 | 0 | 25,012,500 14/ |
| | (Federal Funds) | Cost | 130 | 0 | -688,101 | 72,176 | 24,390,663 14/ |
| | **(CG 511-075311)** | | | | | | |
| | (Contributed | New Work: | | | | | |
| | Funds Required) | Contrib. | 0 | 0 | 0 | 0 | 2,259,832 |
| | | Cost | 0 | 0 | 0 | 0 | 2,259,085 |
| | (Non-Federal | New Work: | | | | | |
| | Improvements) | Contrib. | 0 | 0 | 0 | 0 | 550,102 |
| | | Cost | 0 | 0 | 0 | 0 | 550,101 |
| | (Non-Federal Lead | New Work: | | | | | |
| | Shot Clean-up) | Contrib. | 0 | 0 | 0 | 0 | 7,577,270 |
| | | Cost | 0 | 0 | 0 | 0 | 7,576,668 |
| | (Non-Federal | New Work: | | | | | |
| | Impact Assessment) | Contrib. | 0 | 0 | 0 | 0 | 38,500 |
| | | Cost | 0 | 0 | 0 | 0 | 38,500 |
| | (Non-Federal | New Work: | | | | | |
| | Res. 27 IL Tollway) | Contrib. | 0 | 0 | 0 | 0 | 11,166 |
| | | Cost | 0 | 0 | 0 | 0 | 11,166 |
| 33. | O'Hare Reservoir, IL | New Work: | | | | | |
| | (Federal Funds) | Approp. | (-957,800) | 0 | 0 | 0 | 30,614,200 |
| | **(CG 511-012412)** | Cost | (-953,524) | 57 | 0 | 0 | 30,614,201 |
| | (Contributed | New Work: | | | | | |
| | Funds Required) | Contrib. | 902,316 | 0 | 0 | 0 | 6,033,516 |
| | | Cost | 953,525 | 0 | 0 | 0 | 6,033,516 |
| | (Non-Federal | New Work: | | | | | |
| | Improvements) | Contrib. | 0 | 0 | 0 | 0 | 2,810,000 |
| | | Cost | 0 | 0 | 0 | 0 | 2,625,481 |

## TABLE 22-A COST AND FINANCIAL STATEMENT

1 Includes $855,973 for previous projects.
2 Excludes contributed funds in settlement pursuant to decree (No. 54-C-1608) regarding removal of flue dust and includes $45,230 for previous projects.
3 Includes $689,001 in settlement pursuant to decree regarding removal of flue dust.
4 Includes $446,005 for previous projects.
5 Includes $955,886 for previous projects.
6 Includes $109,463 for previous projects.
7 Includes $60,668 for previous projects.
8 Includes $2,509 for previous projects.
9 Includes $287,389 for previous projects.
10 Includes $218,233 for previous projects.
11 Includes $15,711 for previous projects.
12 Includes $107,000 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.
13 Includes $670,529 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.
14 Includes $489,310 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985.

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **BURNS WATERWAY HARBOR, IN**<br>(See Section 1 and 3 of Text) | |
| Oct. 27, 1965 | Provides for breakwater and channel to present dimensions and depths, a north breakwater, west bulkhead, approach channel and outer harbor, east and west harbor arms. | Rivers and Harbors Act of 1965, Public Law, 89-298 H.Doc 160. 88th Cong. |
| Nov. 20, 2004 | Provides for the dredging of sediments accumulating at the water intake structure of the Bailey Generating Plant (NIPSCO) at 100% federal cost or $100,000. | Sec. 121 of Conf Rpt HR 4818 Report 108-792 |
| Nov. 8, 2007 | Provides a study to determine if damage prevention or mitigation project is feasible. | Sec. 1009, WRDA 2007 |
| | **BURNS WATERWAY SBH, IN**<br>(See Section 2 of Text) | |
| Jul. 14, 1960 | Provides for a 700-foot north breakwater, a 950-foot west breakwater an entrance channel 11-feet deep, a harbor-of-refuge area 10 feet deep and a channel in Burns Waterway 6 feet deep. | Sec 107 of Rivers and Harbors Act of 1960. & Detailed Project Report of Feb 1983 |
| | **CALUMET HARBOR AND RIVER, IL AND IN**<br>(See Section 4 of Text) | |
| Mar. 3, 1899 | Outer harbor protected by breakwaters. | Annual Report, 1896, pp. 2584 et Seq. and H. Doc. |
| Jun. 13, 1902 | | 277, 54th Cong., 1st Sess. |
| Mar. 3, 1905 | Five turning basins. | H. Doc. 172, 54th Cong., 2nd Sess. |
| Jun. 25, 1910 | Provided for shape and dimensions of turning basins. | H. Doc. 346, 60th Cong., 1st Sess. |
| Sep. 22, 1922 | Consolidated the two projects for Calumet Harbor and Calumet River. | |
| Aug. 30, 1935[1,2] | Detached breakwater, dredging outer harbor to existing project depth and dimensions; deepen river entrance channel and river to existing project depths; widen and straighten river channel; five turning basins to same depth as adjacent channel. | H. Doc. 494, 72nd Cong., 2nd Sess. |
| Aug. 30, 1935 | Dredging area A and B in south end of Lake Calumet and an entrance channel 300 feet wide and 21 feet deep. | H. Doc. 180, 73rd Cong., 2nd Sess. |
| Mar. 2, 1945[3] | An approach channel to harbor 3,200 feet wide and 28 feet deep through shoals outside breakwater and closing existing gap between breakwaters. | H. Doc. 233, 76th Cong., 1st Sess. |
| Jul. 14, 1960[13] | Depth of 29 feet in lake approach to 28 feet in outer harbor, and 27 feet in river entrance up to E.J. & E. Ry. Bridge. | H. Doc. 149, 86th Cong., 1st Sess.[8] |
| Oct. 23, 1962[13] | Deepen, widen and straighten channel in Calumet River from E.J. and E. Ry. Bridge, to and including turning basins 1, 3 and 5 to 27 feet; enlarge turning basins 3 and 5; channel into Lake Calumet to 27 feet deep for 3,000 feet and a width of 1,000 feet; and eliminate turning basins 2 and 4 from project. | H. Doc. 87th Cong., 2nd Sess.[5] |
| Oct. 27, 1965[13] | Modification of Act of Oct 23, 1962. Protection for Elgin, Joliet and Eastern Railway Bridge over the Calumet River, to permit dredging to full width of the south draw to depth of 27 feet, and temporary protection for center pier and south abutment of the New York, Chicago and St. Louis Railroad Bridge (Nickel Plate) to permit dredging of full width of south bridge draw to depth of 27 feet prior to its replacement. | H.R. 973, 89th Cong., 1st Sess. |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **CHICAGO HARBOR, IL**<br>(See Section 5 of Text) | |
| Jul. 11, 1870 | Inner breakwaters and inner basin. | H. Ex. Doc. 114, 41st Cong. 2nd Sess. and Annual Report 1870, pp. 1562-1567 |
| Jun. 14, 1880 | Exterior breakwater. | Annual Report 1870, pp. 1562-1567 |
| Mar. 3, 1899 | Present project depth in basin and entrance to Chicago River. | Annual Report 1897, pp. 2790-2791 |
| Jul. 25, 1912 | Shore-arm and southerly extension of exterior breakwater | H.Doc 710, Cong, 2d Sess |
| Mar. 2, 1919 | Modification of area to be dredged in inner basin. | H.Doc 1303, 64th Cong, 1st Sess. |
| Mar. 3, 1931 | Shore-arm extension of exterior breakwater transferred to Lincoln Park Commissioners. | Public Law 797, 71st Cong |
| Mar. 2, 1945 | Resumption of jurisdiction over shore-arm extension breakwater and over certain navigable waters in Lake Michigan which lie in northwestern part of outer harbor. | Public Law 14, 79th Cong. |
| Oct. 23, 1962 | Deepen a lake approach channel to 29 by 800 feet wide for 6,600 feet; deepen channel and maneuver area inside harbor entrance to 28 by 1,300 feet wide. | H.Doc. 485, 87th Cong., 2nd Sess.[4] |
| Dec. 4, 1981<br>Jul. 30, 1983 | Provides for lock operations and maintenance responsibilities in the interests of navigation. | Sec. 107 of P.L. 97-88<br>P.L. 98-63 |
| | **CHICAGO SHIP AND SANITARY CANAL DISPERSAL BARRIER I**<br>(See Section 18 of Text) | |
| Nov. 29, 1990 | Provide a Barrier Demonstration Project to prevent non-indigenous aquatic species from traveling between the Mississippi River and Great Lakes drainage basins | Sec 1202( i )(3) of P.L. 101-636 |
| Oct. 26, 1996 | Funding increased to complete project. | P.L. 101-636, Amended |
| Nov. 8, 2007 | The 2 barriers are considered a single project; 100% federal project; upgrade and & make permanent existing barrier; finish construction of barrier II; operate & maintain Barrier I & II to optimize effectiveness; conduct a study of options and technologies to improve efficacy of barriers; credit states; and a feasibility study to prevent spread of invasive species between Great Lakes and Mississippi River Basin and other aquatic pathways. | Sec. 3061, WRDA 2007 |
| | **CHICAGO SHIP AND SANITARY CANAL DISPERSAL BARRIER II**<br>(See section 19 of Text) | |
| Oct. 18, 2004 | Provide a Permanent Barrier to prevent non-indigenous aquatic species from traveling between the Mississippi River and Great Lakes drainage basins | Sec. 345 of P.L. 108-335 |
| Nov. 8, 2007 | The 2 barriers are considered a single project; 100% federal project; upgrade and & make permanent existing barrier; finish construction of barrier II; operate & maintain Barrier I & II to optimize effectiveness; conduct a study of options and technologies to improve efficacy of barriers; credit states; and a feasibility study to prevent spread of invasive species between Great Lakes and Mississippi River Basin and other aquatic pathways. | Sec. 3061, WRDA 2007 |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **CHICAGO RIVER, IL**<br>(See Section 6 of Text) | |
| Mar. 3, 1899 | For project depth of 21 feet in lieu of that fixed by act of Jun 3, 1896. | Specified in act. |
| Jun. 13, 1902 | Turning basins | Specified in act. |
| Mar. 2, 1907 | Interpreted by Chief of Engineers, April 11, 1908, as adopting new work of the then existing project for 21-foot depth. | H. Doc. 95, 56th Cong. 1st Sess. (Annual Report, 1900, p. 3863 and Annual Report 1909, p. 709) |
| Mar. 2, 1919 | Eliminated all work except maintenance of main river. | H. Doc. 1294, 64th Cong. 1st Sess. |
| Jul. 24, 1946 | Dredging channel 9 feet deep to within 30 feet of existing bulkheads and river banks from North Ave. to Belmont Ave., thence 9 feet deep and 50 feet wide to Addison St. | H. Doc 767, 78th Cong., 2nd Sess.[6,7] |
| | **INDIANA HARBOR, IN**<br>(See Section 7 of Text) | |
| Jun. 25, 1910 | Maintenance of outer harbor. Maintenance of inner harbor channel when deeded free of cost to and accepted by the United States. | H. Doc. 1113, 60th Cong., 2nd Sess. |
| Mar. 4, 1913 | Breakwaters. | H. Doc. 690, 62nd Cong., 2nd Sess. |
| Mar. 2, 1919 | Lighthouse crib, present length and alignment easterly and northerly breakwaters. | Rivers and Harbors Committee Doc. 6, 65th Cong., 2nd Sess. |
| Mar. 20, 1922 | Reduce channel length to be maintained in extension to Lake George | Public Law 176, 67th Cong |
| Mar. 3, 1925 | Authorized Secretary of War to modify project so far as relates to length and alignment of breakwaters and to sell Youngstown Steel and Tube Co. about 1,180 linear feet of shoreward end of existing north breakwater. | |
| Mar. 2, 1929 | Accept 2.3 acres of land for construction of the Forks Turning Basin. | |
| Jul. 3, 1930[10] | Existing project channel width and depth in Lake George Branch and turning basin at the Forks | Rivers and Harbors Committee Doc. 21, 71st Cong., 2nd Sess. |
| Jul. 30, 1932 | Authorized Secretary of War to sell to Inland Steel Co., about 1,903 linear feet of southerly end of existing east breakwater. | Public Law 219, 72nd Cong. |
| Aug. 30, 1935[11] | Extended easterly breakwater, dredge entrance channel and outer harbor, deepen channel between bulkhead fills, widen main stem of canal and portion of Calumet River Branch to 141st St. | Rivers and Harbors Committee Doc. 29, 72nd Cong., 1st Sess. |
| Aug. 28, 1937 | Modified conditions of local cooperation required before enlargement of Indiana Harbor Canal is undertaken by United States. | Rivers and Harbors Committee Doc. 13, 75th Cong., 1st Sess. |
| Jul. 14, 1960 | Increase authorized depths of 29 feet in outer harbor entrance channel, 28 feet in outer harbor and 27 feet in canal entrance channel to first E. J. and E. Ry. Bridge. | H. Doc. 195, 86th Cong. 1st Sess. |
| Oct. 27, 1965[12] | Deepen main canal from landward end of canal entrance channel to a point lakeward of Dickey Place Bridge over a modified channel width of 190 feet, except through bridge openings. | H. Doc. 227, 89th Cong. 1st Sess. |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **INDIANA HARBOR CDF, IN**<br>(See Section 8 of Text) | |
| | **LAKE MICHIGAN DIVERSION**<br>(See Section 9 of Text) | |
| Nov. 17, 1986 | Responsible for monitoring of Lake Michigan Diversion. | Section 1142, WRDA of 1986 |
| | **MICHIGAN CITY HARBOR, IN**<br>(See Section 10 of Text)<br>East breakwater and old east pier enclosing the outer basin. | Recommendations of a Board of Engineers, Annual Report 1870, p. 123. |
| | Extension of east pier. | Reports of Boards of Engineers, Annual Rpt 1851, pp. 2187-2189; Annual Report 1882, p. 2264-2266. |
| Mar. 3, 1889 | Extend east pier and construct detached breakwater. | Annual Report 1897, pp. 2903-2904. |
| Mar. 3, 1905 | Lower turning basin.<br>Rebuild west pier as at present location.<br>Present project dimensions of entrance channel. | Joint Resolution of Cong. approved May 13, 1908. Public Law 23. |
| Jun. 21, 1927 | Existing project depth in channel, and in lower and middle turning basins, eliminated improvement of Trail Creek above middle turning basin and uncompleted portion of detached breakwater, abandonment of old east breakwater and old east pier enclosing outer basin. | H. Doc. 279, 69th Cong., 1st Sess. |
| Aug. 30, 1935 | Restore and repair westerly 1,000 feet of east breakwater, dredging outer basin and enlarging entrance to basin through east pier. | River and Harbors Committee Doc 34, 74th Cong., 1st Sess. |
| Jul. 14, 1960 | Dredge river channel 50 feet wide and 6 feet deep from upper turning basin to E. Street Bridge. | Detailed Project Report Sec. 107,dated June 1965[8]. |
| | **WAUKEGAN HARBOR, IL**<br>(See Section 11 of Text) | |
| Jun. 14, 1880 | Parallel piers and basins. | Annual Rpt 1880, p. 142 |
| Aug. 3, 1882 | Modified location of harbor entrance. | Annual Report 1882, pp. 277, 2162. |
| Jun. 13, 1902 | Detached breakwater, extend piers, increase width of harbor at inner end of north pier and dredge channel and basin to depth of 20 feet. | H. Doc. 343, 56th Cong., 1st Sess. |
| Jul. 3, 1930 | Extension of breakwater to shore, dredging near outer end of north piers and enlarging inner basin. | Rivers and Harbors Committee Doc 27, 71st Cong., 2nd Sess. |
| Mar. 2, 1945 | Dredge an entrance channel to existing project dimensions from | H. Doc. 116, 77th Cong., |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | outer end of north pier to project depth in lake and dredge an anchorage area in southwest corner of inner basin to existing project depth. Abandonment of dredging triangular area in southwest corner of inner basin to 18 feet deep. | 1st Sess. |
| Dec. 17, 1970<br>Oct. 27, 1965 | Provides for deepening the existing entrance channel in the outer harbor to 25 feet and extending to the depth in Lake Michigan, at widths varying from 380 feet to 500 feet; deepening the channel between piers to a depth of 23 feet at a width of 180 feet and deepening the inner basin to 23 feet and extending its limits approximately 275 feet northward. | H. Doc. 368, 90th Cong., Sec. 201, 2nd Sess. |
| | **CALUMET REGION, IN**<br>(See Section 15 of Text) | |
| Nov. 8, 2007 | Amends program limits to $100,000,000 and allows non-federal credit for work prior to the date of the partnership agreement. | Sec. 5075, WRDA 2007 |
| | **CASINO BEACH, IL**<br>(See Section 16 of Text) | |
| Nov. 17, 1986 | Provides for encasing approximately 1,800 feet of the existing Casino Beach jetty in steel sheet piling and a concrete cap and replacing beach fill. | Feasibility Report dated Feb. 1983. |
| | **CEDAR LAKE, IN**<br>(See Section 35 of Text) | |
| Nov. 8, 2007 | Specific authority of $11,050,000 for former Section 206 project. | Sec. 3065, WRDA 2007 |
| | **CHICAGO SHORELINE, IL**<br>(See Section 17 of Text) | |
| Nov. 8, 2007 | The Buffalo & Seattle Districts of the Corps of Engineers shall jointly conduct a third-party review of Promontory Point for compliance of design with historic requirements. | Sec. 5072, WRDA 2007 |
| | **ILLINOIS BEACH STATE PARK, IL**<br>(See Section 21 of Text) | |
| Nov. 17, 1986 | Provides for 46 offshore breakwaters approximately 150 feet long, initial beach nourishment of 100,000 cubic yards and periodic nourishment of 100,000 cubic yards at 5-year intervals. | Feasibility Report dated June 1982. |
| | **INDIANA DUNES NATIONAL LAKESHORE, BEVERLY SHORES, IN**<br>(See Section 22 of Text) | |
| Dec. 4, 1981 | Provides for emergency shore protection repairs to stone revetment initially constructed in 1973. | Public Law 97-88 |
| Jul. 30, 1983 | Provides for operations and maintenance of shore protection measures. | Public Law 98-63 |
| | **INDIANA SHORELINE EROSION, IN**<br>(See Section 23 of Text) | |
| Nov. 17, 1986 | Beach nourishment of 2-mile reach of shore west of Michigan City Harbor, Indiana | Sec. 501, WRDA 1986 |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **DES PLAINES, IL**<br>(See Sections 27 of Text) | |
| Aug. 17, 1999 | Project has six structural features: Prospect Heights (Levee 37), Des Plaines (Levee 50), Big Bend Lake expansion, North Fork Mill Creek dam raise, Buffalo Creek expansion, Van Patten Woods lateral storage area. | Sec. 101, WRDA 1999 |
| | **LAKE GEORGE, HOBART, IN**<br>(See Section 28 of Text) | |
| Nov. 17, 1986 | Removal of silt, aquatic growth and construction of silt traps. | Sec. 602, WRDA 1986. |
| | **LITTLE CALUMET RIVER, IN**<br>(See Section 29 of Text) | |
| Nov. 17, 1986 | Provides for levee construction, a diversion control structure at the mouth of Hart Ditch. Permanent evacuation of a portion of the Black Oak area of Gary and non-structural flood proofing measures in Gary. | Sec. 401, WRDA 1986 |
| Nov. 19, 2005 | Authorizes project to exceed original Section 902 (b) cost limits. New total cost of $198,000,000; fed share is $148,500,000; non-fed share is $49,500,000. | Sec. 127 of P.L. 109-103 |
| | **LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN**<br>(See Section 30 of Text) | |
| Nov. 17, 1986 | Widening and deepening 1,250 feet of Cady Marsh Ditch, installing 4,880 feet of pipe and excavating 2,850 feet of open channel. | Feasibility Report dated April 1984 |
| | **McCOOK AND THORNTON RESERVOIRS, IL**<br>(See Section 31 of Text) | |
| Nov. 17, 1988 | Provides for construction of two floodwater storage reservoirs in the quarries of the same name. | Sec. 3, WRDA 1988 |
| | **NORTH BRANCH CHICAGO RIVER, IL**<br>(See Sections 26 and 32 of Text) | |
| Nov. 17, 1986 | Construction of three reservoirs and reimbursement to locals for 50% of the costs of Techny and Mid-Fork Reservoirs | H. Doc. 100-72, 100th Cong., 1st Sess., Sec. 401, WRDA 1986. |
| Dec. 31, 1970 | Clearing fallen trees, roots and other debris and objects which contribute to flooding. | River and Harbor Act (Sec. 116) |
| | **O'HARE RESERVOIR, IL**<br>(See Section 33 of Text) | |
| Nov. 17, 1986 | Provides for a 1,050 acre-foot excavated reservoir. | Sec. 401, WRDA 1986 |
| | **THORNTON RESERVOIR, IL**<br>(See Section 31 of Text) | |
| Nov. 8, 2007 | Allows the construction of the flood control project by non-federal interests. | Sec. 5157, WRDA 2007 |

## TABLE 22-B AUTHORIZING LEGISLATION

| Act Dates | Work Authorized | Documents |
|---|---|---|
| | **LAKE MICHIGAN WATERFRONT**<br>(See Section 36 of Text) | |
| Nov. 19, 2005 | Provides ecosystem restoration and the management of Contaminates along Lake Michigan and related areas in Lake Porter Counties, Indiana. | Sec. 125 of P.L. 109-103 |

1. Included in Public Works Administrative Program Sep. 6, 1943 and Dec. 16, 1933.
2. Uncompleted portion was deauthorized in 1977 (dredging in front of U.S. Steel Corp.)
3. Uncompleted portion was deauthorized in 1977 (breakwater closure).
4. Contains latest map of harbor. Uncompleted portion is inactive.
5. Contains latest map of river.
6. Latest published map is in Annual Report for 1914, opposite p. 2928.
7. Contains latest published map of North Branch above North Ave.
8. Contains latest published map.
9. Completed under previous project.
10. Uncompleted portion was deauthorized in 1977 (widen and deepen Lake George Branch).
11. Include in Public Works Administration Program Sep. 6, 1933 and Jul. 25, 1934. Uncompleted portion was deauthorized in 1977 (widen and deepen main canal and Calumet River Branch).
12. Project deauthorized in 1977.
13. Project deauthorized in 1989.

## TABLE 22-C EXISTING NAVIGATION PROJECTS

| Section In Text | Project | Item | Length (feet) | Width (feet) | Depth (feet) |
|---|---|---|---|---|---|
| 1. | Burns Waterway Harbor, IN | North Breakwater | 4,630 | ____ | ____ |
| | | West Breakwater | 1,200 | ____ | ____ |
| | | Approach Channel | 2,200 | 400 | 30 |
| | | Outer Harbor | 3,700 | Varies | 28 |
| | | East Harbor Arm | 2,100 | 620 | 27 |
| | | West Harbor Arm | 3,800 | 620 | 27 |
| 2. | Burns Waterway SBH, IN | North Breakwater | 678 | ____ | ____ |
| | | West Breakwater | 1,043 | ____ | ____ |
| | | Approach Channel | 1,200 | 200 | 11 |
| | | Burns Waterway | 5,593 | 100 | 9 |
| 4. | Calumet Harbor and River, IL and IN | Northerly Crib Breakwater | 6,714 | ____ | ____ |
| | | Southerly Steel Breakwater | 5,007 | ____ | ____ |
| | | North Pier | 2,450 | ____ | ____ |
| | | Chicago Confined Disposal Facility | 2,979 | ____ | ____ |
| | | Approach Channel | 9,700 | 3,200 | 29 |
| | | Outer Harbor | 10,500 | 3,000 | 28 |
| | | River Entrance | 3,000 | 290 | 27 |
| | | Elgin, Joliet & Eastern Railway Bridge to turning basin No. 3 | 21,000 | 200 | 27 |
| | | Turning Basin No. 3 to Turning Basin No.5 | 8,000 | Variable | 27 |
| | | Approach into Lake Calumet | 4,000 | 400 | 27 |
| | | Extension in Lake Calumet | 3,000 | 1,000 | 27 |
| | | Turning Basins 1, 3 and 5 | ____ | ____ | 27 |
| 5. | Chicago Harbor, IL | Shore Arm Extension | 2,250 | ____ | ____ |
| | | Exterior Breakwater | 5,421 | ____ | ____ |
| | | Exterior Breakwater Southerly Extension | 4,944 | ____ | ____ |
| | | North Inner Breakwater | 4,034 | ____ | ____ |
| | | South Inner Breakwater | 2,544 | ____ | ____ |
| | | North Pier | 960 | ____ | ____ |
| | | Approach Channel | 6,600 | 800 | 29 |
| | | Channel and maneuver | 2,200 | 1,300 | 28 |
| | | Lock | 600 | 80 | 23 |
| | | Inner Basin | 1,270 | 740 | 21 |
| | | Entrance Channel | 7,300 | 190-470 | 21 |
| 6. | Chicago River, IL | Main Branch of Chicago River | 3,800 | 190-390 | 21 |
| | | North Branch of Chicago River | 11,100 | 91-390 | 21 |
| | | North Branch Canal | 5,500 | 56-210 | 21 |
| | | North Branch Turning Basin | ____ | ____ | 21 |

## TABLE 22-C EXISTING NAVIGATION PROJECTS

| Section In Text | Project | Item | Length (feet) | Width (feet) | Depth (feet) |
|---|---|---|---|---|---|
| 7. | Indiana Harbor, IN | Northerly Breakwater | 1,120 | ____ | ____ |
| | | Easterly Breakwater | 2,525 | ____ | ____ |
| | | Approach Channel | 7,200 | 800 | 29 |
| | | Outer Harbor | 7,200 | Varies | 28 |
| | | Entrance Channel | 3,600 | 65-280 | 27 |
| | | Main Channel | 7,400 | 61-210 | 22 |
| | | Turning Basin | ____ | ____ | 22 |
| | | Lake George Branch | 3,700 | 64-160 | 22 |
| | | Calumet River Branch | 2,500 | 160-260 | 22 |
| 9. | Michigan City Harbor IN | Detached Breakwater | 1,304 | ____ | ____ |
| | | West Pier | 835 | ____ | ____ |
| | | East Pier | 2,276 | ____ | ____ |
| | | East Breakwater | 1,000 | ____ | ____ |
| | | Entrance Channel | 1,900 | 150-425 | 18 |
| | | Main Channel | 2,400 | 120-150 | 18 |
| | | Outer Basin | 900 | 900 | 8-12 |
| | | Trail Creek | 3,000 | 50-100 | 8 |
| | | Trail Creek | 2,300 | 50 | 6 |
| 10. | Waukegan Harbor, IL | North Breakwater and Shore Connection | 1,896 | ____ | ____ |
| | | North Pier into North Revetment | 2,074 | ____ | ____ |
| | | South Pier | 3,111 | ____ | ____ |
| | | Entrance Channel | 3,250 | 390 | 22 |
| | | Channel to Inner Basin | 1,700 | 200 | 18 |
| | | Inner Basin | 1,650 | 375-500 | 18 |
| | | Anchorage Area | ____[1] | ____[1] | 8 |

[1]Area of about 6 acres.

## TABLE 22-D OTHER AUTHORIZED BRIDGE ALTERATIONS

| Project | Full Report See Annual Report For | Cost to September 30, 2004 For Last Construction | Operation and Maintenance |
|---|---|---|---|
| Calumet River Bridges[1] | 1967 | $1,625,068 | ____ |

[1]Transferred to Department of Transportation in accordance with Section 6(g) of the Act of October 16,1966. P.L. 89-670

## TABLE 22-E OTHER AUTHORIZED BEACH EROSION PROJECTS

| Project | Full Report See Annual Report For | Cost to September 30, 2004 For Last Construction | Operation and Maintenance |
|---|---|---|---|
| Mt. Baldy, Indiana Dunes National Lakeshore, IN | 1984 | $1,500,000 | ____ |
| Hollywood-Ardmore Beach, Chicago, IL | 1982 | 237,271 | ____ |
| Evanston, IL | 1979 | 766,052 | ____ |
| Lake Michigan-Lake Bluff, IL | 1976 | 244,889 | ____ |
| Lake Michigan-Lake Forest, IL[1] | 1975 | 65,611 | ____ |
| Illinois Shore of Lake Michigan, Kenilworth, IL[2] | 1975 | 5,200 | ____ |

[1]Authorized by River and Harbor Act of 1954.
[2]Uncompleted portion deauthorized in 1977.

## TABLE 22-F OTHER AUTHORIZED FLOOD CONTROL PROJECTS

| Project | Full Report See Annual Report For | Cost to September 30, 2004 For Last Construction | Operation and Maintenance |
|---|---|---|---|
| Lake Michigan, Edgewater/Rogers Park Communities, Chicago, IL | 1989 | $2,062,347 | ____ |
| Kankakee River Ice Management | 1993 | 44,791 | ____ |

## TABLE 22-G DE-AUTHORIZED PROJECTS

| | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Illinois Shore of Lake Michigan, Winnetka, IL | 1975 | 1977 | ---- | ---- |
| Illinois Shore of Lake Michigan, Chicago, IL | 1975 | 1977 | ---- | ---- |
| Kankakee River, IL and IN | | | | |
| Levee between Shelby Bridge and Baum's Bridge in IN | 1938 | Nov 17, 1986 | ---- | ---- |
| Little Calumet River, IL and IN | | | | |
| Little Calumet River and Tributaries, IL and IN | 1968 | Nov 17, 1986 | 53,136 | ---- |
| Calumet Harbor and River, IL and IN | | | | |
| Widening and straightening the Calumet River in the vicinity of 106th Street and closing the gap between breakwaters, and dredging minor shoals in the outer harbor. | 1990 | Jan 1, 1990 | ---- | ---- |
| Wilmington Ice Control Demonstration | ---- | Nov 18, 1991 | ---- | ---- |

# NASHVILLE, TN, DISTRICT

This district comprises portions of southern Kentucky, southwestern Virginia, western North Carolina, northern Georgia and Alabama, northeastern Mississippi and practically all of Tennessee except western portion, and embraces drainage basins of Tennessee and Cumberland Rivers and their tributaries.

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# NAVIGATION

## 1. CHICKAMAUGA LOCK AND DAM, TN

**Location.** Chickamauga Lock is seven miles northeast of Chattanooga at Tennessee River Mile 471 in Hamilton County, TN.

**Existing Project.** The 60 ft x 360 ft lock has been in operation since 1940 and passes over 1.1 million tons of traffic each year. Soon after construction, TVA recognized that an alkali aggregate reaction problem (commonly called concrete growth) existed throughout the project. This expansion of the concrete leads to stability concerns throughout the structure and misalignment of mechanical components. The problem will continue to affect lock operations and eventually result in closure of the lock. TVA and the Corps have determined the lock could remain open until at least 2010 with annual aggressive maintenance but costs to maintain the lock will begin to exceed replacement costs. Lock closure would be a significant impact to the region and result in lost access to over 300 miles of the upper Tennessee River. This reach includes the city of Knoxville, TN, 2 TVA nuclear power plants, numerous industries and recreation facilities, and the DOE facilities at Oak Ridge, TN.

**Project Description.** The existing lock will be replaced through construction of a 110 ft x 600 ft lock riverward of the existing structure and downstream of the dam. The project was authorized for construction by PL 108-7 and includes at least three major construction contracts; road, bridge and utilities relocations; cofferdam construction; and construction of the new lock and decommissioning of the existing lock. Based on an estimated construction cost of $391.9 M, the new lock project has a benefit/cost ratio of 6.0 @ 7%.

**Activities during fiscal year.** FY 2009 funds were used to continue cofferdam construction and lock design. We will complete design in 2010 to allow for a lock construction award. Currently, no new continuing contracts are allowed due to demand for IWTF funds.

## 2. CUMBERLAND RIVER, TN AND KY

**Location.** Formed by junction of Poor and Clover Forks in Harlan County, KY, about 694.2 miles above its mouth, and flows west to Burnside, KY, from whence it makes a loop southwestward into Tennessee, passes Nashville, and returns northwestward to Kentucky, emptying into Ohio River near Smithland, KY (See Geological Survey base maps of Tennessee and Kentucky.)

**Previous projects.** For details see pages 1898 and 1901 of Annual Report for 1915, and page 1208 of Annual Report for 1938, and pages 1069 and 1070 of Annual Report for 1962.

**Existing project.** For details, see Annual Report for FY02.

**Local cooperation.** Under modified project for 9-foot navigation and multiple-purpose development, recreation features of reservoir components are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Terminal facilities.** There are 42 terminals on the Cumberland River (5 Municipally owned and open for public use; 5 government owned facilities and 32 privately owned facilities). A total of 18 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sands, gravel, coal, coke, iron, steel, chemicals and grain. Facilities considered adequate for existing commerce. For further information see page 695 of Annual Report for 1969.

**Operations during fiscal year.** New work: None. Maintenance: Operations and Maintenance work included replacing the shower houses at Cedar Creek Recreation Area on Old Hickory Lake and at Harpeth River Campground on Cheatham Lake. Three restrooms were replaced at Lake Barkley. An estimated 22.7 million tons of commodities were locked through the Cumberland River Locks. Commercial lockages were approximately 4,100 and 3,400 recreational craft were also locked through. Total sales energy generated at Barkley Dam (648,177,363 kw-hr) was made available through Southeastern Power Association to the Tennessee Valley Authority, Southern Illinois Power Cooperative, Big Rivers Rural Electric Cooperative Corporation, and Indiana Statewide Rural Electric Cooperative, Inc., Hoosier Energy Division. Total sales energy generated at Cheatham Dam (152,099,607 kw-hr), Cordell Hull (380,198,570 kw-hr), and Old Hickory (426,069,210 kw-hr) was made available for distribution. Activities under reservoir management program comprising malaria control, shoreline sanitation, land management and disposal, and maintenance of public-use facilities continued.

**ARRA during fiscal year.** The manlift was replaced at Old Hickory Power Plant and a contract was issued to employ 3 temporary laborers for maintenance at Cheatham Power Plant.

## 3. KENTUCKY LOCK ADDITION, KY

**Location.** Kentucky Lock and Dam is located in western Kentucky at Mile 22.4 of the Tennessee River between Livingston and Marshall Counties.

**Existing Project**. Kentucky L&D was completed in 1945 by the Tennessee Valley Authority. TVA continues to operate the dam and powerhouse while operation of the 110'x600' navigation lock is the responsibility of the Nashville District. Products from 20 states pass through the system of Kentucky and Barkley Locks, the lower-most locks on the Tennessee and Cumberland Rivers, respectively. Over 80% of the commercial tows hauling these products pass through KY Lock instead of Barkley Lock because of difficult and costly navigation on the Cumberland River below Barkley. Since most of the tows are greater than 600' in length, they must perform a time-consuming double lockage to transit through the existing 600' long KY Lock. This results in average delays of between four to six hours per tow under existing traffic levels. Since the traffic levels are expected to grow in the near future, these delays will also increase. The last traffic forecast developed in 1995 estimated that 43 M tons of products would be transported through the Kentucky-Barkley system in the year 2000. Actual tonnage for the system in

1997 was 43.5 M tons and decreased slightly in the following few years. The system has seen increased tonnage in the last few years with 2006 tonnage at 42.5 M tons. It typically costs a tow over $400/hour to wait in line at the lock. Construction of a new 1200' lock would eliminate the delay time in the near term and drastically shorten it for forecasted traffic levels past the year 2020.

**Project Description**. The 1992 Kentucky Lock Feasibility report recommended a new 110' X 1200' lock adjacent and landward of the existing 110' X 600' lock. The project was authorized for construction in WRDA 96. Average annual benefits attributed to a new lock are $71M (Oct. '03). Most of these benefits are associated with improving the performance of the lock by reducing traffic delays and disruptive lock outages for maintenance and major rehabilitation work. Based on an estimated construction cost of $714M (Oct. '09), the new lock project has a Benefit/Cost ratio of 2.5 (@7%) for an estimated completion date of 2016. Other project features in addition to the new lock itself are three major relocation efforts: 1) four large TVA transmission towers, 2) about 2 miles of the Paducah and Louisville Railway, including a major river bridge, and 3) about 2 miles of U.S. Highway 62, also on a new major river bridge.

**Activities during fiscal year.** FY 2009 funding of $22.33M was used mainly to continue construction on the $100M Bridge Superstructure contract. From the beginning to the end of FY 2009, this contract has progressed from about 70% to 82% complete. On 21 August 2009, the 500 foot long truss section of the new railroad bridge was floated into place.

**4. TENNESSEE RIVER, TN, AL AND KY**

**Location**. Formed by junction of French Broad and Holston Rivers in eastern Tennessee, 4.4 miles above Gay Street Bridge at Knoxville, flows southwest into northern Alabama, thence in a generally westerly course across north Alabama, to northeast boundary of Mississippi, thence nearly due north across Tennessee and Kentucky, entering Ohio River at Paducah, 652.1 miles from junction of French Broad and Holston Rivers. (See Geological survey base map of Tennessee River Basin.)

Previous projects. For details see pages 1902-1906, Annual Report for 1915; pages 1190-1194, 1196-1216, and 1220-1222, Annual Report for 1929; and page 1216, Annual Report for 1938.

**Existing project.** Originally provided for permanent improvement of river for a navigable depth of 9 feet at low water from mouth about 650 miles to Knoxville, TN. Only work performed by the Corps was construction of locks at General Joe Wheeler Dam and Wilson Dam. Tennessee Valley Authority program provided for obtaining authorized 9-foot project by construction of high dams and locks and utilization of certain locks and dams previously constructed under jurisdiction of the Corps. (See Table 23-B for Authorizing Legislation.) Subsequent construction by the TVA of Melton Hill Dam extends navigable channel of Tennessee River system up the Clinch River about 38 miles above damsite (mile 23.1) to vicinity of Clinton, TN. (See table 23-I on Tennessee River.) In accordance with general navigation laws placing control and supervision over navigable waters under direction of Secretary of the Army, the Corps of Engineers operates and maintains all locks, and maintains navigation channels and safety harbors by performing all necessary maintenance dredging and snagging operations. For information concerning other functions of the Corps under division of responsibilities for Tennessee River since adoption of Tennessee Valley Authority Act of 1933, see page 1084 of Annual Report for 1962.

**Local cooperation.** Authorization requires no local cooperation in construction of alternate system of low dams. It does, however, provide that if high dams are built before the United States builds projected locks and low dams which are to be replaced, the United States shall contribute to cost of substituted structures an amount equal to estimated cost of works of navigation for which substitution is made.

**Terminal facilities.** There are 150 terminals on the Tennessee River (13 municipally owned, 15 government owned facilities and 122 privately owned facilities). A total of 79 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sand, gravel, coal, coke, grain, chemicals, iron, and steel. Facilities considered adequate for existing commerce. A list of terminals is revised annually and can be obtained from Division Engineer, Ohio River Division, Corps of Engineers, Cincinnati, Ohio. For further information see page 698 of Annual Report for 1969.

**Operations during fiscal year.** Maintenance: Operations and Maintenance work included dewatering and repairs to Wilson Main Lock and Nickajack Lock. An estimated 49.4 million tons of commodities were locked through the Tennessee River Locks. Commercial lockage's were approximately 15,300 and 14,000 recreational craft were also locked through. The long-term program of aggressive maintenance continues to keep the 70 year old Chickamauga Lock operational from the effects of the continued concrete growth and stresses from the Alkali-Aggregate Reaction. Major maintenance to keep the lock operational included the installation of horizontal post-tensioning and new gate anchorage on the downstream river wall gate block. The American Recovery and Reinvestment Act provided 1.44M for purchasing gate anchorage for the downstream land wall, replacing pumps and piping, designing and emergency closure for the upper miter gate sill, and finite element analysis to aid in determining the life expectancy of the lock and future financial requirements. Increased monitoring included a dive inspection, monthly instrumentation reviews, an annual instrumentation report, and replacement/installation of instruments.

**ARRA during fiscal year**. A contract was issued to employ 41 temporary laborers to repair and coat metal components at the various navigation locks.

**5. TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS**

**Location.** West Central Alabama and Northeastern Mississippi; in Marengo, Sumter, Greene and Pickens Counties, Alabama, and Noxubee, Lowndes, Clay, Monroe, Itawamba, Prentiss and Tishomingo Counties, Mississippi.

**Existing project.** For details, see Annual Report for FY02.

**Local cooperation.** Authorization requires local interests to construct, maintain and operate all highway bridges, construct and maintain all highway relocations or alterations, make and maintain alterations as required to sewer, water supply and drainage facilities, assume cost of operation and maintenance of utility crossings, provide and maintain as required suitable and adequate river and canal terminals in accordance with plans approved by the Secretary of the Army and the Chief of Engineers.

**Operations during fiscal year.** The Mobile District is responsible for operation and maintenance of the entire Tennessee-Tombigbee Waterway. The project is 100% complete.

**6. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION**

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

During FY09 no funds were expended for Section 107 projects.

## ALTERATION OF BRIDGES

**7. AUTHORIZED ALTERATION OF BRIDGES**

Work on Woodland Street Bridge, under Truman-Hobbs Act, was initiated in 1965 and completed in 1966. Costs were $987,632. For details see page 922 of Annual Report for 1967.

## FLOOD CONTROL

**8. BIG SOUTH FORK NATIONAL RIVER AND RECREATIONAL AREA, KY AND TN**

**Location.** The project is located in Northeastern Tennessee and Southeastern Kentucky along the Big South Fork River and its tributaries in Pickett, Scott, Fentress, and Morgan Counties, Tennessee, and McCreary County, Kentucky.

**Existing project.** A National River and Recreation Area was established in accordance with the concept included in the interagency report prepared pursuant to section 208 of Flood Control Act of 1968. Total acreage was not to exceed 125,000 acres. The act specifically established the National Area for the purpose of preserving and interpreting the scenic, biological, archeological and historical resources of the river gorge area and developing the natural recreational potential of the area. The project was authorized by the Water Resource Development Acts of 1974, 1976, and 1986. (See table 23B for authorizing legislation). The authorized cost (ceiling) for the project was $156,122,000. $112,588,920 was appropriated to the Corps of Engineers for design and construction of park facilities. The first construction contract was awarded in June 1981. By Memorandum of Agreement dated 1 October 1990 jurisdiction of the area was transferred to The Department of Interior.

**Local cooperation.** None required.

**Operation during fiscal year.** The Memorandum of Agreement between the Department of Army and the Department of Interior, transferring jurisdiction of the Big South Fork National River and Recreation Area, itemized activities to be completed by the Army. No construction items were completed this fiscal year.

**9. BLACK FOX, MURFREE, AND OAKLAND SPRINGS, TN**

**Location.** Black Fox, Murfree, and Oaklands Springs, wetlands lie in Murfreesboro, Tennessee.

**Existing project.** Project features include trails, boardwalks, observation platforms, parking, removing exotic invasive vegetation, and planting native species. At Oaklands, the existing ante-bellum mansion will be enhanced by planting tree species native to Tennessee. Ecosystem restoration features include the creation of additional wetlands and in-stream structures. Murfree Springs plans include demolishing several existing buildings to provide space for an environmental education center and creating additional wetland habitat. Only ecosystem restoration measures will be constructed at Black Fox. Funding was provided from FY95 thru FY02 for Master Plan, Design, and Construction on Murfree, Oaklands and Black Fox. The Oaklands Phase I and Murfree Springs Phase II contracts were awarded in Sep 01 and construction continued through FY02 and FY03. Construction at Black Fox was initiated in Oct 01 and completed in Dec 02. A supplement to the decision document was completed in May 02 and approved by the Assistant Secretary of the Army for Civil Works in Dec 02. FY03 appropriations were used to bring the Phase I Oaklands and Phase II Murfree contracts to 99% completion. Design of Oaklands Phase II and Murfree Phase III and the interpretive features was also initiated. FY04 appropriations were used to complete design of Oaklands Phase II and Murfree Phase III, initiate fabrication and installation of the signs and initiate a design contract. In FY05, carryover funds were used to initiate construction of Oaklands Phase II and Murfree Phase III. Sign installation and the final design contract were also completed. FY06 funds were used to bring Oaklands Phase II to 85% completion and Murfree Phase III to 95% completion. Additional trees and native vegetation were also added to both sites. FY08 funds were used to remove exotic invasive plants at Oaklands, award a contract for trash screen construction, continue design of Oaklands Phase III and add native tree species at Oaklands.

**Local cooperation.** The project authorization by WRDA 96 and the City of Murfreesboro, TN is the local sponsor. Cost

sharing is 75% Federal and 25% non-Federal. Real estate costs over 25% will be borne by the Federal Government.

**Operations during fiscal year.** FY09 funds were used to redesign the trash screen and retaining wall at Murfree Springs and complete exotic invasive removal at Oaklands.

**10. HAMILTON COUNTY STREAMBANK STABILIZATION, TN**

**Location.** The project is on the Tennessee River, in central Chattanooga, TN from approximate river mile 464 to 468. The bank stabilization consists of stone protection at 5 sites along this reach of the river.

**Existing project:** High floodwaters have caused slope failures and erosion along both previously protected and unprotected areas of the riverbank. Endangered facilities include a large interceptor sewer line (which serves a major portion of North Chattanooga), riverwalk trails, observation decks, fishing piers, drain pipes, ramps, power poles, roads, bridge abutments and parks/recreation facilities. Streambank protection is stone armament using graded limestone (referred to as "riprap").

**Local cooperation:** WRDA of 1996 authorized $7.5 M (Federal) for Streambank Stabilization. Hamilton County was the project's sponsor; the City of Chattanooga also sponsored the project through a separate agreement with Hamilton County. Chattanooga and Hamilton County provided funding to initiate a feasibility study in FY97 under our Work for Others Program. This information was the basis for development of the Detailed Project Report (DPR). The project was completed and fiscally closed-out during FY05.

**Operations during fiscal year:** None.

**11. MARTINS FORK LAKE, KY**

**Location.** Dam located at mile 15.6 on Martins Fork of Clover Fork, Cumberland River, about 10 miles southeast of city of Harlan, with reservoir extending about 6 miles upstream within Harlan County, southeastern Kentucky.

**Existing project.** Multiple-purpose improvement Combining flood control with water quality control and recreation development adopted by 1965 Flood Control Act (H.Doc. 244, 89th Cong.), in general accordance with recommendations. Dam is concrete type, 504 feet long and rising 97 feet above streambed. Outlet works provide for release of water from reservoir at varying levels. Drainage area above damsite is 55.7 square miles. At full pool level, spillway crest at elevation 1341 above mean sea level, reservoir will cover 578 acres and contain 21,120 acre-feet of storage capacity. Provision is made for 17,450 acre-feet of reservoir capacity between elevations 1341 and 1300 for control of floods in winter and spring season, and 14,360 acre-feet (El. 1341-1310) during summer and fall, in conjunction with which storage of 3,090 acre-feet would be available on a seasonal basis to meet streamflow requirements for water quality control and fish life below the dam. A minimum permanent pool of 3,670 acre-feet, 274 acres in extent, is available during the potential flood seasons; and during late spring and summer when flood storage can be reduced, the lake is operated generally at a higher level (El. 1310) to maintain a larger surface area of 340 acres for recreation and provide the required seasonal storage for releases of water during critical low-flow periods. Project prevents a major portion of average annual flood losses at Harlan and results in significant stage reductions with related benefits along rural reaches and to other urban areas downstream. Actual cost of project including $95,000 code 710 funds is $20,479,911. First construction contract awarded in December 1972. Project completed for beneficial use in September 1978.

**Local cooperation.** Federal Water Project Recreation Act of 1965 (P.L. 89-72) applies in regard to non-Federal participation in recreation development, in addition to which local interests are to provide certain safeguards to ensure functioning of reservoir as intended. In May 1981 a final recreation cost-sharing contract with Harlan County was approved and certain recreation facilities have been jointly developed by the Corps and the County. These facilities, consisting of a swimming beach and a picnic area are now operated and maintained by Harlan County. Recreation investment to date (Corps and Local) is about $100,000.

**Operations during fiscal year.** New work: None.

**12. MIDDLESBORO, CUMBERLAND RIVER BASIN, KY**

**Location.** At Middlesboro, Ky., on Yellow Creek, a tributary entering Cumberland River about 660 miles above its mouth.

**Existing project.** A system of canals and levees around one side of town, arranged so as to divert most headwaters of Yellow Creek away form present channel through heart of city. Protection is thus afforded in large measure to life and property within business district and a large part of residential section. For project details, see page 1088 of Annual Report for 1962.

**Local cooperation.** None required.

**Operations during fiscal year.** New work: None. Maintenance work included dredging of the flood channel.

**13. TUG AND LEVISA FORKS OF THE BIG SANDY RIVER AND UPPER CUMBERLAND, WV, VA AND KY**

**Location.** The project is located in the State of West Virginia and the Commonwealths of Kentucky and Virginia. The Cumberland portion consists of the Upper Cumberland River Basin, above Cumberland Falls, KY. The basin is approximately 100 miles in length, averaging 30 miles in width at the lower portion and 10 miles in width upstream at Harlan KY. The Big Sandy Basin is within the Huntington District and the Cumberland within the Nashville District.

**Existing project.** Provides for flood control measures for communities in the Tug and Levisa Forks and Upper Cumberland River Basins. The Cumberland portion has been assigned to the Nashville District. Only activities of the Nashville District are reported herein. Estimated Federal cost

of new work under jurisdiction of the Nashville District is $464,087,000. The project was authorized by the Energy and Water Development Appropriation Act of 1981, Section 202 of PL 96-367.

**Local cooperation.** Flood protection costs for City of Cumberland, Middlesborough, Harlan County, and Clover Fork Projects are shared with their sponsors in accordance with provisions defined by WRDA 86. The sponsors have responsibility to operate and maintain such works upon completion of construction.

**Operations during fiscal year.** Nonstructural evacuations and floodproofings continued in the Clover Fork, Poor Fork, and Cumberland River basins. Plans and specifications and real estate work continued for structural elements at the City of Cumberland. Initiated design of an automated Flood Warning Emergency Evacuation Plan (FWEEP) for Middlesboro, KY. The FWEEP will be completed and installed during 2010.

### 14. OHIO RIVER BASIN (NASHVILLE DISTRICT)

**Location.** A series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Nashville District.

**Existing project.** The general comprehensive plans approved for flood control and other purposes in Ohio River Basin is set forth in legislation listed in Table 23-B. Individual projects, local protection projects and lakes, considered in comprehensive plan within Nashville District are listed in Table 23-K.

### 15. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts, requires local interests furnish assurances they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within their respective districts. Maintenance inspections were made during fiscal year of completed protective works in localities transferred to local interests for maintenance and operation. Local interests were advised, as necessary, of measures required to maintain projects in accordance with standards prescribed by regulations. Fiscal year cost was $69,192. Total cost to September 30, 2009 was $900,383. For project inspection data see table 23-M.

### 16. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control and coastal emergencies (Public Law 99, 84th Cong., and antecedent legislation). Actual Federal cost for the fiscal year was $331,911 for disaster preparedness.

## MULTIPLE-PURPOSE PROJECTS, INCLUDING POWER

### 17. CENTER HILL LAKE, OHIO RIVER BASIN, TN

**Location.** Dam is on Caney Fork River, 26.6 miles above its confluence with Cumberland River (mile 309.2) at Carthage, TN. It is in DeKalb County, TN., about 55 miles east of Nashville, and 14 miles southeast of Carthage. Reservoir extends about 64 miles up main stem and about 10 miles up Falling Water River and lies within DeKalb, Putnam, White, and Warren Counties, TN.

**Existing project.** A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public use and conservation purposes. In addition to main dam structure, provision was made for a rolled-earth dike to close a saddle in reservoir rim near damsite. For further details, see page 1099 of 1962 Annual Report.

**Local cooperation.** None required on completed project. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during fiscal year.** Operations and Maintenance work included replacing the shower house at Ragland Bottom and the restroom at Floating Mill and paving in recreation areas. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (315,476,000 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution.

ARRA during fiscal year. The manlift was replaced and a contract was issued to employ 2 temporary laborers for maintenance at Center Hill Power Plant.

**Dam Safety:** A Major Rehabilitation Evaluation report was approved in August 2006. The plan is to install permanent cutoff walls and supplemental grouting into the main embankment and saddle dam foundations. Grouting is also proposed to arrest seepage along both abutments, rims, and the concrete dam. For environmental mitigation, the recommended plan also includes an orifice gate (bulkhead with openings) on the upstream side of a sluice. Rehabilitation of the powerhouse station service generator is also part of the plan so it can be safely run, if needed, to augment flow for water quality downstream of the dam. Both the orifice gate and the station generator will provide the optimum amount of minimum flow of 200 cfs. The total cost of the seepage rehabilitation plan is 293M (fully funded costs). The remediation is estimated to be completed at the end of 2014. The left rim and main dam embankment grouting contract was awarded in March 2008 and will be completed in early 2011. The main dam embankment wall and concrete dam grouting contract is scheduled for award in late 2010.

### 18. DALE HOLLOW LAKE, OHIO RIVER BASIN, TN AND KY

**Location.** Dam is on Obey River, 7.3 miles above its confluence with Cumberland River (mile 380.9) at Celina, TN.

It is in Clay County, TN, and about 80 miles northeast of Nashville, TN 28 miles north of Cookeville, TN, and 3 miles east of Celina, TN. Reservoir extends about 51 miles up main stream, 10 miles up East Fork, and 6 miles up West Fork of Obey River, and lies within Cumberland and Clinton Counties, KY, and Clay, Pickett, Overton, and Fentress Counties, TN.

**Existing project.** A concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production with a permanent pool for public use and conservation purposes. See page 1096 of 1962 Annual Report for project details. Cost of project including $2,195,600 code 710 funds and $150,000 non-Federal funds recreation facilities under the completed projects program is $28,317,746.

**Local cooperation.** None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during fiscal year.** New work: None. Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Work continued to convert the power plant to remote control operation. Total sales energy generated (111,609,300 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, and management and maintenance of public-use facilities.

**ARRA during fiscal year.** The scissor lift was replaced and a contract was issued to employ 2 temporary laborers for maintenance at Dale Hollow Power Plant.

## 19. J. PERCY PRIEST DAM AND RESERVOIR, OHIO, RIVER BASIN, TN

**Location.** Damsite is on Stones River, 6.8 miles above its confluence with Cumberland River (mile 205.9); in Davidson County, TN.; and about 7 miles east of Nashville, TN. Reservoir extends southeasterly from dam about 32 miles along main stream, 10 miles up East Fork, 6.5 miles up West Fork, and for shorter distances up other tributaries of Stones River; and lies within Davidson, Rutherford, and Wilson Counties, TN.

**Existing project.** A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control, power production and recreation. For further details see page 703 of 1969 Annual Report. Cost of project including $3,260,400 under code 710 funds and $46,000 non-Federal funds for recreation facilities under the completed projects program is $56,914,039. **Local cooperation.** Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during fiscal year.** New work: None. Maintenance: Operations and Maintenance work included installing a sewer lift station at Seven Points Recreation Area. Dam was operated and structures and appurtenances maintained as required. Total sales energy generated (58,899,800 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, fish and wildlife management, and maintenance of public-use facilities. Work was completed on replacement of the Anderson Rd Day Use Area Restroom.

## 20. LAUREL RIVER LAKE, OHIO RIVER BASIN, KY

**Location.** Damsite is at mile 2.3 on Laurel River, a tributary of Cumberland River, in south-central Kentucky. The two streams meet about 9 miles below Cumberland Falls, a prominent physiographic feature at head of Lake Cumberland, which is formed by Wolf Creek Dam. Reservoir extends 19.2 miles upstream to site of Corbin, KY water-supply dam and lies within Laurel and Whitley Counties.

**Existing project.** Project approved in general accordance with recommendations of House Document 413, 86th Congress, by 1960 Flood Control Act, as amended by Public Law 88-253, was designed for purposes of flood control, power, and recreation as an integral unit of a coordinated plan for development of water resources of Cumberland River Basin. With the view of net gain in power potential on a system basis, the plan of improvement incorporated appropriate flood control storage in the proposed project and corresponding adjustment in operations of Wolf Creek Dam - Lake Cumberland for flood control and power, which in effect constituted a transfer of reservoir capacity without entailing a change in flood control benefits. Further detailed study giving full consideration to power capabilities and marketing arrangements indicated the advantage of maintaining present storage allocation at Wolf Creek and use of all available storage capacity of Laurel River Lake for power. The power plant is complete. Recreation was completed in FY86.

**Local cooperation.** None required.

**Operations during fiscal year.** New work: None. Maintenance: Dam was operated and structures and Appurtenances maintained as required. Total sales energy generated (65,843,000 kw-hr) was made available through Southeastern Power Association for distribution. Replacement SCADA equipment was purchased for the power plant.

**ARRA during fiscal year.** The forklift was replaced at Laurel Power Plant.

## 21. WOLF CREEK DAM - LAKE CUMBERLAND, OHIO RIVER BASIN, KY

**Location.** Wolf Creek Dam is on Cumberland River at mile 460.0 (above mouth) in Russell County, KY, about 10 miles southwest of Jamestown and 12 miles north of Albany, KY. Lake Cumberland extends 101 miles up main stream, 48 miles up South Fork of Cumberland River, in Russell, Clinton,

Wayne, Pulaski, McCreary, Laurel, and Whitley Counties, KY.

**Existing project.** A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public-use and conservation purposes. See page 1094 of 1962 Annual Report for project details. Cost of project is $188,267,195. This cost includes $3,259,372 code 710 funds, $880,000 non-Federal funds for recreation facilities under the completed pro-gram, and $104,999,237 for major rehabilitation. WRDA 96 authorized an Uprate Project of the hydroelectric power-plant. Activity involving the integrity of the structure began in 1968 when a leak or seepage developed in the embankment. The major rehab embankment contract was physically completed in September 1982.

**Local cooperation.** None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

**Operations during fiscal year.** New work: None. Operations and Maintenance work included repairs at the historic Mill Springs Mill Park. Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (720,047,000 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved land management activities, public relations, and maintenance of public-use facilities. Operation-s and Maintenance work included installing an alternate water supply to the Fish Hatchery, extending launching ramps, and awarding a contract for orifice gates due to lowering of the lake level. The power plant roof was replaced. Recreation Area Modernization was completed and a new shower house was constructed at Kendall Recreation.

**ARRA during fiscal year**. The manlift and mobile crane was replaced and a contract was issued to employ 2 temporary laborers for maintenance at Wolf Creek Power Plant.

**Dam Safety**: Construction to repair foundation seepage problems began in January 2007. The three major components are: relocation of the Halcomb's Landing Boat Launching Facility; foundation grouting including a dual line grout curtain along the entire length of the earthen embankment; and installation of a 4000-foot concrete barrier wall to a depth of 275 feet. The work on Halcomb's Landing was completed in November 2007. The foundation grouting contract was completed in September 2008. The barrier wall contract was awarded in July 2008 and is currently in progress. Scheduled completion date is December 2012. The fully funded construction costs are estimated at $584M. Funds expended during FY 2009 totaled $87.5M.

## GENERAL INVESTIGATIONS

### 22. SURVEYS

Costs for this period were $415,119 for which $212,507 was for Flood Damage Prevention Studies, $70,303 for Special Studies, $39,980 for Miscellaneous Activities and $92,328 for Coordination with Other Agencies and Non-Federal Interests.

### 23. COLLECTION AND STUDY OF BASIC DATA

Costs for this period were $140,590 for which $140,590 was for Floodplain Management Services and there were no Hydrologic Studies.

### 24. PRECONSTRUCTION ENGINEERING AND DESIGN

There were no funds expended for this activity during this fiscal year.

## TABLE 23-A COST AND FINANCIAL STATEMENT

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| 1. Chickamauga Lock and Dam, TN | | New Work | | | | | |
| | | Approp. | 9,900,000 | 27,000,000 | 34,637,000 | 18,677,000 | 112,452,010 |
| | | Cost | 13,261,486 | 18,733,807 | 39,118,126 | 23,387,800 | 107,733,079 |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 62,391,900 | 62,391,900 |
| | | Cost | | | | 1,912,276 | 1,912,276 |
| 2. Cumberland River TN and KY | | New Work | | | | | |
| | | Approp. | | | | | 320,252,240[1, 2, 3] |
| | | Cost | - | - | - | - | 320,252,240[1, 2, 3] |
| | | Maint. | | | | | |
| | | Approp. | 24,758,000 | 23,966,599 | 29,244,000 | 30,455,977 | 732,141,245[4] |
| | | Cost | 24,499,818 | 23,867,458 | 27,581,014 | 28,232,049 | 727,457,425[5] |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 18,569,353 | 18,569,353 |
| | | Cost | | | | 624,935 | 624,935 |
| 3. Kentucky Lock TN and KY | | New Work | | | | | |
| | | Approp. | 22,770,000 | 20,143,920 | 51,168,000 | 7,303,000 | 264,084,820 |
| | | Cost | 29,053,969 | 22,783,033 | 47,334,244 | 10,547,553 | 261,986,344 |
| | | New Work ARRA | | | | | |
| | | Approp, | | | | 31,708,400 | 31,708,400 |
| | | Cost | | | | 1,831,628 | 1,831,628 |
| 4. Tennessee River, TN, AL, and KY | | New Work | | | | | |
| | | Approp. | - | - | - | - | 16,251,428[6] |
| | | Cost | - | - | - | - | 16,251,428[6] |
| | | Maint. | | | | | |
| | | Approp. | 17,959,000 | 17,827,425 | 21,868,000 | 17,108,640 | 460,503,296[7] |
| | | Cost | 17,992,145 | 17,902,352 | 18,398,596 | 19,150,560 | 458,129,642[8] |
| | | Rehab. | | | | | |
| | | Approp. | - | - | - | - | 400,000 |
| | | Cost | - | - | - | - | 400,000 |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 26,264,650 | 26,264,650 |
| | | Cost | | | | 1,202,290 | 1,202,290 |
| 5. Tenn.-Tombigbee Waterway, AL and MS | | New Work | | | | | |
| | | Approp. | - | - | - | - | 749,013,050 |
| | | Cost | - | - | - | - | 749,013,050 |
| 8. Big South Fork National River and Rec. Area, KY and TN | | New Work | | | | | |
| | | Approp. | - | - | - | - | 112,588,920[9] |
| | | Cost | - | - | | | 112,588,901[10] |
| 9. Black Fox/Oaklands Springs, TN | | New Work | | | | | |
| | | Approp. | 96,000 | 450,000 | 1,873,000 | 0 | 13,425,611 |
| | | Cost | 647,732 | 872,211 | 371,070 | 560,178 | 11,966,909 |
| 10. Hamilton County, TN | | New Work | | | | | |
| | | Approp. | - | - | | | 6,068,653[11] |
| | | Cost | - | - | | | 6,068,653[12] |
| 11. Martins Fork Lake, KY | | New Work | | | | | |
| | | Approp. | - | - | - | - | 20,479,911 |
| | | Cost | - | - | - | - | 20,479,911 |
| | | Maint. | | | | | |
| | | Approp. | 532,000 | 680,687 | 912,000 | 966,280 | 18,659,423 |
| | | Cost | 529,525 | 666,667 | 892,625 | 924,084 | 18,575,471 |

## TABLE 23-A COST AND FINANCIAL STATEMENT

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Total to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| 12. | Middlesboro, Cumberland River Basin, KY | New Work | | | | | |
| | | Approp. | - | - | - | - | 817,830[13] |
| | | Cost | - | - | - | - | 817,830[13] |
| | | Maint. | | | | | |
| | | Approp. | 55,000 | 60,819 | 830,000 | 93,100 | 3,879,370 |
| | | Cost | 56,123 | 59,836 | 427,660 | 496,527 | 3,879,362 |
| 13. | Tug & Levisa Forks of the Big Sandy & Cumberland River, WV, VA and KY | New Work | | | | | |
| | | Approp. | 5,334,000 | 2,219,000 | 2,421,579 | 5,162,505 | 409,367,422[14] |
| | | Cost | 8,298,164 | 5,219,620 | 2,492,135 | 2,400,688 | 404,679,480[15] |
| 17. | Center Hill Lake, Ohio River Basin, TN | New Work | | | | | |
| | | Approp. | - | - | - | - | 53,412,022[16] |
| | | Cost | - | - | - | - | 53,412,022[17] |
| | | Maint. | | | | | |
| | | Approp. | 6,332,000 | 5,314,751 | 5,024,000 | 6,423,341 | 155,329,808[18] |
| | | Cost | 6,531,796 | 5,551,949 | 4,967,843 | 5,644,538 | 154,374,027 |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 6,023,467 | 6,023,467 |
| | | Cost | | | | 97,551 | 97,551 |
| | | Rehab. | | | | | |
| | | Approp. | 600,000 | 6,500,000 | 31,488,000 | 36,102,000 | 71,690,000 |
| | | Cost | - | 3,055,246 | 14,359,745 | 33,356,440 | 50,771,431 |
| 18. | Dale Hollow Lake Ohio River Basin, TN and KY | New Work | | | | | |
| | | Approp. | - | - | - | - | 28,317,746[20] |
| | | Cost | - | - | - | - | 28,317,746[21] |
| | | Maint. | | | | | |
| | | Approp. | 6,309,000 | 5,013,965 | 6,656,000 | 5,765,056 | 139,178,410[22] |
| | | Cost | 6,080,318 | 5,294,226 | 5,523,815 | 6,819,451 | 138,646,951[23] |
| | | New Work ARRA | | | | | |
| | | Approp | | | | 3,986,218 | 3,986,218 |
| | | Cost | | | | 165,967 | 165,967 |
| 19. | J. Percy Priest Dam and Reservoir, Ohio River Basin, TN | New Work | | | | | |
| | | Approp. | - | - | - | - | 56,914,039[24] |
| | | Cost | - | - | - | - | 56,914,039[25] |
| | | Maint. | | | | | |
| | | Approp. | 3,935,000 | 3,634,500 | 4,664,000 | 4,786,631 | 108,047,260[26] |
| | | Cost | 4,227,702 | 3,820,855 | 4,087,150 | 4,368,596 | 106,976,234[27] |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 5,000,840 | 5,000,840 |
| | | Cost | | | | 176,930 | 176,930 |
| 20. | Laurel River Lake, Ohio River Basin, KY | New Work | | | | | |
| | | Approp. | - | - | - | - | 56,741,232 |
| | | Cost | - | - | - | - | 56,741,232 |
| | | Maint | | | | | |
| | | Approp. | 1,467,000 | 1,357,337 | 1,468,000 | 1,590,540 | 36,349,842[28] |
| | | Cost | 1,402,305 | 1,415,654 | 1,434,987 | 1,564,133 | 36,269,033[28] |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 1,000,000 | 1,000,000 |
| | | Cost | | | | 95,902 | 95,902 |

## TABLE 23-A COST AND FINANCIAL STATEMENT

| See Section In Text | Project | Funding | FY06 | FY07 | FY08 | FY09 | Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| 21. | Wolf Creek Dam and Lake Cumberland, Ohio River Basin, KY | New Work | | | | | |
| | | Approp. | - | - | - | - | 83,267,958[29] |
| | | Cost | - | - | - | - | 83,267,958[29] |
| | | Maint. | | | | | |
| | | Approp. | 8,224,000 | 9,014,189 | 9,709,000 | 7,515,157 | 211,972,800[30] |
| | | Cost | 9,707,097 | 10,909,633 | 8,806,290 | 7,962,301 | 210,844,101[31] |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 5,588,002 | 5,588,002 |
| | | Cost | | | | 738,556 | 738,556 |
| | | Rehab. | | | | | |
| | | Approp. | 8,800,000 | 44,000,000 | 53,234,000 | 69,547,000 | 280,680,237[32] |
| | | Cost | 3,244,441 | 43,595,001 | 49,818,795 | 78,386,591 | 280,077,138 |
| | | New Work ARRA | | | | | |
| | | Approp. | | | | 18,000,000 | 18,000,000 |
| | | Cost | | | | 6,294,277 | 6,294,277 |

## TABLE 23-B AUTHORIZED LEGISLATION

| See Section In Text | Date of Authorized Act | Project and Work Authorized | Documents |
|---|---|---|---|

1. Includes $9,707,354 for abandoned and/or replaced works under the old Cumberland River system. (Amount includes $826,253 for new work and $3,266,706 for maintenance on previous project.)

2. Includes $61,733 public works acceleration funds, and $102,966 contributed by the State of Kentucky and $6,750 contributed by metropolitan Nashville, TN.

3. Includes $298,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

4. Includes $955,889 for special recreation use fees, and $2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and $1,892,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

5. Includes $955,889 for special recreation use fees, and $2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and $1,892,000 funds provided

6. Includes $14,007,193 for new work and excludes $4,005,175 for maintenance on previous projects.

7. Includes $495,763 for maintenance and operation of dams and other improvements of navigable waters, and $764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

8. Includes $495,763 for maintenance and operation of dams and other improvements of navigable waters, and $764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

9. Includes $300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

10. Includes $300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

11. Includes $1,156,963 contributed by Hamilton County, TN

12. Includes $1,156,963 contributed by Hamilton County, TN

13. Includes $33,876 Emergency Relief Funds.

14. Includes $24,639,913 contributed by the State of Kentucky.

15. Includes $23,531,950 contributed by the State of Kentucky.

16. Includes $35,896 public works acceleration funds, and $148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

17. Includes $35,896 public works acceleration funds, and $148,000 funds provided from the Productive Employment Appropriation Act(PL 98-8) of 1983.

18. Includes $292,280 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

19. Includes $292,280 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

20. Includes $51,789 public works funds and $150,000 contributed by the State of Tennessee, and $341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

21. Includes $51,789 public works funds and $150,000 contributed by the State of Tennessee, and $341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

22. Includes $339,480 funds for special recreation use fees, and $1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and $482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

23. Includes $1,083,678 funds for special recreation use fees, and $884,178 for maintenance and operation of dams and other improvements of navigable waters, and $482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

24. Includes $46,000 contributed by the Metropolitan Government, Nashville, TN.

25. Includes $46,000 contributed by the Metropolitan Government, Nashville, TN.

26. Includes $260,680 for special recreation use fees, and $1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and $40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

27. Includes $260,680 for special recreation use fees, and $1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and $40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

28. Includes $66,678 for maintenance and operations of dams and other improvements of navigable waters.

29. Includes $96,920 public works acceleration funds, and $880,000 contributed by the State of Kentucky.

30. Includes $82,048 public works acceleration funds, and $198,578 for maintenance and operation of dams and other improvements of navigable waters, and $278,780 funds for special recreation use fees, and $293,000 fund provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

31. Includes $82,048 public works acceleration funds, and $198,578 for maintenance and operation of dams and other improvements of navigable waters, and $278,780 funds for special recreation use fees, and $293,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

32. Includes $104,999,237 for initial rehab project. This total also includes $203,757 for claim paid on the initial construction of the switchyard.

## TABLE 23-B AUTHORIZED LEGISLATION

| See Section In Text | Date of Authorized Act | Project and Work Authorized | Documents |
|---|---|---|---|
| **1.** | | **CHICKAMAUGA LOCK AND DAM, TN** | |
| | Feb 20, 2003 | Authorize the construction of a replacement lock | P. L. 108-7 |
| **2.** | | **CUMBERLAND RIVER BELOW NASHVILLE** | |
| | Jul 13, 1892 | Provision made for lock A | Annual Report, 1890, p. 2151 |
| | Jun 25, 1910 | Provision made for locks B to F, and for dredging below lock F. | H. Docs. 758, 60th Cong., 1st sess.; and 1481, 60th Cong., 2d sess.1 |
| | Aug 30, 1935 | Repairing dams A to F, inclusive, and surmounting same with movable crests | H. Doc. 38, 73d Cong., 1st sess. |
| | Jul 24, 1946 | Provision of 9-foot channel by the construction of 3 moderate height dams below Nashville, via, Kuttawa (Eureka), Dover, and Cheatham. | H. Doc. 761, 79th Cong., 2d sess. |
| | Jun 19, 1952 | Provision for hydroelectric power production as a function of Cheatham Dam. | |
| | Sep. 3, 1954 | Construction of Barkley (Lower Cumberland) dam and reservoir project for navigation, flood control, hydroelectric power, and related purposes in lieu of Kuttawa and Dover navigation-only structures. | S. Doc 81, 83d Cong., 2d sess. |
| | Jul 14, 1960 | Authorized change in alignment of Illinois Central Railroad. | H. Doc. 56, 86th Cong., 2d sess. |
| | Oct 12, 1996 | Authorized construction of Kentucky Lock for navigation only. | WRDA 96 |
| **2.** | | **CUMBERLAND RIVER ABOVE NASHVILLE** | |
| | Aug. 5, 1886 | Provision made for locks and dams; the Secretary of War to determine the final plan of improvement. Dimensions of the locks fixed in accordance with reports of Mar. 30, 1887, and Nov. 25, 1890. | Annual Report 1884, p. 1663 Annual Report 1888, p. 1622, and Annual Report 1892, p. 1933. |
| | Mar 2, 1907 | Adoption of the report of the Board of Engineers, dated Feb. 26, 1906, limiting the lock and dam construction to locks and dams 1 to 7, and 21. | H. Doc. 699, 59th Cong., 1st sess. |
| | Mar 2, 1919 | Provision made for locks and dams 8 to 17. | Rivers and Harbors Committee Doc. 10, 63d Cong., 2d sess. |
| | Jun 5, 1920 | Authorizes work to proceed in Tennessee without waiting for action of local interests in Kentucky. | |
| | Jul 3, 1930 | Raising dam 1, 3 feet. | Rivers and Harbors Committee Doc. 26, 70th Cong., 2d sess. |
| | Jun 26, 1934[2] | Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors. | |
| | Jul 24, 1946 | Construction of Old Hickory, Cordell Hull (Carthage), and Celina Dams above Nashville for navigation and the development of power resources. | H. Doc. 761, 79th Cong., 2d sess. |

**TABLE 23-B** **AUTHORIZING LEGISLATION**
***(continued)***

| See Section In Text | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | Oct 1, 1980 | Design and construct flood control measures for communities in the Upper Cumberland River basins. | Sec. 202, PL 96-367 |
| | Oct 12, 1996 | Authorized ecosystem restoration at three wetlands and historic sites in Murfreesboro, TN. | WRDA 96 |
| | Oct 12, 1996 | Authorized hydropower update at Wolf Creek Dam | WRDA 96 |
| | Nov 9, 2007 | With respect to land conveyed by the Secretary to the Tennessee Society of Crippled Children and Adults, Incorporated (commonly known as ‘‘Easter Seals Tennessee’’) at Old Hickory Lock and Dam, Cumberland River, Tennessee, under section 211 of the Flood Control Act of 1965 (79 Stat. 1087), the reversionary interests and the use restrictions relating to recreation and camping purposes are extinguished. | WRDA 07 |
| | Nov 9, 2007 | Authorized a study to determine the feasibility of carrying out a project for recreation on, riverbank protection for, and environmental protection of, the Cumberland River and riparian habitats in the city of Nashville and Davidson County, Tennessee. | WRDA 07 |
| | Nov 9, 2007 | Authorized a trail system at the J. Percy Priest Dam and Reservoir, Tennessee, and adjacent public property, including design and construction of support facilities. In carrying out such improvements, the Secretary is authorized to use funds made available by the State of Tennessee from any Federal or State source, or both. | WRDA 07 |
| | Nov 9, 2007 | Authorized participation in the ecosystem restoration, recreation, navigation, and flood damage reduction components of the Nashville Riverfront Concept Plan, dated February 2007. | WRDA 07 |
| | Oct 28, 2009 | Notwithstanding any other provision of law, including Section 103(c)(4) of Public Law 99-662 (33 U.S.C. 2213(c)(4)), the cost of any work carried out heretofore or hereafter on construction of the trail system authorized for the J. Percy Priest Dam and Reservoir, Tennessee by section 5132 of P.L. 110-114 (121 Stat. 1249) shall be Federal cost, the total of which may not exceed $10,300,000. | Sec. 121, PL111-85 |
| **4.** | | **TENNESSEE RIVER** | |
| | Jul 3, 1930 | Authorized navigable depth of 9 feet from mouth about 650 miles to Knoxville, Tennessee to be obtained by construction of low dams. | H. Doc. 328, 71st Cong., 2d sess. |
| | May 18, 1933 | Authorized TVA to construct such dams in the | |

**TABLE 23-B** **AUTHORIZING LEGISLATION**
***(continued)***

| See Section In Text | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | | Tennessee River as will provide a 9 foot channel. | |
| | Oct 12, 1996 | Authorized flood damage reduction by nonstructural methods in Hamilton County, TN. | WRDA 96 |
| | Oct 12, 1996 | Authorized a study for a bank stabilization project on the Tennessee River in Hamilton County, TN. | WRDA 96 |
| | Oct 12, 1996 | Authorized assistance to non-Federal interests for environmental activities in Jackson County, AL. | WRDA 96 |
| | Nov 9, 2007 | Authorized establishment and operation of the Southeastern Water Resources Institute at the University of Tennessee, Knoxville, Tennessee to study sustainable development and utilization of water resources in the southeastern United States. | WRDA 07 |
| | Nov 9, 2007 | Authorized a study to determine the feasibility of carrying out a project for flood damage reduction, Chattanooga Creek, Dobbs Branch, Chattanooga, Tennessee. | WRDA 07 |
| | Nov 9, 2007 | Authorized a study to determine the feasibility of carrying out a project for flood damage reduction, Cleveland, Tennessee. | WRDA 07 |
| | Nov 9, 2007 | Authorized a study to determine the feasibility of carrying out a project for water supply for Lewis, Lawrence, and Wayne Counties, Tennessee. | WRDA 07 |
| | Nov 9, 2007 | Authorized to design and construct the locally preferred plan for flood protection at Pinhook Creek, Huntsville, Alabama. | WRDA 07 |
| | Nov 9, 2007 | Authorized a program to provide environmental assistance to non-Federal interests in the State of North Carolina. | WRDA 07 |
| | Nov 9, 2007 | Authorized a program to provide environmental assistance to non-Federal interests in East Tennessee counties of Blount, Knox, Loudon, McMinn, Monroe, and Sevier. | WRDA 07 |
| | Nov 9, 2007 | Authorized a partnership with a nonprofit entity to remove debris from the Tennessee River in the vicinity of Knoxville, Tennessee, by providing a vessel to such entity, at Federal expense, for such debris removal purposes. | WRDA 07 |
| | Nov 9, 2007 | Authorized the design and construction of the project for flood damage reduction designated as Alternative 4 in the Town Creek, Lenoir City, Loudon County, Tennessee, feasibility report of the Nashville District Engineer, dated November 2000, under the authority of section 205 of the Flood Control Act of 1948. | WRDA 07 |
| **14.** | | **OHIO RIVER BASIN, NASHVILLE DISTRICT** | |
| | Aug 28, 1937 | Construct levees, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin. | Flood Control Committee Doc. 1, 5th Cong., 1st sess. |

**TABLE 23-B** **AUTHORIZING LEGISLATION**
***(continued)***

| See Section In Text | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| | | Project to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed $24,877,000 for construction. | |
| | Jun 28, 1938 | Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers and for initiation and partial accomplishment of plan, authorized $75million for reservoirs and $50,300,000 for local flood protection works. | Flood Control Committee Doc. 761, 75th Cong., 3d sess. |
| | Aug 18, 1941 | Additional $45 million for prosecution of comprehensive plan for Ohio River Basin. | |
| | Dec 22, 1944 | Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 762, 77th Cong., 2d sess. |
| | Jul 24, 1946 | Additional $125 million for further prosecution of comprehensive plan. | H. Doc. 506, 78th Cong., 1st sess. |
| | May 17, 1950 | Additional $100 million for prosecution of comprehensive plan for Ohio River Basin. | |
| | Dec 30, 1963 | Additional $150 million for further prosecution of comprehensive plan for flood control and other purpose in Ohio River Basin. | |
| | Jun 18, 1965 | Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin. | H. Doc. 6755, 89th Cong., 1st sess. |
| | Aug 13, 1968 | Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin. | S. 3710, 90th Cong., 2d sess. |
| | Jun 19, 1970 | Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin. | H. R. 15166 91st Cong., 2d sess. |
| | Mar 7, 1974 | Authorized Big South Fork National River and Recreation Area, KY and TN. Total area not to exceed 125,000 acres. | H. R. 10203 93rd Cong. Water Resources Develop. Act of 1974 Amended by PL 94-587, 94th Cong. |
| | Mar 7, 1974 | Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin. | H. R. 10203 93rd Cong. River Basin Monetary Authorization Act of 1974. |
| | Nov 9, 2007 | Authorized Environmental Assistance under Section 219 of WRDA 1992 for the following communities/ counties in Tennessee: Athens, Blaine, Claiborne, Giles, Grainger, Hamilton, Harrogate, Johnson, Knoxville, Nashville, Lewis, Lawrence, Wayne, Oak Ridge, Morgan. | WRDA 07 |

**TABLE 23-B** **AUTHORIZING LEGISLATION**
***(continued)***

| See Section In Text | Date of Authorizing Act | Project and Work Authorized | Documents |
|---|---|---|---|
| **5.** | | **TENNESSEE-TOMBIGBEE WATERWAY** | |
| | Jul 24, 1946 | Construction of waterway to connect above rivers and provide a 9 foot channel and minimum bottom width of 170 feet in river and canal sections and 150 feet in the divide cut, with locks 110 by 600 feet clear inside dimensions. | H. Doc. 486, 79th Cong. 2d sess. |
| | | Subsequent studies determined most practical plan consists of channel with bottom width of 300 feet (280 feet in divide cut), fewer locks with higher lifts resulted in reducing number of lifts from 18 to 10 and reduced length from 260 to 253 miles. | Page 1343, Part I, FY68 House Hearings |

1. Contains latest published maps. Included in Public Works Administration Program Sept. 6, 1993.
2. Permanent Appropriation Repeal Act.

## TABLE 23-C OTHER AUTHORIZED FLOOD CONTROL PROJECTS (All Projects not Specifically Identified in Text)

| Project | Status | For last Full Report see Annual Report | Cost to Sept, 2002 Operation & Construction | Cost to Sept, 2002 Maintenance |
|---|---|---|---|---|
| Caney Fork River, TN | abandoned | 1895 | $ 27,828 | - |
| Clinch River, TN and VA | abandoned | 1923 | 53,949 | 7,873 |
| Duck River, TN | abandoned | 1887 | 13,000 | - |
| Elk River, AL and TN | abandoned | 1904 | 4,000 | - |
| French Broad and Little Pigeon Rivers, TN | abandoned | 1931 | 249,605 | 33,554 |
| Holston River, TN | abandoned | 1911 | 5,714 | - |
| Little Tennessee River, TN | abandoned | 1888 | 5,510 | - |
| Obey River, TN | abandoned | 1887 | 11,500 | - |
| Red River, TN | abandoned | 1884 | 5,000 | - |
| South Fork of Cumberland River, KY | abandoned | 1892 | 11,967 | - |

## TABLE 23-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS (All Projects not Specifically Identified in Text)

| Project | Status | For last Full Report see Annual Report | Cost to Sept, 2002 Operation and Construction | Maintenance |
|---|---|---|---|---|
| Barbourville, KY | - completed | 1963 | $2,088,147 | - |
| Coal Creek and Tributaries (Lake City), TN | completed | 1962 | 460,134 | - |
| Corbin (Lynn Camp Creek), KY | completed | 1969 | 567,703 | - |
| Middlesboro (Yellow Creek), KY | completed | 1949 | 26,309 | - |
| Paint Rock River, AL | completed | 1967 | 544,173 | - |
| Pineville, KY | completed | 1963 | 1,679,126 | - |

1. Includes 9,950 contributed in funds.

## TABLE 23-F OTHER AUTHORIZED MULTIPLE-PURPOSE PROJECTS (Including Power)

| Project | Status | For last Full Report see Annual Report | Cost to Sep, 2009 Construction | Operation and Maintenance |
|---|---|---|---|---|
| Barkley Dam and Lake Barkley, KY and TN | beneficial use | - | $162,056,539[1] | $ 240,875,003[2] |
| Cheatham Lock and Dam, TN | beneficial use | - | 31,682,762 | 171,389,129[2] |
| Cordell Hull Lock and Dam, TN | beneficial use | - | 79,874,492 | 127,961,188[2] |
| Old Hickory Lock and Dam, TN | beneficial use | - | 52,266,412 | 211,099,564[2] |

1. Includes $15,557,895 cost for Cross Creek.

2. Details given under “Cumberland River, TN and KY “ See Table 23-H

## TABLE 23-G DEAUTHORIZED PROJECTS

| Project | Status | For last Full Report see Annual Report | Cost to Sept, 2002 Operation & Construction | Cost to Sept, 2002 Maintenance |
|---|---|---|---|---|
| Three Islands Reservoir, Ohio River Basin, TN | 1970 | Authorized: FC Act 1938, PL 761, 75 Cong., 3rd sess.; FC Act 1946, PL 525, 79th Cong., 2d sess.<br><br>Deauthorized: 5 Aug 1977. | $ 111,855 | - |
| Middlesboro, Yellow Creek Bell County, KY | - | Authorized: FC Act, Dec 22, 1944, PL 534, 78th Congress.<br><br>Deauthorized:17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess. | - | - |
| Cumberland River above Nashville, TN | - | Authorized: River & Harbor Act, Aug 5, 1886.<br><br>Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess. | - | - |
| Hiwassee River, Polk and Bradley Counties, TN | 1923 | Authorized: River & Harbor Act Aug 14, 1876.<br><br>Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess. | 123,065 | - |
| Rossview Lake, Tennessee and Kentucky | - | Authorized: FC Act, Jan 28, 1938, PL 76175th Congress.<br><br>Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess. | 6,779 | - |
| Celina Lake, Kentucky and Tennessee | | Authorized: Rivers and harbors Act of 1946. PL 79-522.<br><br>Deauthorized: July 9, 1995, Section 1001 (B) (2) of PL 99-662. | | |

**TABLE 23-H** **CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES**
**(See Section 2 of Text)**

| | | | | |
|---|---|---|---|---|
| Nearest town | Kuttawa, KY<br>11 miles. | Ashland City, TN<br>9 miles | Old Hickory, TN<br>3 miles | Carthage, TN<br>5 miles |
| Miles above mouth of river | 30.6 | 148.7 | 216.2 | 313.5 |
| Lock dimensions (feet)1 | 110 by 800 | 110 by 800 | 84 by 400 | 84 by 400 |
| Lift at normal pool levels (feet) | 57 | 26 | 60 | 59 |
| Depths on guard-sills at minimum pool levels (feet) | 11, upper;<br>13, lower | 14, upper;<br>17, lower | 14, upper;<br>13, lower | 14, upper;<br>13, lower |
| Character of foundation | Rock | Rock | Rock | Rock |
| Dam: | | | | |
| Type | Concrete gravity and earthfill | Concrete gravity | Concrete gravity and earthfill | Concrete gravity and earthfill |
| Height | 157 | 75 | 98 | 93 |
| Length, exclusive of lock section (feet) | 9,959 | 800 | 3,605[2] | 1,138[2] |
| Spillway: | | | | |
| Gross length (feet) | 804 | 480 | 325 | 291 |
| Net length opening (feet) | 660 | 420 | 270 | 225 |
| Crest gates: | | | | |
| Type | Tainter | Tainter | Tainter | Tainter |
| Number | 12 | 7 | 6 | 5 |
| Size (feet) | 55 by 60 | 60 by 27 | 45 by 41 | 45 by 41 |
| Operating levels at dam (feet, mean sea level): | | | | |
| Maximum regulated | 375 | - | 450[3] | 508[3] |
| Normal operation: | | | | |
| Full pool | 359 | 385 | - | 508 |
| Minimum pool | 354 | 382 | - | 501 |
| Minimum pool in advance of floods | 346 | - | 442 | 499 |
| Reservoir area (acres) | 93,430 | 7,450 | 27,450 | 13,920 |
| Reservoir capacity (acre-feet): | | | | |
| Flood control | 1,213,000[3,4] | - | 125,000[5] | 85,600[5,6] |
| Power drawdown | 259,000 | 19,800[7] | 63,000 | 20,500 |
| Dead storage | 610,000 | 84,200 | 357,000 | 204,800 |
| Total | 2,082,00 | 104,000 | 545,000 | 310,900 |
| Canal: | | | | |
| Length (mile) | 1.75 | - | - | - |
| Bottom width (feet) | 400 | - | - | - |
| Depth a minimum pool Level (feet) | 11 | - | - | - |
| Power Development | | | | |
| Number of units | 4 | 3 | 4 | 3 |
| Generator rating (kilowatts) | 32,500 | 12,000 | 25,000 | 33,333 |
| Total installation (kilowatts) | 130,000 | 36,000 | 100,000 | 100,000 |
| Percent of project completion | | | | |
| Year opened to navigation | 1964 | 1952 | 1952 | 1973 |
| Cost[9] | $ 162,056,539[10] | $31,682,762 | $52,266,412 | $79,874,492 |

## TABLE 23-H CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES (See Section 2 of Text)

| Dam and Reservoir | Barkley | Cheatham | Old Hickory | Cordell Hull |
|---|---|---|---|---|

1. Clear width and length available for full width.
2. Exclusive of lock section.
3. Surcharge.
4. Normal operation (elv. 375-359) during nonflood season; flood control allowance to be increased to 1,472,000 acre-feet (elev. 375-354) during season of major floodflows.
5. Surcharge storage.
6. During flood season (3lev. 508-501); minimum 51,800 acre-feet (elev. 508-504) with normal operation during non-flood season.
7. Daily pondage allowance; run-of-river project.
8. Completed for full beneficial use.
9. Includes recreation facility costs.
10. Includes $15,557,895 cost for Cross Creek.

NASHVILLE, TN, DISTRICT

**TABLE 23-I**

**TENNESSEE RIVER**
**(SEE SECTION 3 OF TEXT)**

| Project[1] | Miles Above Mouth | Miles from Nearest Town | Lift Dimensions: Width of Chamber (feet) | Length Available for Full Width (feet) | Lift: Normal (feet) | Lift: Maximum (feet) | Minimum on Guard Sills: Lower (feet) | Minimum on Guard Sills: Upper (feet) | Character of Foundation | Year Opened Navigation | Kind of Dam | Type of Construction | Cost of Each Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kentucky | 22.4 | 0.5 above Gilbertsville, KY | 110 | 600 | 56 | 73.3 | 12.7 | 11.0 | Limestone | 1942 | Fixed | Concrete and earthfill | 2 |
| Pickwick Landing: | | | | | | | | | | | | | |
| Auxiliary lock | 206.7 | 4.4 above Hamburg, TN | 110 | 600 | 55 | 63.0 | 12.8 | 10.0 | Limestone | 1937 | Fixed | Concrete and earthfill | 3 |
| Main lock | 206.7 | 4.4 above Hamburg, TN | 110 | 1000 | 55 | 63.0 | 12.8 | 10.0 | Limestone | 1984 | Fixed | Concrete and earthfill | 3 |
| Wilson: | | | | | | | | | | | | | |
| Auxiliary lock | 259.4 | 2.9 above Florence, AL | 60 | 292<br>300 | 94 | 100.0 | 11.0[4] | 11.2 | Limestone | 1927 | Fixed | Concrete and earthfill | $46,973,540[5] |
| Main lock | 259.4 | 2.9 above Florence, AL | 110 | 600 | 94 | 100.0 | 13.0 | 13.0 | Limestone | 1959 | - | - | 7 |
| General Joe Wheeler: | | | | | | | | | | | | | |
| Auxiliary lock | 274.9 | 18.4 above Florence, AL | 60 | 400 | 48 | 51.5 | 13.2 | 14.7 | Limestone | 1934 | Fixed | Concrete and earthfill | 1,796,295[6] |
| Main lock | 274.9 | 18.4 above Florence, AL | 110 | 600 | 48 | 51.5 | 13.0 | 13.0 | Limestone | 1963 | Fixed | Concrete and earthfill | 7 |
| Guntersville: | | | | | | | | | | | | | |
| Auxiliary lock | 349.0 | 9.1 below Guntersville, AL | 60 | 360 | 39 | 45.0 | 11.8 | 13.0 | Limestone | 1937 | Fixed | - | 3 & 7 |
| Main lock | 349.0 | 9.1 below Guntersville, AL | 110 | 600 | 39 | 45.0 | 12.7 | 13.0 | Limestone | 1965 | Fixed | Concrete and earthfill | 7 |
| Nickajack: | | | | | | | | | | | | | |
| Auxiliary lock | 424.7 | 39.4 below Chattanooga, TN | 110 | 600 | 39 | 41.0 | 13.0 | 13.0 | Limestone | 1967 | Fixed | Concrete | 7 |
| Main lock | 424.7 | 39.4 below Chattanooga, TN | 110 | 800 | 39 | 41.0 | 13.0 | 13.0 | Limestone | | Fixed | Concrete | 7 |
| Chickamauga | 471.0 | 6.9 above Chattanooga, TN | 60 | 360 | 49 | 53.0 | 13.0 | 10.0 | Limestone | 1939 | Fixed | - | 3 & 7 |
| Watts Bar | 529.9 | 6.8 above Breedenton, TN | 60 | 360 | 58 | 70.0 | 11.8 | 12.0 | Shale | 1941 | Fixed | Concrete and earthfill | 3 |
| Fort Loudon | 602.3 | 1.3 above Lenoir City, TN | 60 | 360 | 72 | 80.0 | 11.8 | 12.0 | Limestone | 1943 | Fixed | Concrete and earthfill | 3 |
| Melton Hill (Clinch R.) | 23.1 | 22.1 above Kingston, TN | 75 | 400 | 54 | 60.0 | 13.0 | 13.0 | Limestone | 1963 | Fixed | Concrete | 2 |

**TABLE 23-I**

## TENNESSEE RIVER, TN, AL, AND KY
## TOTAL COST OF EXISTING PROJECTS TO SEP 30, 2009
## (See Section 3 of Text)

| Funds | New Work | Channel Maintenance | Operation & Maintenance | Total |
|---|---|---|---|---|

1. H. Doc 328, 71 Cong., 2d sess, contains table, pp. 98 and 99, giving pertinent information concerning low dams contemplated under 1930 project. Annual Report for 1938, pp. 1218 and 1219, contains similar information pertaining to low dams in addition to existing locks and dams, including those constructed or under construction by Tennessee Valley Authority.
2. Lock and dam constructed by Tennessee Valley Authority.
3. Lock and dam constructed by Tennessee Valley Authority.
   Design for lock prepared with Corps forces and funds.
4. Tailwater in canal; flight of 2 locks.
5. Constructed by the Corps under authority of sec. 124, National Defense Act of June 3, 1916, (H. Doc. 1262, 64th Cong., 1st sess.).
   Actual cost of lock and dam.
6. Actual cost of lock only as constructed by the Corps; dams constructed by Tennessee Valley Authority.
7. Constructed by Tennessee Valley Authority.

## TABLE 23-J TENNESSEE RIVER, TN, AL, AND KY TOTAL COST OF EXISTING PROJECTS TO SEPT 30, 2009

**(See Section 3 of Text)**

| Funds | New Work | Channel Maintenance | Operation & Maintenance | Total |
|---|---|---|---|---|
| Regular | $2,244,236[1,2] | $19,150,560 | $406,716,669 | $424,006,740 |
| Maintenance | - | - | 11,665 | 11,665 |
| Increase of compensation rivers and harbors, 1919 (certified claims) | - | 5 | - | 5 |
| Total | $2,244,236[1,2] | $19,150,560 | $406,728,334 | $424,018,410 |

1. In addition, surplus property valued at $54,336 was transferred from the project without reimbursement. Excludes $4,005,175 expended between 18900 and June 30,1935, on operation and care of works of improvement under provisions of appropriation for such purposes.
2. Excludes $14,007,192 previous construction cost.

## TABLE 23-K OHIO RIVER BASIN (NASHVILLE DISTRICT) LOCAL PROTECTION PROJECTS

| Location | Type of Protection | Estimated Cost Federal | Non-Federal | Total |
|---|---|---|---|---|
| Cumberland, KY | Channel Improvement | $520,000 | $240,000 | $760,000[1] |

## TABLE 23-L RESERVOIRS

| Tributary Basin and Reservoir | Stream | Total Federal Cost |
|---|---|---|
| Center Hill Lake | Caney Fork | $53,412,022[1] |
| Dale Hollow Lake, TN and KY | Obey River | 28,167,746[1,2] |
| J. Percy Priest Dam & Reservoir, TN | Stones River | 56,868,039[1,3,4] |
| Laurel River Lake, KY | Laurel River | 56,741,232[5] |
| Martins Fork Lake, KY | Martins Fork | 20,479,911 |

1. Details of this project are in individual report.
2. Excludes $150,000 contributed by the State of Tennessee.
3. Excludes $46,000 contributed by Metro Gov't of Nashville, TN.
4. Formerly Stewarts Ferry Reservoir.
5. See "Other authorized multiple-purpose projects."

## TABLE 23-M INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
**(See Section 15 of Text)**

| Project | Date of Inspection |
|---|---|
| Barbourville, KY | 16 June 2009 |
| Corbin, KY | 15 June 2009 |
| Harlan, KY | 18 June 2009 |
| Middlesboro, KY | 19 June 2009 |
| Pineville, KY | 17 June 2009 |
| Rio Vista, KY | 18 June 2009 |
| Walls End, KY | 17 June 2009 |
| Williamsburg, KY | 15 June 2009 |
| Loyall, KY | 18 June 2009 |

## TABLE 23-N WORK UNDER SPECIAL AUTHORITIES

### Flood Control (Section 205)

| Project | FY09 Cost |
|---|---|
| Section 205 Coordination Account | $ 14,444 |
| Little Limestone Cr, TN | 20,852 |
| Swannanoa River Watershed, NC | 50,589 |
| Little River, Hopkinsville, KY | 42,715 |
| Beaver Creek & Tribs, Bristol, VA | 37,234 |
| Beaver Creek & Tribs, Bristol, TN | 35,049 |
| Metro Center Levee, Nashville, TN | 55,238 |
| Richland Creek, Nashville, TN | 0 |
| Pigeon River Watershed, NC | 14,279 |
| **Total** | **$ 270,400** |

**TABLE 23-N** **FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION**
***(continued)***

## Emergency Bank Protection (Section 14)

| Project | FY09 Cost |
|---|---|
| Section 14 Coordination Account | $ 5,478 |
| Clifton, TN | 20,531 |
| Oakdale, TN | 16,768 |
| Riverside Drive, Clarksville, TN | 13,918 |
| UT AG Center, Knoxville, TN | 16,597 |
| **Total** | **$ 73,292** |

## Environmental Restoration (Section 1135)

| Project | FY09 Cost |
|---|---|
| Section 1135 Coordination Account | $ 7,649 |
| J. Percy Priest, Stones River, TN | 277,706 |
| **Total** | **$ 285,355** |

## Aquatic Ecosystem Restoration (Section 206)

| Project | FY09 Cost |
|---|---|
| Section 206 Coordination Account | $ 8,177 |
| Lower Cum Riv, Lyon & Crittenden, Co. | 4,938 |
| Center ville, TN | 1,501 |
| Powell River, Ely/Puckette Creek, VA | 91,058 |
| Buncombe County Nature Center, NC | 18,537 |
| Burgess Falls State Natural Area TN | 0 |
| Maryville, TN | 38,429 |
| **Total** | **$ 162,640** |

# LOUISVILLE, KY DISTRICT

This district encompasses southwestern Ohio, all of Central Kentucky and portions of western and eastern Kentucky, the southern of Indiana, and southeastern Illinois, all included in the drainage basin of the Ohio River and its tributaries (exclusive of Tennessee and Cumberland Rivers) from mile 438 (below Pittsburgh) immediately upstream from Foster, KY, to the mouth of the Ohio.

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in text and also appear at the end of this chapter.

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**Navigation - Channels and Harbors**

**1. OPEN CHANNEL WORK, LICKING RIVER, KY**

**Location.** The Licking River originates in southeastern Kentucky and flows generally northwesterly to its confluence with the Ohio River at Covington, KY, mile 470.2 below Pittsburgh, PA. The Licking River Basin includes the drainage area of the Licking River, and all other left bank tributaries of the Ohio River from Markland Locks and Dam (Ohio River Mile 531.5) upstream to Meldahl Locks and Dam (Ohio River Mile 436.2).

**Existing project.** There are no locks and dams on the Licking River. However, a navigable depth of 9 feet is maintained up to mile 7.0 on the Licking River.

**Local Cooperation.** None.

**Terminal facilities.** Facilities for bulk commodities, oil products, and coal are considered adequate for existing traffic.

**Operations during fiscal year.** New Work: None. Maintenance: None.

**Navigation - Locks and Dams**

**2. CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER**

For report on this improvement, see the heading under Ohio River.

**3. GREEN AND BARREN RIVERS, KY**

**Location.** Green River rises in Casey County, KY, flows northwesterly 370 miles, and empties into the Ohio River about 8 miles above Evansville, IN. Barren River rises in Monroe County, KY, flows northwesterly 130 miles, and empties into Green River 1/2 mile above Lock 4 and 149.5 miles above the mouth of Green River.

**Existing project.** Six locks and dams on Green River and one on Barren River were constructed in pools of dams to provide a navigable depth of 9 feet and width of 200 feet from the Ohio River to mile 103 Green River, 3.2 miles upstream from Paradise, KY and a navigable depth of 5.5 feet from mile 103 Green River to Mammoth Cave, KY, mile 197.8 Green River, and from mouth of Barren River mile 149.5 Green River to Bowling Green, KY, mile 30.1, Barren River. Of these facilities, only Green River L&D 1 and 2 are still operational. Green River L&D 3, 4, 5, 6 and Barren River L&D 1 are maintained by the Corps in a caretaker status.

Fluctuations in stage vary considerably at different locks. At Lock 3, Green River, ordinary high stages are from 12 to 15 feet above pool level, and at Lock 1, Barren River, from 7 to 10 feet above pool. Maximum stages of record are 34 feet above normal pool stage at Lock 3, Green River, and 29 feet at Lock 1, Barren River, obtained during floods of 1937 and 1913, respectively. (See Table 24-B for authorizing legislation and Table 24-H for principal features of the locks and dams.)

The Louisville District has prepared a draft feasibility report addressing the disposal of Locks and Dams 3 through 6 on the Green River and Lock and Dam 1 on the Barren River. The draft report is dated August 2005. The report recommends filling the lock chambers at all of the sites and removal of the dam at Green River L&D 6. A request was received in August 2008 from the Rochester Dam Association for Corps assistance with ensuring the stability of the dam at Green River Lock and Dam No 3. The pool at Lock and Dam No 3 is the primary water supply source for several municipalities in the area. Funding was received in FY 09 to investigate the stability of the dam, and to identify measures required to stabilize the structure. The results of the investigation at Green River Lock and Dam No 3 will be included in the final Feasibility Report on the Green and Barren Rivers Disposition Study. Because Green River Lock and Dam No 3 no longer serves the authorized purpose of commercial navigation, additional authority will be required for the Corps to implement measures to stabilize the lock and dam.

**Local Cooperation.** Fully complied with.

**Terminal facilities.** Coal handling facilities located on the Green River between miles 81.5 and 108.1 near South Carrollton, Rockport, Paradise and Rochester, Kentucky, are considered adequate for existing commerce.

**Operations during fiscal year.** New Work: None. Maintenance: Routine maintenance was performed.

**Condition at end of fiscal year.** Locks and Dams 1 and 2, Green River, are in good condition. Dam 3 on the Green and Dam 1 on the Barren are in fair condition and the locks at those locations are in poor condition. Lock 4, Green River, is in poor condition. Dam 4, Green River, failed May 24, 1965, when 120 feet washed out. Breach later widened, and repairs have been permanently deferred. Pool of Dam 1, Barren River, is maintained for local small boat use, but navigation through lock is suspended because of loss of lower pool. Operation activity was discontinued at Lock 4 Green River and Lock and Dam 1 Barren River in January 1974 and at Lock 3, Green River in September 1981. The residences and associated buildings and certain real estate at Lock 4 Green River and Lock and Dam 1 Barren River were disposed of in January 1975. Operation of Locks 5 and 6, Green River, was discontinued August 1951, as they were no longer used by river traffic. Controlling project depth in lower 103 miles of Green River is 9 feet; controlling depth from mile 103 to Bowling Green, KY, is 5.5 feet. Channel of Green River above Lock 3 is no longer maintained.

**4. KENTUCKY RIVER, KY**

**Location.** Formed by confluence of its North and Middle Forks about 4 miles east of Beattyville in east central Kentucky, (South Fork joins the main stream at

that location), flows northwesterly and empties into Ohio River at Carrollton, KY, mile 545.8 below Pittsburgh, PA.

**Existing project.** Provides for 14 locks and fixed dams to give, in connection with improvement of Ohio River, slack water navigation of 6 feet minimum depth from Ohio River to places on the three forks that are short distances above Beattyville, KY. Length of 6-foot-depth project on main stem of Kentucky River is 258.6 miles to confluence of Middle and North Forks. Cost of completed new work is $7,328,263. River frequently rises to 35 feet or higher. Extreme height at Lock 1 due to flood backwater from Ohio River is 60.3 feet, while extreme floods reach height of 47.6 feet at Lock 4, and 35.5 feet at Lock 14. At some intermediate locks extreme height of floods exceeds 40 feet. All flood heights refer to upper pool gages. Existing project was adopted by 1879 River and Harbor Act (H. Ex. Doc. 47, 45th Cong., 3d Sess., and Annual Report, 1879, p. 1398). Operation and care of locks and dams were included in project July 1, 1935, under provision of Permanent Appropriations Repeal Act of June 26, 1934. (See Table 24-H for principal features of the locks and dams.)

On December 19, 1976, the lock operation schedules for commercial traffic and recreational craft on the Kentucky River System were reduced from continuous 24-hour year-round operation to two-shift year-round operation of Locks 1 through 4, intermittent daily operation of Locks 5 through 10, and intermittent operation five days weekly of Locks 11 through 14. Since that time the hours for operation of Locks 5 through 14 have been reduced in several increments. On October 1, 1981, Locks 5 through 14 were closed to traffic and placed in caretaker status. On May 21, 1985 Locks 5 though 14 were leased to the Commonwealth of Kentucky and were operated on weekends during the summer boating seasons through October 15, 1989 when the lease expired. The Commonwealth of Kentucky continued operation again under a lease agreement signed in 1990 with several extensions that allow the Commonwealth to operate the Locks until 2019. In 2001 the last commercial operator in pool 4 ceased operations ending federal interest in operating Locks and Dams 1 through 4. The Commonwealth of Kentucky now operates and manages Locks and Dams 1through 4 under Department of the Army Lease for Public Park and Recreation, which was granted March 1, 2002.

The FY 1993, 1994, 1996, 2000 and 2001 Energy and Water Development Appropriation Acts provided a total of $14.75 million to the Corps to repair the Kentucky River Locks and Dams 5 through 14 to ensure water supply prior to and in preparation for a direct transfer of ownership to the Commonwealth of Kentucky. This construction work was all completed by December 2001. During fiscal year 2002 construction of a visitors pavilion and restrooms were also initiated at Lock and Dam 14 and the work was completed in September 2003. In December 1996 the Assistant Secretary of the Army (CW) signed the first quitclaim transfer deed for Lock and Dam 10 for direct transfer from the Corps to the Commonwealth. Lock and Dam 6 were transferred in March 2005. The Kentucky River Authority (KRA) currently manages both facilities. The Corps continues efforts to transfer the remaining Locks and Dams 5, 7 through 9 and 11 through 14 to the Commonwealth. Locks 1-14 are now operated or maintained by the Kentucky River Authority. Although Lock and Dam 10 was transferred to the Commonwealth of Kentucky, FY 2001 authorization language directed the Corps to take all measures to further stabilize and renovate Lock and Dam 10 for the purpose of extending the design life of the structure. The Corps is performing a detailed evaluation of the existing facility that will ultimately recommend a long-term method to "stabilize and renovate" including possibly raising Lock and Dam 10. The results of this evaluation will be presented in a report. Work on this evaluation is currently on hold due to the lack of Federal funding in FY 2009. Since construction of the plan that will be recommended is several years away, the Corps and KRA investigated what could be done to assure near-term safety and stability. Design was completed and a construction contract was awarded in July 2005. Construction of this near-term work continued throughout FY 2006. The scope of the work involved stabilizing the existing dam.

**Terminal facilities.** Facilities for bulk commodities are considered adequate for existing traffic.

**Operations during fiscal year.** New Work: None. Maintenance: None.

**Condition at end of fiscal year.** Existing project was completed in 1917. Work accomplished was rehabilitation of the five old State locks and dams and construction of new Locks and Dams 6 to 14 inclusive. Repairs have been made to deteriorated locks and dams as required to keep locks in operation and maintain pool levels above dams except in extreme dry weather, when some pools fall below normal levels, details in Annual Reports for 1963, 1964, and 1965. Channel work was performed as required to provide for existing river traffic. Controlling navigable depth in length of river covered by existing project was 6 feet at end of fiscal year.

### 5. OPEN CHANNEL WORK, OHIO RIVER

For report on this improvement, see this heading under Ohio River.

### 6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 24-C.

### 7. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

None.

**Flood Control - Local Protection**

### 8. BEARGRASS CREEK, KENTUCKY

**Location.** The project is located in eastern Jefferson County in the suburbs of Louisville, Kentucky, along the South Fork of Beargrass Creek and Buechel Branch.

**Existing Project.** The project consists of construction of eight detention basins, about 2,000 linear feet of channel improvement, and 1,400 linear feet of floodwall/levee on the South Fork of Beargrass Creek and Buechel Branch. The project will provide protection to 830 structures (combination of residential and commercial). Of those structures, an estimated 314 will be removed from the 100-year flood plain. The 100-year flood plain will be reduced an average of 1.5 feet, as a result of project implementation. The project was authorized by the Water Resource Development Act of 1999. Estimated cost of the new work is $14,497,000 of which $9,423,050 is federal cost and $5,073,950 is non-federal cost.

**Local Cooperation.** The non-Federal cost sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). A Preconstruction, Engineering and Design (PED) Phase cost sharing agreement with MSD was executed in January 1998. The Chief of Engineers report approved the project in May 1998. A Project Cooperation Agreement (PCA) with MSD was executed in September 2001.

Operations during fiscal year. Work this year focused on LERRD crediting and fiscally closing out the project.

Conditions at end of fiscal year. The project is about 99% complete and will be fiscally closed-out.

**9**. COMBINED SEWER OVERFLOWS**, INDIANPOLIS, IN**

**Location.** Indianapolis, IN.

**Existing Project.** The existing project consists of providing the City of Indianapolis technical, planning and design assistance for implementation of their Long Term Control Plan. The Long Term Control Plan is designed to improve water quality in Marion County and modernize the City's 19th century sewer system that discharges raw sewage to local streams at 135 overflow points during wet weather events. Work was authorized under Section 219 of the Water Resources Development Act of 1992, as amended. Authorization for construction is contained in FY04 Energy & Water Development Act by amending Water Resources Development Act of 1992.

**Local Cooperation**. The non-federal cost sharing partner is the City of Indianapolis, Indiana. The Corps and the City of Indianapolis signed the Design Agreement in March 2003.

**Operation during fiscal year.** Continued technical planning and design assistance. Executed a Project Partnership Agreement and acquired all necessary real estate interest for the construction of a CSO outfall relocation project.

**Condition at end of fiscal year.** Design work is about 35% complete for the Fall Creek/White River reach. Construction of a CSO outfall relocation project will be performed.

**10. DUCK CREEK, OH**

**Location.** The project area is located in the City of Cincinnati and the Village of Fairfax in Hamilton County, Ohio. The project encompasses 3.2 miles of the stream and begins approximately 2 miles upstream of the confluence of Duck Creek with the Little Miami River.

**Existing project.** The project consists of approximately 7,100 feet of concrete flood wall, 3,300 feet of earth levee, 8,500 feet of riprapped stream bank, 1,200 feet of channel relocation, 1,150 feet of culvert, demolition of an abandoned highway bridge, widening of a railroad bridge, a pump station, and automatic road closure, and an emergency access road. Estimated cost of new work is $53,000,000 of which $48,800.000 is Federal and $4,200,000 is non-Federal. The project was originally authorized by the Water Resources Development Act of 1996 and reauthorized by the Water Resources Development Act of 2000.

**Local Cooperation.** The non-Federal sponsors are the City of Cincinnati and the Village of Fairfax. The Project Cooperation Agreement (PCA) was executed in December 1997.

**Operations during fiscal year.** Work this year included design of the final Phase 4C reach of the project to the south of Interstate 71 along Duck Creek Road and Yononte Creek, a tributary of Duck Creek. Construction proceeded along Phase 4B – Section 1 from Madison Road southward to a railroad embankment at the end of Steele Place. The contract work consists of construction of floodwalls, levees, channel improvements, emergency access road, and an automated closure gate along Madison Road. The Phase 4B Section 2 construction contract was awarded in September 2008. That contract work involves construction of earthen levee, floodwall, channel improvements and stormwater interceptor pipes along Ilsco Corporation and CNW, Inc. properties located between Duck Creek and Madison Roads.

**Condition at end of fiscal year.** The project is about 80% complete overall with design approximately 100% complete. The final Phase 4C construction contract will be awarded in early FY 2010 using partial funding from the American Recovery and Reinvestment Act of 2009.

**11. HOLES CREEK, OH**

**Location.** Project area is located on Holes Creek in West Carrollton, Montgomery County, Ohio. West Carrollton is situated in the southwestern portion of Ohio and is a suburb of Dayton. Holes Creek drains 28.2 square miles and empties into the Great Miami River at river mile 72.6.

**Existing project.** Project construction completed to date consists of approximately 4,300 feet of channel widening (80-foot bottom width) with associated bank protection. The box culvert type railroad bridge was

replaced with a 70-foot clear span structure. Completed project provides protection to 420 structures in West Carrollton and Moraine. Remaining project includes construction of 2400-foot long by up to 6 feet high floodwall to protect nine commercial/ industrial structures

and purchase and demolition of three structures. Estimated total cost (including additional work) is $13,350,000 Federal and $1,306,000 non-Federal.

**Local Cooperation.** The non-Federal cost-sharing partner is the Miami Conservancy District (MCD). MCD formed the Holes Creek/Owl Creek Conservancy Subdistrict to act as formal sponsor for this project. The Subdistrict entered into the Project Cooperation Agreement (PCA) with the Government in September 1996. Funds were provided to the Subdistrict by Montgomery County, the City of West Carrollton, the City of Moraine, and Miami Township. The PCA was amended subsequent to enactment of Section 594(a) of the Water Resources Development Act of 1999 to cap the non-Federal cost share amount to $1,305,650.

**Operations during fiscal year.** Funds were used to complete the real estate acquisition for the buyout of 3 properties south of the creek whose structures are to be demolished.

**Conditions at end of fiscal year.** Once federal funding is received, the plan is to fully fund a construction contract to complete the project.

**12. LOUISVILLE WATERFRONT PARK, LOUISVILLE, KY**

**Location.** Louisville, Jefferson County, Kentucky, on the left bank of the Ohio River at river mile 603.

**Existing Project.** The existing project is for design of Phases II and III of the Louisville Waterfront Park public access and recreation project. The design is focused on restoration of the Big 4 Bridge for pedestrian use, and includes a spiral bridge to facilitate a bicycle path and potential emergency vehicle access. The design was authorized by the Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations. The design agreement is limited to the spiral to the Big Four Bridge and renovating the bridge for pedestrian access to the Indiana side of the river. Construction authority was in the FY06 Energy and Water Development Act including use of unexpended design funds for construction.

**Local Cooperation.** The Pre-Construction Engineering and Design (PED) agreement was executed with the non-Federal cost sharing partner, the Louisville Waterfront Development Corporation (LWDC) in September 2004. $250,000 in non-Federal funds was received in September 2004 to begin design.

**Operations during fiscal year.** Work this year consisted of continued coordination between the KY and IN SHPO.

**Conditions at end of fiscal year.** The only ongoing work for the Corps consists of completing the SHPO coordination.

**13. MILL CREEK, OH**

**Location.** Project is located along the 18-mile length of Mill Creek and three-fourths mile length of East Fork.

**Existing project.** 17.5 miles of channel improvement, 2 miles of levees, three pumping plants, modification of 29 bridges, and the addition of two pumping units at the present Mill Creek Barrier Dam, located near the Ohio River, are

included in the project. Acquisition and development with appropriate landscaping of 620 acres along the creek will be provided for high-density urban oriented recreational use.

**Local Cooperation.** Section 3, Flood Control Act of 1936 as amended, applies. An assurance agreement covering local cooperation requirements for the project consistent with Section 221 of the 1970 Flood Control Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 was executed by the Millcreek Valley Conservancy District February 6, 1975, and for the Secretary of the Army March 28, 1975. A recreation cost-sharing contract was executed by the Conservancy District February 25, 1975, and approved by the Secretary of the Army May 28, 1975. A Contributed Funds Agreement for the General Reevaluation Report was executed in August 1998. An Operations and Maintenance Agreement for the completed portions of the project was also executed in August 1998.

**Operations during fiscal year.** The Sponsor and communities are evaluating financial capability and community support to resume project construction of the channel modification plan as recommended in the March 2005 General Reevaluation Report.

**Condition at end of fiscal year.** Construction of channel Sections 1, 2 3, 4A,and 7A (Phase 1) are complete. Original channel modification project is about 45 percent complete overall. If federal funding is received the plan will be to complete the design and construction of remedial repairs at previously completed sections 1, 2, and 4A. These sections still need to have remedial repairs performed in order to turn over to the Sponsor for Operations and Maintenance.

**14.** MT ZION MILL, POND DAM, INDIANA

Location. Mt. Zion Mill Pond Dam is a non-federal dam located in Rochester, Fulton County, Indiana.

Existing Project. Section 5003, Dam Safety of WRDA 2007 has a provision to enhance dam safety for Mr. Zion Mill Pond Dam, Fulton County, Indiana. This provision also authorizes 12 million to be appropriated for the 15 dams listed in the provision. The project would restore the northern end of the existing non-federal earthern dam that has deteriorated to the point where the leakage is threatening a county bridge abutment that is integral to the dam. The county would like to see us repair the dam in conjunction with INDOT/County repairing the bridge.

Local Corporation. The Local Sponsor would be the Fulton County Commissioners.

Operations during the fiscal year. Work consisted of initiating a Dam Safety Modification Report. A public meeting was hosted by Congressman Donnelly on 18 August 2009.

Conditions at end of fiscal year. The report is approximately 50% complete . Work will continue on completing the Dam Safety Modification Report.

## 15. OHIO ENVIRONMENTAL INFRASTRUCTURE SECTION 594 PROGRAM

**Location.** The project location includes the entire state of Ohio, which includes portions of the Louisville, Huntington, Buffalo, and Pittsburgh Districts. The program is for the design and construction assistance of environmental infrastructure projects.

**Existing Projects:** Under the Section 594 Authority, we have projects in varying states of progress in Clark, Clinton, Greene, and Montgomery Counties in Ohio.

Clark County – Springfield Technology Park. Final payment to be made and fiscal closeout to occur in FY 10.

Montgomery County – Tech Town Infrastructure Project: Design and construction of sewer infrastructure for High Tech Industrial site in Dayton, OH. PCA executed in FY04 and amended in 2007. Design is underway.

Montgomery County – University of Dayton Brown and Stewart Streets Redevelopment Project: PPA for design was being developed. PPA was executed in September 08.

Montgomery County – City of Dayton Northeast Quadrant Redevelopment Project: PPA for design was executed in May 08.

Clinton County – Clinton-Massie School District: PCA for design and construction was executed in August 2006. Final closeout of the project is in progress.

Clark County – Springfield Air Park Project: PCA for design was executed in 2007. However, the PCA was terminated simultaneously with the execution of the design and construct PPA in FY 08. Design is underway and is 30-40% complete.

Clark County – Springfield Hospital Project PCA for design was executed in 2007. An amendment to the agreement to be executed in FY 10.

Clark County – Springfield Nextedge Project – sponsor has worked through their congressional staff to request reprogramming of the money from Nextedge Project to the Springfield Air Park Project.

Greene County – Yellow Springs Center for Business and Education: PCA for design and construction was executed in 2007. Design is underway.

**Local Cooperation.**

**Operations during fiscal year.** . NEPA compliance activities were underway or completed for three projects.

**Conditions at end of fiscal year.** Design work was continued for 2 projects. Design and construction work was continued for 4 projects.

## 16. OHIO RIVER FLOOD PROTECTION (INDIANA SHORELINE), IN

**Location.** The six existing local flood protection projects are located along the Indiana shore from Ohio River mile 492 in Lawrenceburg downstream to mile 792 in Evansville. They are in the communities of Evansville, Tell City, Cannelton, New Albany, Jeffersonville-Clarksville, and Lawrenceburg.

**Existing project.** Each of the six local flood projects was constructed by the Corps and has been locally operated and maintained. All six projects were constructed to protect against the 1937 flood plus three feet of freeboard. Rehabilitation measures are necessary at each of the six sites in order to maintain their integrity and to insure that they continue to provide the benefits for which they were designed. Rehabilitation would consist of slip lining (or where necessary replacement) of all pipes and culverts which are part of the flood protection facilities, replacing aging pump station equipment, restoring expansion joints and closures, and repairing, as needed, floodwalls and other structures. Estimated cost of new work is $8,400,000 of which $6,300,000 is federal and $2,100,000 is non-federal.

**Local Cooperation.** The following Project Cooperation Agreements (PCA) have been executed with the communities: Lawrenceburg PCA - September 1998, Evansville - November 1998, Tell City PCA - June 1998, Cannelton PCA - September 1999, New Albany – November 1999 and Jeffersonville-Clarksville – November 1999.

**Operations during fiscal year.** The Louisville District completed a construction contract for slip line repairs to deteriorated corrugated metal drainage pipes at Jeffersonville-Clarksville, Indiana.

**Conditions at the end of fiscal year.** Project is about 85% overall with design 100% complete. The remaining construction activities will consist of repairs to 13 corrugated metal drainage pipes at New Albany, Indiana. In early FY 2010, the District will award a construction task order to repair 13 corrugated metal drainage pipes at New Albany, Indiana. This work will be partially funded with appropriations from the American Recovery and Reinvestment Act of 2009. Upon completion of those contract activities, all work will be completed on the Ohio River Flood Protection (Indiana Shoreline), Indiana Project.

**17. OHIO RIVER GREENWAY PUBLIC ACCESS, IN**

**Location.** The Ohio River Greenway is a seven-mile linear corridor that extends from the City of Jeffersonville through the Town of Clarksville to the City of New Albany, Indiana, along the Ohio River Shoreline. The project extends from Ohio River Mile 602 to Ohio River Mile 609. The corridor adjoins the McAlpine Locks and Dam project and the Falls of the Ohio National Wildlife Conservation Area on the Indiana side of the river.

**Existing project.** The project features consist of a vehicular parkway, pedestrian and multi-use paths, a bridge, and two levee cuts for additional access to the river. The project was authorized by the Water Resources Development Act of 1996. Estimated cost for the project is $42,100,000 of which $21,050,000 is federal cost and $20,050,000 is non-federal cost.

**Local Cooperation.** There are four non-federal sponsors: The Ohio River Greenway Development Commission, the City of New Albany, the Town of Clarksville, and the City of Jeffersonville. The Project Cooperation Agreement was executed 2 June 2003.

**Operation during fiscal year.** Work this year included completion of construction of a segment of the project in New Albany. In addition, negotiations took place and an agreement was reached with a selected A/E firm to plan and design the remainder of the project.

**Condition at end of fiscal year.** The project was approved for construction by the ASA(CW) in April 2000. Construction of the first segment in Clarksville was completed in 2004 and in New Albany and Jeffersonville in 2008. The project is approximately 28% complete overall.

**18. OHIO RIVERFRONT- CINCINNATI, OHIO**

Location. The boundaries of the project are in the city of Cincinnati, located in southwest Ohio along Ohio River Mile 470. The city limits fall within Hamilton County.

Existing project. The main project features consist of walkways and trails, an interactive water feature, picnic and restroom facilities, an elevator, an adventure plan area, and an event lawn. The project objective is to enhance public access to the Ohio River and its environmental and recreation amenities. In addition, the project will reconnect the downtown area with the river and with other riverfront parks. The project was authorized by the Water Resources Development Act of 2007. The estimated cost of the project is $30,000,000 of which $15,000,000 is Federal cost and $15,000,000 non-Federal cost.

Local Cooperation. The non-Federal cost sharing partner is the City of Cincinnati. A Design Agreement was executed on 13 September 2005.

Operations during fiscal year. Work this year included completion of the Decision Document and the Project Partnership Agreement (PPA) Both were submitted to the Division office for approval in late FY 2009. Plans and specifications for Phase II were also prepared. .

Conditions at end of fiscal year. The project is approximately 15% complete. Design is complete for Phase I.

**19. POND CREEK, LOUISVILLE, KY**

**Location.** The project is located in the central and eastern portions of the 126 square mile Pond Creek watershed in southern Jefferson County, Kentucky.

**Existing project.** The project consists of constructing a 1500 acre-feet detention basin storage facility along Northern Ditch. An existing abandoned rock quarry adjacent to Fishpool Creek will be converted to a detention basin. Approximately 2.4 miles of the Pond Creek channel will be enlarged as well as 1.5 miles of Northern Ditch. A multi-purpose maintenance road/recreation trail will be constructed along the length of the Pond Creek channel improvement. In addition, three inactive settling basins owned by the local sponsor will be converted into an environmental restoration site. Estimated cost for the project is $23,729,000 of which $18,047,000 is Federal and $5,682,000 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

**Local Cooperation.** The non-Federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). MSD has included all funds necessary for their cost share of the project in their capital budget plan. The Project Cooperation Agreement (PCA) was executed in March 1998.

**Operations during fiscal year.** Work this year included completion of construction activities for Northern Ditch, and continuation of construction for Pond Creek. (Awarded September 2007).

**Conditions at end of fiscal year.** The project is about 90 percent complete. Design is complete. The first three phases of the construction have been completed. Both contracts for the final phase of the project have been awarded and are underway.

**20. SALYERSVILLE, KY**

**Location.** Project is located along the banks of the Licking River from approximately mile 266 and 271 in Magoffin County, Kentucky along the Mountain Parkway about 75 miles southeast of Lexington, Kentucky.

**Existing Project.** The most cost-effective and feasible plan to provide the authorized level of protection (1978 flood protection) is called the "Cut-Thru Plan" and includes two channel cut-thrus, a barrier dam at the upstream cut-thru, and an 0.8-mile reach of channel improvement connecting the two cut-thrus. Estimated total cost of new work is $8,736,364.01 of which $7,906,409.43 is Federal and $829,954.58 is non-Federal.

**Local Cooperation.** The local sponsor qualifies for an "ability to pay" reduction pursuant to Section 103(m) of the 1986 Water Resource Development Act. Based on current costs and economics, the local sponsor share

would be 9.5 percent of the total project cost. The Project Cooperation Agreement (PCA) was executed in August 1995. The construction contract was awarded in September 1996 and completed in July 1998.

**Operations during fiscal year.** Construction was completed in FY 99.

**Conditions at the end of fiscal year.** The only remaining action is to financially close out the project.

**21. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE SECTION 531 PROGRAM**

**Location.** The project location comprises a 27 county region in southern and eastern Kentucky, which includes portions of Louisville, Huntington, and Nashville Districts. The program is for the design and construction assistance of environmental infrastructure projects.

**Existing Projects.** Under the Section 531 Authority, to date we have two projects complete. One project is underway.

Jackson County – McKee High School Extension: PCA was executed in March 2007. Work is complete.

Jackson County – Tyner Elementary Wetland Wastewater Treatment Project: PPA executed in July 2008. Design is underway.

Perry County – Vicco Wastewater Treatment and Collection Project: PCA executed November 2001. Design 95% complete in FY 2006. Work is complete.

Perry County – Regional Wastewater Treatment Plant and Collection System. PCA was executed in June 2007.

Design is complete.

Work is authorized under Section 531 of the Water Resources Development Act of 1996 (P.L. 104-303).

**Local Cooperation.** .

**Operations during fiscal year.** Work this year included initiation or continuation of design and construction on all projects and development of a PPA for a new project.

**Condition at end of fiscal year.** Design was completed on one project. Continuing coordination.

**22. WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, IN**

**Location.** Project is located along the White River in the City of Indianapolis, IN.

**Existing project.** Project consists of infrastructure improvements such as public access parking, walkways, pedestrian bridges, landscaping, lighting, and water features. The project also includes continuous public access along both sides of the White River waterfront through the construction of walkways, bike paths, landscaped promenades, and the rebuilding and reconfiguring of the existing concrete slopewalls. Estimated cost of new work is $113,804,500 of which $52,475,000 is Federal and $61,329,500 is non-Federal.

**Local Cooperation.** The non-Federal sponsors are the White River State Park (State of Indiana) and the City of Indianapolis. All lands for the project have been acquired by the sponsors. The Project Cooperation Agreement (PCA) was executed in December 1997. Amendments to the PCA were executed in June 1999 to add the Upper Canal feature to the Project and in February 2001 to add the Beveridge Paper feature.

**Operations during fiscal year.** Construction of the project is complete.

**Condition at end of fiscal year.** Construction of the project is complete. The only remaining item is project closeout.

**23. WHITE RIVER INDIANAPOLIS (NORTH), IN**

**Location.** The project is located in metropolitan Indianapolis, Indiana, along the northern reaches of the White River within Marion County.

**Existing project.** The project is located along 3 miles of the White River in the City of Indianapolis, IN, and consists of a combination of levees and floodwalls, rehabilitation of an existing pump station, two mitigation sites, and a flood warning system. Estimated cost of the project is $38,854,100 of which $29,140,600 is Federal and $9,713,500 is non-Federal.

**Local Cooperation.** The non-Federal cost-sharing partner is the City of Indianapolis, Department of Public Works.

**Operations during fiscal year**. The Corps continued construction of the Phase 3C section of the floodwall and levee within the Broad Ripple community of Indianapolis, Indiana.

**Conditions at the end of fiscal year**. The project is 60 percent complete. Rehabilitation of the existing pump station, installation of a flood warning system, and construction of the Phase 3A section of the floodwall/levee are complete. Construction is substantially complete on the Phase 3C Broad Ripple section. Design continues on the final Phase 3B South Warfleigh section . Additional Federal and non-Federal funds are required to complete the project.

**Flood Control - Reservoirs**

**24. BARREN RIVER LAKE, KY**

**Location.** Dam is on Barren River, 79.5 miles above its confluence with Green River and 10 miles northeast of Scottsville, KY. A flood control pool reservoir extends upstream about 40 miles in Barren and Allen Counties, KY. (See U.S. Geological Survey map of Lucas, KY.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is rolled earth and rockfill, 146 feet

high and 3,970 feet long, with gate-controlled outlet works and uncontrolled open-cut spillway. Total storage capacity is 815,200 acre-feet (768,000 for flood control and 46,600 for water supply storage). For further details, see page 1125 of Annual Report for 1962. Cost of the completed project is $27,479,717 including $2,335,055 Federal funds and $108,418 non-Federal funds for construction of recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1938.

**Local Cooperation.** None required by authorizing act. Under provision of Water Supply Act of 1958, contract with City of Glasgow for water supply storage was approved by Secretary of Army on October 4, 1965. Terms require City to pay $23,433, which is project cost allocated to water storage plus capitalized prepayment of proportionate share of operation, maintenance, and major replacement costs. A contract, with the Commonwealth of Kentucky for development of additional campsites, shoreline protection and breakwater extension at Barren River Lake State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

**Operations during fiscal year.** New work: Phase II Development of Port Oliver Recreation Area including three restrooms, picnic area and ADA picnic sites, ADA fishing areas, two picnic shelters, boat ramp extension to winter pool, ADA boat loading dock, amphitheatre, plus paving of existing roads and parking lots and installation of utilities. Other new work includes: interior renovation of seven showerhouses/restroom in two recreation areas; new energy efficient windows in Administrative area and Control Tower; expanded parking lot and new ADA entrance to project office; new handrails around fishing platform in the stilling basin; overlayment of rip rap in the stilling basin; repair of drainage ditch with articululated block near the stilling basin; numerous Control Tower equipment repairs and new roof; beach renovation; repair of slush grout and new erosion berm in the stilling basin; new restroom and playground at Quarry Road Beach; and, new playground at Baileys Point Recreation Area Maintenance: Routine maintenance was performed, plus fabrication and installation of new picnic tables; installation of new roadway signs; and, administration and supervision of O & M Contract work. During the 2009 flood season estimated damages of $5,378,000 were prevented. Visitor expenditures were $33,480.000.

**Condition at end of fiscal year.** Construction started in March 1960 and all major construction and relocation items were completed in October 1964. Project was placed in operation in March 1964. Land acquisition is complete.

### 25. BROOKVILLE LAKE, IN

**Location.** Dam site is on East Fork of Whitewater River, 2.4 miles above confluence with West Fork, and about 1-1/2 miles north of Brookville, Indiana. The reservoir lies in Franklin and Union Counties, Indiana. (See U.S. Geological Survey map of Brookville, IN.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is earthfill, 182 feet high and 3,004 feet long, with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 359,600 acre-feet (214,700 for flood control, 89,300 for water supply, and 35,500 for conservation). A minimum pool of 20,100 acre-feet is maintained. Cost of completed new work is $45,402,565 of which $37,905,073 is Federal cost and $7,497,492 is non-Federal contribution for water supply storage. Project was authorized by 1938 Flood Control Act.

**Local Cooperation.** None required by authorizing act. Contract with State of Indiana for water supply storage under provisions of Water Supply Act of 1958 was approved by Secretary of Army, August 5, 1965. Under terms of contract, State paid initial costs allocated to water supply feature of project plus capitalized prepayment of proportionate share of operation and maintenance costs.

**Operation during fiscal year.** New work: Embedded metals in the conduit and service gates were sand blasted. Various project parking lots and the top of the Dam were re-paved. An ARRA picnic shelter was installed in the Tailwater Recreation area to replace an outdated smaller shelter. An outdated sewage lift state in the Tailwater Recreation area was replaced. None. Maintenance: Routine maintenance was performed. During 2009 flood season flood damages of $1,760,000 were prevented. Visitor expenditures were $19,290,000.

**Condition at end of fiscal year.** Construction was started in November 1965 and project was placed in operation January 1974. Construction and land acquisition are complete.

### 26. BUCKHORN LAKE, KY

**Location.** Dam is on Middle Fork of Kentucky River, 43.4 miles above mouth, and 0.5 mile upstream from Buckhorn, Perry County, KY. Reservoir extends upstream about 34 miles and lies in Leslie and Perry Counties, Kentucky. (See U.S. Geological Survey map of Buckhorn, KY.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is earth and rockfill type, with gate controlled outlet works. Total storage capacity is 168,000 acre-feet, of which 157,600 are for flood control. For further details, see page 1120 of Annual Report for 1962. Cost of completed new work is $12,466,206 including $386,707 for construction of recreation facilities under the completed projects program. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act.

**Local Cooperation.** Department of Parks of the Commonwealth of Kentucky has undertaken management of certain lands and recreational facilities in accordance with license granted by Secretary of the Army on June 29, 1962.

**Operations during fiscal year.** New work: None. Maintenance: Routine maintenance was performed. Operation for flood control during 2009 flood season prevented damages of $551,000. Visitor expenditures were $9,440,000**.**

**Condition at end of fiscal year.** Construction started in September 1956 and project was placed in operation in August 1960. All construction and land acquisition is complete for original project. A contractor began construction of a shower house and Class A campground facilities at the Trace Branch recreation area in late FY2003. These facilities, funded with the FY2002 Construction General appropriations, were physically complete in the 4th quarter of FY 2004.

**27. CAESAR CREEK LAKE, OH**

**Location.** Dam site is on Caesar Creek, about 3.0 miles above its confluence with Little Miami River, in Warren County, OH, about 3.5 miles southeast of Waynesville, OH, and 10.5 miles northeast of Lebanon, OH. Reservoir lies in Warren, Clinton, and Green Counties, OH. (See U.S. Geological Survey map of Oregonia, OH.)

**Existing project.** Provides for construction of a reservoir for flood control and allied purposes. It includes an earth and rockfill dam, four saddle dams, outlet works and an uncontrolled saddle spillway. Total storage capacity of reservoir is 242,200 acre-feet, of which 148,500 acre-feet are reserved for flood control storage. Cost of new work is $62,881,010 Federal and $5,037,000 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1983 Flood Control Act.

**Local Cooperation.** None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance and major capital replacements required for the water supply facilities.

**Operations during fiscal year.** New work: Embedded metals in the conduit and service gates were sand blasted. Completed $272,000 in ARRA and $93,500 in O&M paving improvements, $93,000 in O&M playground facilities and safety improvements, $91,000 for project office & maintenance building roof replacement, $43,000 in control tower security fencing and other security improvements.. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $27,655,000 were prevented. Visitor expenditures were $35,810,000.

**Condition at end of fiscal year.** Construction was started in January 1968 and the project was placed in operation January 1978. Land acquisition is complete. All relocation and construction features are complete.

**28. CAGLES MILL LAKE, IN**

**Location.** Dam is on Mill Creek, 2.8 miles above its confluence with Eel River, in Putnam County, IN, and about 25 miles east of Terre Haute, IN. Reservoir extends upstream about 11 miles and is in Putnam and Owen Counties, IN. (See U.S. Geological Survey map of Poland, IN.)

**Existing project**. A reservoir for flood control and allied purposes. Dam is earth and rockfill embankment. Total storage capacity is 228,100 acre-feet, of which 201,000 acre-feet are for flood control. For details, see Annual Report for 1962, page 1136. Cost of new work is $4,369,997, which includes $4,256,903 Federal funds, and $113,094 contributed funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

**Local Cooperation.** None required. State of Indiana has undertaken development and management of recreation facilities for use of the public in reservoir area in accordance with license granted by Secretary of the Army on January 17, 1952. A contract with the Indiana Department of Natural Resources for expanding the boat ramp and parking area at Site 3, Lieber State Park, under the cost sharing category of the completed projects program was signed by the State of Indiana on August 26, 1981 and approved by the Deputy Chief of Engineers on March 26, 1982.

**Operations during fiscal year.** New Work: None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $29,692,000 were prevented. Visitor expenditures were $11,660,000.

**Condition at end of fiscal year.** Construction started in July 1948 and completed in June 1953. Recreation facilities constructed under the cost-sharing category of the completed projects program are complete.

**29. CARR CREEK LAKE, KY**

**Location.** Dam site is 8.8 miles above mouth of Carr Fork, a tributary of North Fork of Kentucky River, 16 miles upstream from Hazard, KY. The reservoir lies entirely within Knott County. (See U.S. Geological Survey maps of Carrie and Vicco, KY.)

**Existing project.** Provides for construction of a reservoir for flood control and allied purposes. Dam is rock and earth fill with impervious core, 720 feet long and 130 feet high, with uncontrolled open cut spillway through left abutment. Outlet works has two control gates and 8-foot diameter conduit to stilling basin. Total storage capacity is 47,700 acre-feet (31,600 for flood control and 4,300 for water quality control). A higher-level seasonal

pool for recreation is provided. Cost of completed work is $51,854,826 including $76,724 for recreation facilities under the completed projects program. Project was authorized by the 1962 Flood Control Act.

**Local Cooperation.** None required for reservoir project. Division of Flood Control and Water Usage of Commonwealth of Kentucky gave assurance that encroachments on downstream channel capacity will be prevented. Under the terms of a new lease, the State of Kentucky assumed operation of the Irishman Creek Beach and Campground in 1996. This establishes a State Park at the lake and also provides the impetus for additional resort development. Project name was changed from Carr Fork Lake, KY to Carr Creek Lake, KY effective February 16, 1997 by Public law 104-303, October 12, 1996. An agreement was executed with the Carr Creek Lake Water Commission in September 2006 to provide up to 2 million gallons of water per day from the lake for water supply purposes.

**Operations during fiscal year**. New work: Replaced a 35 year old dilapidated sewage treatment plant at the dam area with two septic systems. Two parking lots, one each at the project office and maintenance shop were resurfaced. These projects were completed utilizing

ARRA funding. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $573,000 were prevented. Visitor expenditures were $11,860,000.

**Condition at end of fiscal year.** Project was placed in operation January 1976. Construction started in January 1966 is complete.

**30. CAVE RUN LAKE, KY**

**Location.** Dam site is on Licking River, about 4 miles upstream from U.S. Highway 60 near Farmers, KY, and 7 miles southwest of Morehead, KY. Reservoir will be in Rowan, Bath, Morgan, and Menifee Counties, KY. (See U.S. Geological Survey maps of Salt Lick and Morehead, KY.)

**Existing project**. Plan provides for construction of a reservoir for flood control and allied purposes. Dam is rolled earthfill, with gate controlled outlet works and uncontrolled open spillway. Total storage capacity is 614,700 acre-feet (438,500 for flood control and 28,300 for water quality control). Cost of new work is $81,159,541 of which $6,900,000 is U.S. Forest Service cost. Project was authorized by Flood Control Acts of June 22, 1936 and June 28, 1938.

**Local Cooperation.** None required.

**Operations during fiscal year.** New work: Installed new diesel storage day tank for emergency generator. Also replaced/installed block heater plug to emergency generator located in control tower. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $4,376,000 were prevented. Visitor expenditures were $8,240,000.

**Condition at end of fiscal year.** Project has been in operation since February 1974. Construction was started in June 1965 and is complete. Land acquisition is complete. All relocation and construction features are complete.

**31. CECIL M. HARDEN LAKE, IN**

**Location.** Dam is on Raccoon Creek, 32.4 miles above its confluence with Wabash River, and 25 miles northeast of Terre Haute, IN. At flood control pool, reservoir extends upstream about 15 miles in Parke and Putnam Counties, Indiana. (See U.S. Geological Survey Map of Mansfield, IN.)

**Existing project.** A rolled earth dam and reservoir, for flood control and allied purposes. Total storage capacity is 132,800 acre-feet of which 116,600 acre-feet area for flood control. For details, see Annual Report for 1962, page 1132. Cost of completed new work is $6,987,807 made up of $6,260,134 for the initial project and $373,678 Federal cost and $353,995 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from Mansfield Lake to Cecil M. Harden Lake by Public Law 93-521, December 14, 1974.

**Local Cooperation.** State of Indiana has undertaken management of lands and recreational facilities in accordance with license granted by Secretary of the Army on April 19, 1961. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

**Operation during fiscal year.** New work: None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $7,335,000 were prevented. Visitor expenditures were $26,350,000.

**Condition at end of fiscal year.** Construction started in October 1956 and all major items of work were completed December 1961. Land acquisition is complete. Project has been in operation since August 1960. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are completed.

**32. CLARENCE J. BROWN DAM & RESERVOIR, OH**

**Location.** Dam site is just east of Springfield, Clark County, OH, at mile 7.3 of Buck Creek, a tributary of Mad River. (See U. S. Geological Survey maps of New Moorefield and Springfield, OH.)

**Existing project.** A reservoir for flood control and allied purposes. It includes an earthfill dam, 6,620 feet long and 72 feet high, with gated outlet works and open cut spillway with concrete chute through right abutment. Total storage capacity of reservoir is 63,700 acre-feet (32,900 for flood control and 20,800 for water quality control). Federal cost of completed project is $22,083,660. Project was authorized by 1962 Flood Control Act. Project name was changed from Buck Creek Dam and Reservoir to Clarence J. Brown Dam and Reservoir by Public Law 90-46, July 4, 1967.

**Local Cooperation.** Assurances from City of Springfield, Springfield Conservancy District, and Clark County, Ohio, covering protection against detrimental channel encroachment below dam to mouth of Buck Creek, were accepted March 5, 1964.

**Operations during fiscal year.** New work: Replaced control tower roof, placed approximately 11,500 tons of riprap on upstream side of dam and applied epoxy paint system to embedded metals in the conduit and to the service gates. Maintenance: Routine maintenance was performed which included paving the roads and parking lots in the operations area and replacing the road guardrails. Cost for paving was $447,080 and guardrail replacement was $51,084. During the 2009 flood season $490,000 in damages were prevented. Visitor expenditures were $24,740,000.

**Condition at end of fiscal year.** Construction started in September 1966. Land acquisition and all major project features were completed in November 1973. The project was placed in operation in January 1974.

### 33. GREEN RIVER LAKE, KY

**Location.** Dam site is 305.7 miles above mouth of Green River in Taylor County, KY, about 8 miles south of Campbellsville. Reservoir lies in Taylor and Adair Counties. (See U.S. Geological Survey map of Cane Valley, KY.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is earth and rockfill, 141 feet high and 2,350 feet long. Outlet works is slide gate-controlled and spillway open and uncontrolled. Total storage capacity is 723,200 acre-feet (560,600 for flood control and 64,500 for low-flow augmentation). Cost of completed new work is $34,110,555, consisting of $33,753,409 initial project funds, $40,001 for water supply, and $317,145 Federal funds for construction of recreation facilities under the completed projects program. Existing project was authorized under general authorization for Ohio River Basin in 1938 Flood Control Act.

**Local Cooperation.** None required by authorizing act. Taylor County, by lease approved by Secretary of Army February 15, 1968, undertook operation and maintenance of Smith Ridge public access area. In May 1980, the lease was amended to turn back responsibility for maintenance and operation of the site to the Corps. Under provision of Water Supply Act of 1958, contract with City of Campbellsville for water supply storage was approved by Secretary of Army April 23, 1969. Terms require city to repay, with interest and annual charges for operation, maintenance and major replacement, the investment cost of $85,765 allocated to its water supply storage space. The Department of Parks of the Commonwealth of Kentucky, by lease approved by Secretary of Army, October 4, 1971, has undertaken the management of the Lone Valley public access area.

**Operations during fiscal year**. New work: A 12 foot wide service road providing access over the conduit, along with supporting gabion baskets was constructed. New RipRap was placed on the upstream slopes of the dam and dike to elevation 713. Trees were removed from dam, dike and emergency spillway. Routine maintenance was performed. During the 2009 flood season estimated damages of $6,609,000 were prevented. Visitor expenditures were $38,120,000.

**Condition at end of fiscal year.** Construction began in August 1965 and all major construction and relocation items were completed in 1972. Project has been in operation since February 1969. Project including all land acquisition was completed in 1973. Construction of sanitary dump station for boats at Dam Site in conformance with EPA and State standards and rehabilitation of sewage treatment facilities, washhouses and restrooms at Smith Ridge site is complete.

### 34. J. EDWARD ROUSH LAKE, IN

**Location**. Dam site is on Wabash River, about 2 miles from Huntington, IN, and 411.4 miles above mouth. Reservoir is in Huntington and Wells Counties, IN. (See U.S. Geological Survey maps of Majenica and Mt. Etna, IN.)

**Existing project.** A reservoir for flood control and allied purposes. Dam consists of a rolled earth embankment 4,700 feet long and 89 feet high, a concrete spillway and outlet section 155 feet long, and a concrete gravity section 310 feet long. Spillway is controlled by three gates, and outlet works by six sluices. Project also provides local flood protection for Markle, IN. Total storage capacity of reservoir is 153,100 acre-feet, of which 149,000 acre-feet is reserved for flood control storage. Cost for new work is $20,277,519 made up of $20,084,097. Federal cost for the initial project and $193,422 non-Federal contributed funds for low flow augmentation storage, and $155,354 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958. Project name was changed from Huntington Lake, IN to J. Edward Roush Lake, IN effective 16 February 1997 by Public law 104-303, 12 October 1996.

**Local Cooperation.** Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana has met this obligation. Contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army May 17, 1974, provided for that

agency to design and construct certain additional recreational facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost shared category of the completed projects program.

**Operations during fiscal year**. New work: Initiated articulated concrete block bank installation around stilling basin below J. Edward Roush Dam and riprap overlay on Markle Levee. Completed diversion dike extension at Markle Levee.. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $12,593,000 were prevented. Visitor expenditures were $5,740,000.

**Condition at end of fiscal year.** Land acquisition and all major construction complete. Project was placed in operation January 9, 1969. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

**35. MISSISSINEWA LAKE, IN**

**Location.** Dam site is 7.1 miles above mouth of Mississinewa River, which flows into Wabash River about 2 miles upstream from Peru, IN. At flood control pool level, reservoir extends upstream about 28 miles, in Wabash, Grant, and Miami Counties, IN. (See U.S. Geological Survey map of Peoria, IN.)

**Existing project.** Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam 137 feet high and 8,100 feet long, gate-controlled outlet works, and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 368,400 acre-feet, of which 345,100 acre-feet are reserved for flood control storage. Cost for completed new work is $79,320,656 made up of $23,791,816 Federal cost for the initial project, $239,200 non-Federal contributed funds for low flow augmentation storage, $174,392 Federal cost and $174,392 non-Federal contribution in kind for recreation facilities under the completed projects program, and $53,091,375 for major rehabilitation. Project was authorized by the Flood Control Act of 1958.

**Local Cooperation.** Local interests must contribute in cash an amount equal to 1 percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

**Operations during fiscal year.** New work: Replaced the roof on the outlet works control tower.. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $18,957,000 were prevented. Visitor expenditures were $13,990,000.

**Condition at end of fiscal year.** Project was placed in operation in May 1968. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete. Construction was completed on cut-off wall contract .

**36. MONROE LAKE, IN**

**Location.** Dam is on Salt Creek, a tributary of White River, 25.9 miles above mouth, and 2 miles east of Harrodsburg, Monroe County, IN. At flood control pool level, reservoir will extend upstream 44 miles in Monroe, Brown, and Jackson Counties. (See U.S. Geological Survey map of Clear Creek, IN.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is earth core and rock shell, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 441,000 acre-feet (258,800 for flood control and 159,900 for low flow augmentation.) Cost of completed new work is $16,570,774 consisting of $7,032,484 Federal funds, $7,797,604 non-Federal contributed funds for low-flow regulation storage and $870,343 Federal cost and $870,343 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by 1958 Flood Control Act, modifying comprehensive plan for Ohio River Basin.

**Local Cooperation.** Section 3, 1944 Flood Control Act applies. Local interests must contribute 54.1 percent of project cost, this being the proportion allocated to low-flow regulation feature, plus a capitalized amount representing that part of average annual maintenance and operation cost allocated to low-flow regulation. State of Indiana assumed this cost-sharing obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

**Operations during fiscal year.** New work. None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $3,499,000 were prevented. Visitor expenditures were $27,120,000.

**Condition at end of fiscal year.** Project is complete and was placed in operation in February 1965. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

**37. NOLIN LAKE, KY**

**Location.** Dam is on Nolin River 7.8 miles above its confluence with Green River, about 70 air miles southwest of Louisville, KY. Reservoir extends upstream about 57 miles and is in Edmonson, Grayson, Hart, and Hardin Counties, KY. (See U.S. Geological Survey maps of Nolin Reservoir and Dickeys Mill, KY.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is rockfill-earth core type with gate-controlled outlet works, and uncontrolled open spillway.

Total storage capacity is 609,400 acre-feet, of which 545,600 acre-feet is for flood control. For further details of project, see Annual Report for 1962, page 1124. Cost of new work is $18,041,556 including $2,594,274 for construction of recreation facilities. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

**Local Cooperation.** None required for authorized project. State of Kentucky contributed $18,195 for increased width of dam for public road. Kentucky assumed responsibility of the Brier Creek site to establish a State Park in 1996. Improvements are planned by Kentucky.

**Operations during fiscal year.** New work: As part of the ongoing Issue Evaluation Study, a geotechnical investigation was performed at the Dam and along the length of the emergency spillway. Activities included the drilling of 20 exploratory borings, installation of 2 new piezometers and replacement of 2 existing piezometers. Replaced the roof on the outlet works control tower. A contract was awarded for a rip rap overlay of the dam to ensure adequate erosion protection, work will be completed in FY 10. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $1,793,000 were prevented. Visitor expenditures were $44,968,000.

**Condition at end of fiscal year.** Construction started in January 1959. Project was completed and placed in operation in March 1963.

### 38. OHIO RIVER BASIN (Louisville District)

**Location.** Works covered by this project are a series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Louisville District.

**Existing project.** Individual projects considered in comprehensive plan within the Louisville District. (See Table 24-B for authorizing legislation and Table 24-I for cost and listing of projects in the basin plan.)

**Operations during fiscal year.** No costs were incurred except for the projects for which individual reports are given.

### 39. PATOKA LAKE, IN

**Location.** Dam site is in Dubois County, IN, 118.3 miles above mouth of Patoka River, and 50 miles west-northwest of New Albany, IN. Reservoir extends into Dubois, Orange, and Crawford Counties. (See Geological Survey map of Cuzco, IN.)

**Existing project.** Reservoir for flood control and allied purposes. Dam is earth and rock fill, 1,550 feet long and 85 feet high, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 301,600 acre-feet (121,000 for flood control and 167,500 for water supply and water quality control). Cost of new work is $76,243,083 of which $56,060,638 is Federal cost for other construction, and $20,182,445 is non-Federal contribution for water supply storage and recreation facilities. Project was authorized by 1965 Flood Control Act, and emergency measures and snagging and clearing the Patoka River downstream of Patoka Lake to ensure effective operation of the project for flood control was directed by 1981 Appropriation Act for Energy and Water Development.

**Local Cooperation.** Local interests are required to reimburse the Federal Government for costs allocated to water supply storage presently estimated at 29.316 percent of the joint-use facilities cost, exclusive of interests, plus $287,000 for the cost of operating and maintaining water supply storage for a period of 50 years, plus $42,000 for the cost of major capital replacements required for water supply storage space for a period of 50 years. Local interests are also required to pay, contribute in kind, or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation. Present laws of the State of Indiana require that agency to make cash contributions during construction of the project. Local interests must also agree to prevent encroachments on channel of Patoka River from dam to mouth, and to pay allocated initial and annual maintenance and operation costs for water supply storage. Formal assurances of local cooperation, executed by the Indiana Natural Resources Commission, were accepted August 27, 1970. Contracts with State of Indiana for water supply and recreation were approved by the Secretary of the Army November 2, 1970.

**Operations during fiscal year.** New work: None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $18,579,000 were prevented. Visitor expenditures were $17,220,000.

**Condition at end of fiscal year.** Construction was started in July 1972. Engineering studies are complete. Real Estate relocation work is complete. All major features are complete. Permanent impoundment was started in February 1978 and the project was placed in operation about August 1980.

### 40. ROUGH RIVER LAKE AND CHANNEL IMPROVEMENT, KY

**Location.** Dam is on Rough River, 89.3 miles above its confluence with Green River, 160.3 miles above Ohio River, and about 60 miles southwest of Louisville, KY. Reservoir extends upstream about 30 miles and is in Breckinridge, Hardin, and Grayson Counties, KY. Channel improvement work is on Rough River, Barnett Creek, and West Fork of Barnett Creek. (See U.S. Geological Survey maps of McDaniels and Falls of Rough, KY.)

**Existing project.** Reservoir is for flood control and allied purposes. Dam is rolled earthfill type, with gate-controlled outlet works. Storage capacity is 334,380 acre-feet, of which 314,210 acre-feet is for flood control. Project also includes channel clearing of lower Rough River, and channel improvement on Barnett Creek, a tributary of Rough River. For further details, see page 1126 of Annual Report for 1962. Cost of completed new

work is $17,389,632 including $890,008 Federal funds and $22,612 non-Federal funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Modification of previously approved plan to include channel improvement items was authorized by the 1944 Flood Control Act.

**Local Cooperation.** None required for construction of reservoir unit. Provisions of Section 3, Flood Control Act of 1936, are applicable to channel improvements. Assurances were obtained from Ohio County for channel improvement. Department of Parks, Commonwealth of Kentucky, has undertaken management of certain lands and recreation facilities in accordance with license granted by Secretary of the Army on August 18, 1961. A contract with the Commonwealth of Kentucky to improve and pave road at the Below Dam Area - State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

**Operations during fiscal year.** New work: ARRA funded shelter at the Tailwater was installed in the area that was once home to the fish hatchery. It will be added an added amenity for the annual Fiddlers Fest in July 2010. Installation began in the Tailwater of an ARRA funded Romtec vault restroom. The Tailwater Recreation area has no public restroom facilities. Electronic Data Collection Platforms (DCPs) were installed at the tower. The DCP provides "near" real time lake level status to the USGS website. The 50 year old motor control center (MCC) in the tower was replaced with a new MCC this rating period. Upon removal of the old MCC it was discovered that the bus bars were arched, wires had been hot, wire covers were skinned and broken, and breakers were worn out. The old MCC is remaining on site until after an area manager meeting to enable us to show other area managers the importance of planning to replace their similar units. Maintenance: Routine maintenance was performed. Deficiencies in the dam at Rough River have been identified through Dam Safety Assurance Program activities. Deficiencies existing at the dam are as follows: Embankment – a sinkhole formed on the downstream face of the dam in fall 2002. Indications are it resulted from the lack of a filter between the interior of the dam and a buried downstream rock toe. Stilling Basin –The stilling basin is inadequate resulting in expensive periodic repairs using Operation and Maintenance funds. Basin needs to be extended to approximately double its present length. Spillway –The spillway is inadequate. Instead of widening the spillway, the road across the dam will be raised 1.5 feet and a 3.5 foot tall highway barrier will be added to the upstream side of the road. That provides additional storage capacity to protect against probable maximum flood event. A Dam Safety

Assurance Evaluation Report (DSAER) defining scope of corrective actions needed for the deficiencies was prepared and approved 1 July 2004. A $2.62 million construction contract for repairs to the rock toe of the embankment and raising the road across the dam was awarded in May 2006. Work on that contract was completed in 7 June 2007. Construction contract for extending the stilling basin was awarded 31 July 2007 and was completed 27 Aug 08. Total cost of repairs is estimated at $7.2 million. During the 2009 flood season estimated damages of $15,497,000 were prevented. Visitor expenditures were $32,490,000.

**Condition at end of fiscal year.** Construction started in November 1955 and reservoir was placed in operation in June 1959. Land acquisition and all major items of construction and relocation are complete. The DSAER was approved 1 July 2004.

### 41. SALAMONIE LAKE, IN

**Location.** Dam site is 3.1 miles above mouth of Salamonie River, which enters Wabash River about 6 miles upstream from Wabash, IN. Reservoir extends upstream about 27 miles at flood control pool and lies in Wabash and Huntington Counties, IN. (See U.S. Geological Survey maps of Lagro and Majenica, IN.)

**Existing project.** Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam with a maximum height of 133 feet and length of 6,100 feet, gate-controlled outlet works with a 16-foot-diameter conduit and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 263,600 acre-feet, of which 250,500 acre-feet is for flood control storage. Cost for new work is $17,653,542 made up of $16,244,356 Federal cost for the initial project and $163,867 non-Federal contributed funds for low-flow augmentation storage and $315,549 Federal cost and $315,549 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958.

**Local Cooperation.** Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe, and Salamonie Lakes under the cost-sharing category of the completed projects program.

**Operations during fiscal year.** New work: None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $17,464,000 were prevented. Visitor expenditures were $11,860,000.

**Condition at end of fiscal year.** Land acquisition and all major construction and relocation contracts are complete. Reservoir was placed in operation in spring 1967. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

### 42. TAYLORSVILLE LAKE, KY

**Location.** Dam site is in Spencer County, KY, 60.0 miles above the confluence of Salt River and Ohio River, 4 river miles above Taylorsville and 36.9 river miles above Shepherdsville, KY. (See U.S. Geological Survey map of Taylorsville, KY.)

**Existing project.** A reservoir for flood control and allied purposes. Dam is an earth and rock fill structure, 164 feet high and 1,280 feet long. Outlet works are slide gate controlled and spillway is uncontrolled open cut. Total storage capacity is 291,670 acre-feet (211,230 for flood control, winter months), and 52,245 for water quality and fish and wildlife. Cost of completed new work is $87,004,456, including $82,991,363 federal funds and $4,013,093 non-federal funds. Project was authorized by 1966 Flood Control Act.

**Local Cooperation.** Local interests must agree to administer project land and water areas for recreation; pay, contribute in kind, or repay (which may be through user fees) with interest one-half of the separable first costs of the project allocated to recreation; bear all costs of operation, maintenance, and replacement of recreation lands and facilities under P.L. 89-72. Local interests must also agree to prevent encroachments on flow-carrying capacities of stream channels below the reservoir to the extent needed to provide reasonably effective reservoir operation. Commonwealth of Kentucky has indicated intent to fulfill requirements for recreation cost sharing and has assumed responsibility for channel encroachments and pollution control. The Commonwealth furnished assurance agreements covering prevention of encroachment on capacity of stream channels in April and May 1973 and executed the recreation cost sharing contract in April 1973. On April 2, 1980, the U.S. District Court for the Western District of Kentucky ruled that the 1973 recreation cost sharing contract between the Commonwealth and the United States that provided for repayment after completion was invalid under the Kentucky Constitution which prohibits one General Assembly from obligating future appropriations that would be binding on a subsequent legislature. In response to the Court's ruling, the Commonwealth and the United States entered into a new contract providing for cash contributions. Contract was approved by the Secretary of the Army June 11, 1980. The contract was found to be valid and enforceable by the Court July 14, 1980.

**Operations during fiscal year.** New work: The right downstream groin ditch gutter (concrete) was removed and replaced by ABS block. Work was completed by contract and cost $154,000. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $9,658,000 were prevented. Visitor expenditures were $18,370,000.

**Condition at end of fiscal year.** Engineering and design studies are complete. Land acquisition is 100 percent complete. Construction was started in June 1974. All major construction items are complete. The dam gates were closed in January 1983 for permanent impoundment. Dedication ceremony was May 28, 1983. Two sections of county road were washed out by heavy rainfall. Both sections were originally upgraded for project operation prior to washout. The repairs were completed by the Corps in 1996-97 at a cost of $700,000.

### 43. WABASH RIVER BASIN

**Location.** Works covered by this project are located in the Wabash River Basin, a drainage area of 33,100 square miles, covering parts of Indiana, Illinois, and Ohio.

**Existing project.** One local protection project and five reservoir projects were authorized for this basin plan. (See Table 24-B for authorizing legislation and Table 24-J for project list and total cost of basin plan.)

### 44. WEST FORK OF MILL CREEK LAKE, OH

**Location.** Dam is on West Fork of Mill Creek 6.5 miles above its junction with Mill Creek and 2 miles northeast of Mount Health, OH, and 10 miles north of downtown Cincinnati. Reservoir extends upstream about 3 miles and is in Hamilton County, OH. (See U. S. Geological Survey map of Glendale, OH.)

**Existing project.** An earth embankment dam and a reservoir for flood control and allied purposes. Total storage capacity of reservoir is 11,300 acre-feet, of which 9,850 acre-feet is for flood control. For further details, see page 1119 of Annual Report for 1962. Cost of completed new work is $4,722,463 made up of $3,092,941 Federal cost for the initial project, $520,800 non-Federal cost for sewer relocation and dam, $50,000 non-Federal contributed funds in fulfillment of project authorization and $529,361 Federal cost and $529,361 non-Federal contribution in kind for recreation facilities under the completed projects program. Existing project selected for construction under additional authorization for Ohio River Basin in 1946 Flood Control Act.

**Local Cooperation.** Local interests were to release necessary land under their control and give assurance that future channel encroachment below dam site would be prevented. For enlargement of reservoir to include a conservation pool, local interests would contribute one-half additional cost of such pool, including one-half cost of relocation of sanitary sewer, and agree to hold the United States free from damages resulting from its provision. Board of County Commissioners of Hamilton County, Ohio, adopted a resolution October 8, 1947, signifying willingness to fulfill requirements including provision of conservation pool. Assurances were executed on same date. A contract with the United States for relocation of sanitary sewer outside reservoir area in order to include conservation pool in project was accepted by Hamilton County, in which the United States paid one-half cost of such relocation work. Hamilton County Commissioners furnished $50,000, required as a local contribution toward additional cost of providing conservation pool. Hamilton County Park District has undertaken development and

management of recreation facilities in reservoir area for use of the public in accordance with the license granted by Secretary of the Army on October 31, 1951. Contract for cost shared recreation development under the completed works program was executed by the Board of Park Commissioners, Hamilton County Park District, Ohio, in September 1975 and approved by the Chief of Engineers in December 1975.

**Operations during fiscal year.** New work: None. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $10,792,000 were prevented. Visitor expenditures were $20,180,000.

**Condition at end of fiscal year.** Construction started in March 1949 and reservoir was placed in operation in December 1952. Project is complete. Cost shared recreation development under the completed projects program is complete.

**45. WILLIAM H. HARSHA LAKE, OH**

**Location.** Dam site is on East Fork of Little Miami River between Batavia and Williamsburg, OH, about 6.0 miles above Batavia and 32.6 miles above mouth of the Little Miami River. Entire project lies in Clermont County, OH. (See U.S. Geological Survey map of Batavia, OH.)

**Existing project.** A reservoir for flood control and allied purposes. It includes an earthfill dam, outlet works, an uncontrolled saddle spillway, and a dike to close a saddle north of spillway. Total storage capacity of reservoir is 294,800 acre-feet, of which 210,600 acre-feet is reserved for flood control storage. Cost of completed new work is $52,023,157 and an estimated $3,485,840 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from East Fork Lake to William H. Harsha Lake effective January 4, 1981, by Public Law 96-383, October 6, 1980.

**Local Cooperation.** None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance, and major capital replacements required for the water supply facilities.

**Operations during fiscal year.** New work: Embedded metals in conduit were sand blasted and had epoxy paint system applied. Paving was completed in operations area including parking lots, roads and boat ramp. Maintenance: Routine maintenance was performed. During the 2009 flood season estimated damages of $4,458,000 were prevented Visitor expenditures were $34,970,000.

**Condition at end of fiscal year.** Construction was started in May 1970. Project is complete and reservoir was placed in operation in February 1978.

**46. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**

Flood Control Act of June 22, 1936, and subsequent acts require local interests to maintain and operate local protection projects in accordance with regulations prescribed by Secretary of the Army. Inspections were made to determine extent of compliance and to advise interests as necessary to measures required to correct deficiencies. (See Table 24-K for the latest dates of inspection performed on the local protection projects, channel improvements, and bank revetments).

**Inspection of Completed Works Program**

**National Levee Database.** LRL's National Levee Database (NLD) and its supporting documentation were accepted from the contractor and delivered to HQ/CRREL during the summer of 2008. LRL was the first district to successfully pass CRREL's validation scripts and be accepted as "final". LRL's NLD is now part of the COE national GIS web viewer CorpsMap. The NLD was completed for the federally constructed projects and it provides current information on each levee project in GIS. It will also be used in the future for such efforts as emergency flood fighting, risk assessments, inspections, and FEMA certification. The NLD will be a living document with maintenance and updating continuing to occur in the future on a quarterly basis. The NLD is scheduled to be completed for the non-federally constructed, operated and maintained levees during the next fiscal year.

**Levee Inspection System** (LIS) – District team members participated in the instruction of the LIS during this FY for 3 training classes for COE personnel and various site agencies at various locations across the country. The LIS which is mandated by HQ for districts to use during levee inspections is a GIS tool that uses GPS to record an inspection issue's location as well as any other relevant information.

Levee System Evaluations (LSE) for FEMA for the National Flood Insurance Program. The Louisville District completed LSEs for the City of Covington, Kentucky and City of Cincinnati, Ohio and initiated a LSE for the Evansville-Vanderburgh Levee Authority District. A positive evaluation was determined for Covington and Cincinnati. Additional LSEs are expected to be accomplished for Harrisburg, Illinois; Jeffersonville, Indiana; and New Albany, Indiana during the next FY.

**I-Walls**. In order for the Corps to further implement lessons learned from Hurricane Katrina in New Orleans, all Corps Districts were required during FY 2009 to perform a Phase II evaluation of the I-Walls greater than 6 feet in height. The District reported 14 of the 16 projects greater than 6 feet in height do not meet the strictest

interpretation of the USACE guidance. Many of the projects were found to have limited subsurface information. Since the construction of many of these projects on the Ohio River, numerous USACE reservoirs were constructed along tributaries to the Ohio River. The storage capacity of these reservoirs reduces the risk associated with a flood event equivalent to 1937, if an identical series of rainfall events were to occur today. On this basis, the Louisville District recommended that 10 projects be scheduled for an additional evaluation after the Phase III Guidance is formulated and provided to the District. Fiscal year costs were $729,487.33.

**47. OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

See Table 24-E.

**48. FLOOD CONTROL WORKS UNDER SPECIAL AUTHORIZATION**

Environmental restoration activities pursuant to Section 1135, 1986 Water Resources Act, as Amended. There was $125,791 in costs for fiscal year 2009. Flood control activities pursuant to Section 205, 1948 Flood Control Act, Public Law 858, 80th Congress, as amended. Cost for fiscal year were $143,301 for five feasibility reports; $89,332 for plans and specifications on two projects; $14,740 for coordination activities, and $3154 for one Planning and Design Analysis report. Reflects federal cost only, for full costs see table 24-L.

Emergency bank protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Congress). Costs for fiscal year were $80,789 for four planning and design analyses. $3782 for coordination activities. and $24,981 for one feasibility report. Reflects federal cost only, for full cost see table 24-L.

Clearing and Snagging (Section 208). Cost for fiscal year was $70 for one Planning Design Analysis.

**EMERGENCY MANAGEMENT and SECURITY BRANCH**

Emergency flood control; activities pursuant to Public Law 99, 84th Congress, and antecedent legislation. The Louisville District participated in the following emergency management activities.

**Civil Disaster Response**. FY09 was another active civil disaster response year for the Louisville District (LRL) Sixteen members of the Debris Planning and Response Team (PRI) continued their deployment to Texas for Hurricane Ike response in October 2008. One team member transferred from Texas when a debris subject matter expert was needed for the response to Hurricane Ike in Louisiana. The district commander declared separate emergencies in response to a major winter ice/snow storm in January 2009, as well as flooding in February, May, and August of 2009. The January 2009 winter storm brought down power lines and trees throughout the entire western half of Kentucky. At the peak of the emergency, an estimated 1.3 million homes and businesses were without power, Kentucky received both an emergency disaster declaration and a major disaster declaration from the Federal Emergency Management Agency (FEMA) and the district received several disaster response missions under those declarations. In February, Indiana experienced moderate flooding on the lower White and Wabash Rivers. The district dispatched several technical assistance teams to evaluate levees damaged during the June 2008 flood. No significant issues were found. In May, Kentucky experienced minor flooding along the Kentucky, Green and lower Ohio Rivers. A flood fight technical assistance team was deployed to the lower Ohio River, but no other assistance was requested. In August, severe thunderstorns dropped over 6 inches of rain in one hour in the Louisville, KY metropolitan area. The storms caused significant damage in parts of Louisville and adjacent counties in Indiana. Sandbags were provided to the Jefferson County Public Schools at the request of the Kentucky Division of Emergency Management.

**Disaster Equipment Resource Center**. LRL retained the Disaster Equipment Resource Center mission in FY 09. The mission includes procurement of all types of special equipment or services that are not part of the normal ESF #3 missions. The center did not receive any missions in FY 09..

**Local Government Liason Program**. LRL continued to support this program in FY09. The District Emergency Manager coordinated the FY09 selection and training of cadre members, as well as the annual doctrine update , which incorporated lessons learned from the Hurricane Ike deployments.

**Assistance to State Governments under Public Law 84-99**. District team members coordinated with both the states of Kentucky and Indiana on emergency related issues during FY09.

Kentucky. Assistance to Kentucky included conducting teleconferences and visits with the Division of Emergency Management and other state agencies, developing hydrology forecasts, providing flood fight assistance and executing mission assignments from FEMA. In Janaury 2009, several tornados touched down in the state during severe storms, but no USACE assistance was requested. In May 2009, a series of storms caused flooding along the Green, Kentucky and Ohio Rivers. As a result, the state requested technical assistance for Smithland and Beattyville. Response costs for this event were $10,163. In August, a severe storm caused flooding in metropolitian Louisville. As a result , the state requested sandbags for the Jefferson County School System. Response costs for this event were $1,271.

Indiana. In February 2009, high water on the Wabash River prompted the district commander to declare an emergency. A liaison officer was dispatched to the state Emergency Operations Center (EOC). Several technical assistance teams were sent out to assess the levees that were repaired after the June 2008 flood. Response costs

were $22,942. District personnel conducted an assistance visit to the state EOC in December 2008.

Illinois. Although response to Illinois is not a normal LRL function, LRL continued to support local levee sponsors on the Illinois side of the Wabash River. Work continued to repair levees that were damaged in the June 2008 flood. The Russell-Allison Levee required an emergency repair in February 2009. Response costs were $39,562. LRL flood fight teams also assessed levee repairs on the Illinois side of the Wabash River during high water in February 2009.

**Support to the Federal Emergency Management Agency (FEMA).** The state of Kentucky received an emergency disaster declaration (FEMA-3302-EM-KY), then a major disaster declaration (FEMA-1818-DR-KY) from FEMA as a result of the January 2009 winter storm. Lakes and Rivers Division (LRD) received mission assignments from FEMA under Emergency Support Function #3 (ESF#3) of the National Response Framework. LRD assigned LRL to execute those mission assignments. The FEMA missions under the emergency declaration included an emergency power mission for generator installation and a debris clearance mission. The emergency power and debris clearance missions continued under the major disaster declaration. Additional mission assignments for assistance to FEMA. Public Assistance as well as debris technical assistance were also issued

Power. The Power Planning and Response Team (PRT) from the Pittsburg District executed the emergency power mission, along with a team from the 249th Prime Power Battalion. Initially, the pace of generator installations did not meet customer expectations. The power PRT and their contractor were delayed by the weather conditions and the state did not have a prioritized list of critical facilities. The district commander worked with the state emergency management director to form a joint state-federal task force to prioritize and manage generator installations. The task force was able to pick up the pace, and by the end of the mission, the team had installed more generators (145) in 6 days without notice than were installed for Hurricane Gustav (105) in 10 days, despite several days notice before Gustav made landfall. As power returned across the state, the task force shifted from generator installations to critical facility assessments. Critical facility assessments document the generator size and installation requirements for a site, which speeds up the installation process. Teams completed 2,318 facility assessments. Estimated cost of response for these missions was $3,986,342

Debris. Although LRL has a Debris PRT, LRD requested augmentation by a Debris PRT from outside the affected area. The Debris PRT from the Sacramento District executed the debris clearance mission with the assistance of debris personnel from the Louisville District. Unlike the coastal states, USACE does not have a pre-awarded debris removal contract that covers Kentucky, so the team's first task was developing a scope of work and awarding an emergency contract. Proposals were requested from the contractors who held pre-awarded debris removal contracts in the Advanced Contracting Initiative Single Award Task Order Contract (ACI SATOC) program. Phillips and Jordan, Inc. was the low bidder and was awarded the contract on 31 Jan 09. On 1 Feb, a rival contractor filed a bid protest with the Government Accounting Office (GAO). The Phillips and Jordan contract was suspended after 2 days of debris clearance. The district Operations Indefinite Delivery/Indefinite Quantity (IDIQ) contractor was awarded a task order for debris clearance on 3 Feb 09 and continued the debris clearance work. Another protest was received and the IDIQ contractor was ordered to stop work on 6 Feb 09. Between the two contracts, a total of 833 miles of roadways were cleared. Subsequently, the state highway department took over the debris clearance mission. Key members of the Debris PRT provided assistance and reviewed the state's debris removal contract. USACE also staffed a FEMA Debris Hotline with several debris specialists from the Mobile District under a separate mission assignment for debris technical assistance. Estimated cost of response for these missions was $946,078.

Public Assistance Support. USACE received a mission assignment to assist the FEMA Public Assistance staff. The initial scope of the assignment was to provide personnel to prepare project worksheets, which are the documents that FEMA uses as the basis of reimbursement to local communities. However, the mission assignment language also included monitoring of local government debris operations. LRD and LRL agreed to use members of the USACE Retired Annuitants (RAO) program for the mission. The initial group of 30 RAOs reported to FEMA on 12 Feb 09 and a second group of 30 reported on 18 Feb 09. This mission was not a typical mission assignment. Normally, FEMA assigns USACE a specific task and USACE maintains full control of the personnel who are accomplishing the task. For this mission, USACE supplied the personnel but, for the first 2 months, there was no USACE oversight. The lack of USACE oversight had several impacts. The project worksheet task required personnel with different skills than the debris monitoring task. FEMA Public Assistance personnel were moving USACE personnel between the two tasks with no regard for the individual's skills, past training or grade. When the issue became apparent to the district, LRL deployed a mission manager to oversee the USACE personnel and assist FEMA in getting the right people in the right place. The mission continued until 30 Jun 09. Estimated cost of response for the mission was $4,453,623.

**Rehabilitation efforts under Public Law 84-99**. Repairs continued on levee systems damaged by flooding in the Wabash River Basin in June 2008. Repairs that began in FY08 were completed in early FY09 on Ambraw Levee (Lawrence County, Illinois); Russell-Allison Levee (Lawrence and Crawford Counties, Illinois); Sainte Marie Levee (Jasper County, Illinois); and Honey Creek Levee (Vigo County, Indiana). All are non-federal levees that were breached during the June 2008 flooding. Repairs were also completed on the federally constructed Brevoort (Knox County, Indiana) and Gill Township (Sullivan County, Indiana) Levees. Field investigation and design work continued on the federally constructed England Pond (Lawrence County, Illinois) and Mason J. Niblack (Knox and Sullivan Counties, Indiana) Levees, and repairs are scheduled for completion in FY10. The Brevoort, Gill Township, England Pond, and Niblack Levees were not breached but did suffer seepage and erosion damage during the 2008 flooding. FY09 costs for engineering, design and construction were $7,098,448.

One of the repaired areas at the Russell-Allison Levee exhibited unacceptable settlement and cracking following the initial repairs. An emergency repair was successfully completed in February 2009, prior to moderate flooding on the Wabash River. The cost of the emergency repair was $39,562.

**Geographic Information Systems (GIS).** Mission models for USACE primary response missions of debris, ice and water commodities, temporary roofing and temporary housing were updated and received considerable use, considering it was thought by many to be a quiet hurricane season with minimal CONUS affects. During Hurricane season 2009, LRL Emergency Management GIS staff tracked twelve Atlantic basin storms, four near-Pacific Basin storms and seven far-Pacific Basin storms. A new application was developed to assist the temporary power mission for Hurricane Ike (2008) and received considerable use supporting temporary Power Missions for the Jan-Feb 2009 Ice Storms in Arkansas and Kentucky. This departure from the normal procedure of deploying staff to the disaster area proved highly effective in terms of workflow and also saved considerable expense, with no travel and per diem required to accomplish the mission support for the Arkansas event. The development of LOUIE (LOUisville District Information Exchange), tools for ArcGIS 9.3 and successor to OPIE (OPerations Information Exchange) tools for ArcView 3.x was completed and distributed to all twenty lakes offices, the three regulatory field offices and the District Office. Over one hundred users now use the LOUIE tools and associated datasets, ranging from occasional to daily use.

**Inland Electronic Navigation Chart** Production of Inland Electronic Navigational Charts (IENC) continued. LRL is responsible for all quality control and some new production of the LRD's electronic charts. Updates and maintenance of the Ohio, Monongahela, Kanawha, Green, Cumberland, Tennessee, and Allegheny Rivers is on-going; to date, 45 IENCs are being maintained by LRL for LRD. Additionally, a representative from LRL serves as the Production Manager for the IENC program, overseeing the budget and chart maintenance and production for the 15 districts involved in the IENC program. LRL also continues to provide a representative to the International IENC Harmonization Group (IEHG), a group whose primary goal is to develop a standard for Inland ENCs that is usable for charting inland waterways world-wide.

**Critical Infrastructure Security Program** . Critical Infrastructure Security Program (CISP): Over the past year, the last of the eleven CISP project's Electronic Security System (ESS) installations was completed and approved for final acceptance. Bringing the final CISP project site on-line and operational also allowed for the final acceptance of the Central Monitoring System (CMS). The CMS yields ability to monitor and control the ESS and security cameras at all eleven CISP sites from one remote location. The CISP biennial Physical Security Inspections are underway and will be completed over the next few weeks. One year ESS software license extensions were purchased for all eleven projects and CMS. ESS equipment repair and service work has been addressed case by case as failures occur. A Service and Maintenance Contract to provide repair, replacement, cleaning and scheduled preventive maintenance is our next goal, subject to funding availability.

**FEMA Certification.** Certification of local flood protection projects for FEMA will become a significant effort for the Corps during the next few years. During the FY, efforts

continued with FEMA to outline the communities and projects where Map Modernization (MAPMOD) mapping was already being initiated in order to prioritize the flood protection projects where the Corps may be requested to perform certification efforts. The Louisville District is scheduled to perform certifications for several projects in FY 09.

**General Investigations**

**49. SURVEYS**

Fiscal year costs was $15,460 for one navigation study; $53,385 for three flood damage prevention studies; $49,821 for four miscellaneous activities. Reflects Federal cost only, for full cost see Table 24-M.

**50. PRECONSTRUCTION ENGINEERING AND DESIGN**

Fiscal year costs were $39,466 for two flood control projects. Reflects Federal cost only, for full cost see Table 24-M.

## 51. COORDINATION WITH OTHER AGENCIES

Fiscal year total cost was $6,929 for one coordination with other agencies project and $312,541 for thirteen planning assistance to states projects. Reflects federal cost only, for full costs see Table 24-M.

## 52. COLLECTION AND STUDY OF BASIC DATA

Fiscal year total cost was $64,584 for three flood plain management projects.

**TABLE 24-A CONTINUED**

## COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 |
|---|---|---|---|---|---|---|---|
| | **Navigation - Channels and Harbors** | | | | | | |
| 1 | Open Channel Work, | New Work | | | | | |
| | Licking River, KY | Approp. | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | | Cost | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 |
| | | Maint. | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 187,816 |
| | | Cost | 0 | 0 | 0 | 0 | 187,816 |
| 3 | **Navigation - Locks and Dams** | | | | | | |
| | Green and Barren | New Work | | | | | |
| | Rivers, KY | Approp. | 0 | 0 | 0 | 13,808,222 | 13,808,222 [1] |
| | | Cost | 0 | 0 | 0 | 13808,222 | 13,808,222 |
| | ARRA | New Work | 0 | 0 | 0 | 0 | |
| | | Approp | 0 | 0 | 0 | 825,116 | 825,115 |
| | | Cost | 0 | 0 | 0 | 44,210 | 44,210 |
| | | Maint. | | | | | |
| | | Approp. | 1,545,000 | 1,754,376 | 3,832,000 | 2,914,520 | 67,371,407 [2] |
| | | Cost | 1,500,385 | 1,799,435 | 3,807,420 | 2,215,122 | 66,643,888 |
| 4 | Kentucky River, KY | New Work | | | | | |
| | | Approp. | 0 | 0 | 0 | | 8,387,439 [3] |
| | | Cost | 832,586 | 58,729 | 1307 | 5,717 | 8,312,865 |
| | | Maint. | | | | | |
| | | Approp. | 4,000 | 3,924 | 19000 | 9,800 | 85,436,304[4] |
| | | Cost | 3,525 | 4,399 | 0 | 9,621 | 85,421,049 |
| | | Minor Rehab. | | | | | |
| | | Approp. | 0 | 0 | 0 | 0 | 556,956 |
| | | Cost | 0 | 0 | 0 | 0 | 556,956 |
| | **Flood Control, Local Protection** | | | | | | |
| 8 | Beargrass Creek, | New Work | | | | | |
| | Kentucky | Approp. | 461,048 | 600,000 | - | | 11,844,923 [5] |
| | | Cost | 1,416,054 | 834,656 | 88,746 | 20,981 | 11,628,741 |
| 9 | Combined Sewer Overflows | New Work | | | | | |
| | City of Indianapolis, IN | Approp. | 426,000 | 1,163,000 | - | | 3,782,666 [8] |
| | | Cost | 273,439 | 150,227 | 91,625 | 105,026 | 2,340,558 |
| 10 | Duck Creek, OH | New Work | | | | | |
| | | Approp. | 1,633,000 | 5,650.000 | 11,119,000 | 3,828,000 | 42,663,800 [6] |
| | | Cost | 2,076,602 | 904,521 | 5,390,612 | 9,060,861 | 36,911,584 |
| | ARRA | New Work | | | | | |
| | | Approp | | | | 8,813,000 | 8,813,000 |
| | | Cost | | | | 35,607 | 35,607 |
| 11 | Holes Creek, OH | New Work | | | | | |
| | | Approp. | | | 1,476,000 | 1,244,000 | 12,939,265 [7] |
| | | Cost | 175,930 | 9,934 | 668,598 | 304,167 | 11,186,990 |
| 12 | Louisville Waterfront Park | New Work | | | | | |
| | Louisville, KY | Approp. | 612,000 | - | - | | 1,615,000 [9] |
| | | Cost | 184,827 | 34,144,905 | 31,871 | 18,074 | 1,509,067 |

**TABLE 24-A**
**CONTINUED**

# COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 13 | Mill Creek, OH | New Work | | | | | | |
| | | Approp. | | 64,103 | - | | 114,411,878 | 10 |
| | | Cost | 22,649 | 64,221 | - | | 114,411,868 | |
| 14 | Mt. Zion Dam, Fulton Co, IN | New Work | | | | | | |
| | | Approp | | | | $120,000 | 120,000 | |
| | | Cost | | | | 37,039 | 37,039 | |
| 15 | Ohio Environmental | New Work | | | | | | |
| | Infrastructure Section | Approp. | 3,448,400 | 8,947,202 | 4,089,000 | 5,000,000 | 24,906,602 | |
| | 594 Program | Cost | 562,542 | 1,513,667 | 548,587 | 2,273,571 | 11,134,393 | |
| 16 | Ohio River Flood | New Work | | | | | | |
| | Protection (Indiana | Approp. | 140,000 | - | 1,498,000 | | 6,635,383 | 11 |
| | Shoreline), IN | Cost | 171,188 | 283,992 | 113,598 | 610,800 | 5,706,795 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 700,500 | 700,500 | |
| | | Cost | | | | | | |
| 17 | Ohio River Greenway | New Work | | | | | | |
| | Public Access, IN | Approp. | 4,430,000 | 600,000 | 983,000 | 957,010 | 13,536,196 | 12 |
| | | Cost | 683,560 | 2,151,271 | 1,305,497 | 918,423 | 11,327,677 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 340,000 | 340,000 | |
| | | Cost | | | | | | |
| 18 | Ohio Riverfront | New Work | | | | | | |
| | Cincinnati, Ohio | Approp | | | 936,000 | 2,871,000 | 2,871,000 | |
| | | Cost | | | 131,806 | 785,633 | 785,633 | |
| 19 | Pond Creek, | New Work | | | | | | |
| | Louisville , KY | Approp. | 58,000 | 8,523,306 | - | | 19,011,642 | 13 |
| | | Cost | 143,058 | 1,163,538 | 4,317,443 | 1,008,713 | 16,659,871 | |
| 20. | Salyersville, KY | New Work | | | | | | |
| | | Approp. | 0 | - | - | - | 8,480,019 | 14 |
| | | Cost | 45,592 | - | - | | 8,464,688 | |
| 21. | Southern & Eastern, KY | New Work | | | | | | |
| | Environmental Infrastructure | Approp. | 235,600 | 35,000 | 272,000 | | 5,401,600 | 15 |
| | Section 531 Program | Cost | 95,286 | 155,944 | 74,062 | 311,365 | 4,933,942 | |
| 22. | White River, Indpls | New Work | | | | | | |
| | Central Waterfront, IN | Approp. | 0 | - | - | - | 56,756,000 | 16 |
| | | Cost | 66,816 | 4,497 | - | | 56,596,389 | |
| 23 | White River, Indpls | New Work | | | | | | |
| | (North), IN | Approp. | 3,086,000 | 2,787,000 | 3,192,000 | 2,536,000 | 23,541,573 | 17 |
| | | Cost | 459,453 | 2,639,443 | 3,218,896 | 1,719,796 | 18,844,929 | |

**TABLE 24-A**
**CONTINUED**

# COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| | **Flood Control - Reservoirs** | | | | | | | |
| 24 | Barren River Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 27,479,717 | 18 |
| | | Cost | 0 | - | - | | 27,479,717 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 2,437,000 | 2,437,000 | |
| | | Cost | | | | 404,212 | 402,212 | |
| | | Maint. | | | | | | |
| | | Approp. | 2,651,000 | 2,267,234 | 2,214,000 | 5,698,996 | 61,508,297 | 19 |
| | | Cost | 2,512,696 | 2,632,968 | 2,199,156 | 2,723,820 | 58,495,891 | |
| 25 | Brookville Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | - | 5000 | 300,000 | 45,707,565 | 20 |
| | | Cost | 0 | - | - | 286,214 | 45,688,779 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 163,612 | 163,612 | |
| | | Cost | | | | 57,636 | 57,636 | |
| | | Maint. | | | | | | |
| | | Approp. | 659,000 | 624,297 | 794,000 | 1,500,380 | 20,177,069 | 21 |
| | | Cost | 699,454 | 644,719 | 668,887 | 1,001,357 | 19,542,651 | |
| 26 | Buckhorn Lake, KY | New Work | | | | | | |
| | | Approp. | | - | - | | 12,466,206 | 22 |
| | | Cost | | - | - | | 12,466,206 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 929,000 | 929,000 | |
| | | Cost | | | | 205,159 | 205,159 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,054,000 | 1,270,494 | 1,548,500 | 2,212,840 | 36,221,361 | 23 |
| | | Cost | 1,018,022 | 1,295,977 | 1,458,674 | 1,542,838 | 35,450,399 | |
| 27 | Caesar Creek Lake, OH | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 62,881,010 | |
| | | Cost | 0 | - | - | | 62,881,010 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 2,619,306 | 2,619,306 | |
| | | Cost | | | | 285,454 | 285,454 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,078,000 | 1,241,375 | 1,720,000 | 1,955,100 | 30,373,198 | 24 |
| | | Cost | 1,062,201 | 1,041,444 | 1,634,014 | 1,612,148 | 29,727,149 | |
| 28 | Cagles Mill Lake, IN | New Work | | | | | | |
| | | Approp | 0 | - | - | - | 4,369,997 | 25 |
| | | Cost | 0 | - | - | - | 4,369,997 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 53,000 | 53,000 | |
| | | Cost | | | | 28,750 | 28,750 | |
| | | Maint. | | | | | | |
| | | Approp. | 533,000 | 604,982 | 728,000 | 1,866,900 | 19,359,531 | |
| | | Cost | 522,635 | 603,211 | 716,243 | 1,110,621 | 18,579,337 | |

**TABLE 24-A**
**CONTINUED**

## COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 29 | Carr Creek Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 51,854,826 | 26 |
| | | Cost | | 22,902 | | | 50,890,207 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 414,000 | 414,000 | |
| | | Cost | | | | 280,313 | 280,313 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,617,000 | 1,348,703 | 1,525,500 | 1,634,640 | 36,052,356 | 27 |
| | | Cost | 1,549,950 | 1,360,610 | 1,496,439 | 1,490,734 | 35,825,547 | |
| 30 | Cave Run Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 81,159,541 | 28 |
| | | Cost | 0 | - | - | | 81,159,541 | |
| | | Maint. | | | | | | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 75,000 | 75,000 | |
| | | Cost | | | | 62,996 | 62,996 | |
| | | Maint | | | | | | |
| | | Approp. | 648,000 | 834,059 | 961,000 | 998,620 | 21,715,232 | 39 |
| | | Cost | 639,771 | 724,589 | 925,095 | 1,033,135 | 21,596,066 | |
| 31 | Cecil M. Hardin Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | 793,192 | | | 6,987,807 | 30 |
| | | Cost | 0 | 782,945 | | | 6,987,807 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 53,000 | 53,000 | |
| | | Cost | | | | 36,076 | 36,076 | |
| | | Maint. | | | | | | |
| | | Approp. | 610,000 | 793,192 | 847,000 | 1,126,631 | 22,273,913 | |
| | | Cost | 603.622 | 782,945 | 820,583 | 1,136,473 | 22,240,274 | |
| 32 | Clarence J. Brown Dam & Reservoir, OH | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 22,083,660 | 31 |
| | | Cost | 0 | - | - | | 22,083,660 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 96,000 | 96,000 | |
| | | Cost | | | | 69,156 | 69,156 | |
| | | Maint. | | | | | | |
| | | Approp. | 772,000 | 760,154 | 2,038,000 | 2,292,220 | 23,482,579 | |
| | | Cost | 929,646 | 782,393 | 918,894 | 2,062,708 | 22,114,726 | |
| 33 | Green River Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | 750,000 | 250,000 | 34,462,330 | 32 |
| | | Cost | 0 | - | 648,225 | 304,381 | 34,414,936 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 1,730,000 | 1,730,000 | |
| | | Cost | | | | 413,423 | 413,423 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,759,000 | 2,001,329 | 1,971,000 | 4,495,260 | 54,061,763 | 33 |
| | | Cost | 1,749,164 | 1,963,350 | 1,989,980 | 2,003,711 | 51,540,851 | |

**TABLE 24-A CONTINUED**

## COST AND FINANCIAL STATEMENT

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 34 | J. Edward Roush Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | 0 | 925,000 | 40,000 | 20,586,777 | 34 |
| | | Cost | 0 | 0 | 655,742 | 297,602 | 20,575,121 | |
| ARRA | | New Work | | | | | | |
| | | Approp | | | | 61,000 | 61,000 | |
| | | Cost | | | | 47,956 | 47,956 | |
| | | Maint. | | | | | | |
| | | Approp. | 571,000 | 1,206,775 | 1,588,000 | 2,857,680 | 23,299,700 | |
| | | Cost | 556,638 | 1,201,520 | 801,650 | 1,855,364 | 22,491,238 | |
| 35 | Mississinewa Lake, IN | New Work | | | | | | |
| | | Approp. | 1,912,050 | 43,897 | - | | 79,427,547 | 35 |
| | | Cost | 1,776,233 | 73,248 | 2,400 | 20,454 | 79,341,120 | |
| ARRA | | New Work | | | | | | |
| | | Approp | | | | 52,000 | 52,000 | |
| | | Cost | | | | 51,433 | 51.433 | |
| | | Maint. | | | | | | |
| | | Approp. | 642,000 | 687,373 | 897,000 | 955,500 | 21,843,982 | |
| | | Cost | 659,319 | 712,403 | 843,585 | 879,594 | 21,696,397 | |
| 36 | Monroe Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 16,570,774 | 36 |
| | | Cost | 0 | - | - | | 16,570,774 | |
| ARRA | | New Work | | | | | | |
| | | Approp | | | | 155,000 | 155,000 | |
| | | Cost | | | | 61,791 | 61,791 | |
| | | Maint. | | | | | | |
| | | Approp. | 608,000 | 759,126 | 898,000 | 1,206,380 | 21,390,960 | 37 |
| | | Cost | 602,033 | 760,120 | 845,857 | 840,616 | 20,966,814 | |
| 37 | Nolin Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | 895,000 | 325,000 | 18,413,278 | 38 |
| | | Cost | 0 | - | 848,278 | 361,005 | 18,402,561 | |
| ARRA | | New Work | | | | | | |
| | | Approp | | | | 2,904,100 | 2,904,100 | |
| | | Cost | | | | 496,183 | 496,183 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,852,000 | 1,849,000 | 2,387,000 | 3,047,962 | 59,350,193 | 39 |
| | | Cost | 1,852,591 | 1,851,316 | 2,374,116 | 2,200,426 | 58,484,225 | |
| 38 | Ohio River Basin (Louisville District) | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 1,526,142 | |
| | | Cost | 0 | - | - | | 1,526,142 | |
| 39 | Patoka Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | - | - | 142,000 | 76,771,008 | 40 |
| | | Cost | 0 | - | - | 12,060 | 76,255,145 | |
| ARRA | | New Work | | | | | | |
| | | Approp | | | | 61,000 | 61,000 | |
| | | Cost | | | | 33,265 | 33,265 | |
| | | Maint. | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Approp. | 549,000 | 672,592 | 881,000 | 1,046,640 | 16,957,590 |
| | Cost | 529,610 | 679,187 | 798,915 | 749,554 | 16,565,585 |

**TABLE 24-A CONTINUED** **COST AND FINANCIAL STATEMENT**

| See Section in Text | Project | Funding | 2006 | 2007 | 2008 | 2009 | Total to Sep 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 40 | Rough River Lake & | New Work | | | | | | |
| | Channel Improvement, | Approp. | 2,452,000 | 4,191,000 | | 300,000 | 18,083,001 | 41 |
| | KY | Cost | 567,931 | 2,851,431 | 2,656,691 | 425,239 | 17,565,679 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 1,278,000 | 1,278,000 | |
| | | Cost | | | | 563,442 | 563,442 | |
| | | Maint. | | | | | | |
| | | Approp. | 1,958,000 | 2,749,931 | 2,458,000 | 2,592,350 | 59,619,642 | 42 |
| | | Cost | 1,959,819 | 2,692,091 | 2,273,718 | 2,371,087 | 59,153,548 | |
| 41 | Salamonie Lake, IN | New Work | | | | | | |
| | | Approp. | 0 | - | 675,000 | 210,000 | 17,924,321 | 43 |
| | | Cost | 0 | -- | 614,221 | 254,603 | 17,908,145 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 54,000 | 54,000 | |
| | | Cost | | | | 53,589 | 53,589 | |
| | | Maint. | | | | | | |
| | | Approp. | 564,000 | 1,050,927 | 715,000 | 1,115,240 | 18,669,415 | |
| | | Cost | 532,166 | 1,057,397 | 679,817 | 872,005 | 18,364,749 | |
| 42 | Taylorsville Lake, KY | New Work | | | | | | |
| | | Approp. | 0 | - | - | | 87,004,456 | 44 |
| | | Cost | 0 | - | - | - | 87,004,456 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 90,000 | 90,000 | |
| | | Cost | | | | 74,355 | 74,355 | |
| | | Maint. | | | | | | |
| | | Approp. | 708,000 | 933,621 | 884,000 | 1,193,640 | 21,734,773 | |
| | | Cost | 702,817 | 900,827 | 891,673 | 1,109,757 | 21,620,483 | |
| 44 | West Fork of Mill | New Work | | | | | | |
| | Creek Lake, OH | Approp. | 0 | - | - | | 4,722,463 | 45 |
| | | Cost | 0 | - | - | | 4,722,463 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 6,000 | 6000 | |
| | | Cost | | | | 5,957 | 5,957 | |
| | | Maint | | | | | | |
| | | Approp. | 421,000 | 421,315 | 598,000 | 786,940 | 14,033,276 | |
| | | Cost | 467,657 | 480,601 | 550,021 | 569,428 | 13,751,120 | |
| 45 | William H. Harsha | New Work | | | | | | |
| | Lake, OH | Approp. | 0 | - | - | | 52,023,157 | 46 |
| | | Cost | 0 | - | - | | 52,023,157 | |
| | ARRA | New Work | | | | | | |
| | | Approp | | | | 375,000 | 375,000 | |
| | | Cost | | | | 56,566 | 56,566 | |
| | | Maint. | | | | | | |
| | | Approp. | 629,000 | 782,478 | 1,131,000 | 1,670,900 | 20,880,767 | 47 |
| | | Cost | 628,434 | 752,950 | 933,508 | 1,094,286 | 20,072,054 | |

1 Includes $85,000 public works funds.

2 Includes $2,000 emergency relief funds, $204,444 “maintenance and operation of dams and improvements of navigable waters” and $3,842,667 expended from 1888 to 30 June 1936, for operation and care from permanent indefinite appropriation. Includes $725,715 from Productive Employment Appropriation Act (PL 98-8) of 1983.

3 Includes $693,690 (non-federal) contributed funds received and $690,103 (non-federal) expended to date

4 Includes $316,871 under “maintenance and operation of dams and other improvements of navigable waters”, and $6,405,372 expended between July 5, 1885 and June 30, 1937 on operation and care from permanent indefinite appropriation. Includes $149,700 from Productive Employment Appropriation Act (PL 98-8) of 1983. Includes $57,000 (non-federal) contributed funds received and $45,194 (non-federal) expended to date.

5 Includes $1,977,548 (non-federal) contributed funds received and $1,977,492 (non-federal) expended to date

6 Includes $2,033,099 (non-federal) contributed funds received and $1,451,583 (non-federal) expended to date

7 Includes $418,970 (non-federal) contributed funds received and $418,965 (non-federal) expended to date

8 Includes $945,666 (non-federal) contributed funds received and $503,282 (non-federal) expended to date

9 Includes $400,000 (non-federal) contributed funds received and $405,513 (non-federal) expended to date

10 Includes $967,399 (non-federal) contributed funds received and $965,123 (non-federal) expended to date.

11 Includes $1,878,902 (non-federal) contributed funds received and $1,402,652(non-federal) expended to date

12 Includes $4,862,000 (non-federal) contributed funds received and $3,491,316 (non-federal) expended to date

13 Includes $964,000 (non-federal) contributed funds received and $677,527 (non-federal) expended to date

14 Includes $684,843 (nonfederal) cont funds received and $560,819 (non-federal) expended to date

15 Includes $917,572 Code 511 funds and $4,212,028 Code 772 funds received and $917,572 Code 511 funds and $3,630,993 Code 772 funds expended to date.

16 Includes $4,227,000 (non-federal) contributed funds received and $4,122,096 (non-federal) expended to date.

17 Includes $ 4,803,000 (non-federal) contributed funds received and $3,631,460 expended to date.

18 Includes $2,224,948 Code 711 funds, $110,107 Code 713 Federal funds and $108,418 Code 713 non-Federal funds.

19 Includes $100,000 Supplemental funds; $326,900 Special Recreation Use Fees; and $668,025 "maintenance & operation of dams and other improvements of navigable water". Includes $53,000 Code 70B FY08 War Supplemental Recent Natural Disasters

20 Includes $7,497,492 (non-federal) contributed funds and $100,706 Code 711 funds, also includes $5000 Code 801 funds.

21 Includes $3,511 "maintenance and operation of dams and other improvements of navigable water."

22 Includes $61,451 public work acceleration executive 1963 funds, $143,088 Code 711 funds, and $243,619 Code 712 funds.

23 Includes $52,240 Special Recreation Use Fees and $336 “maintenance and operation of dams and other improvements of navigable water.”

24 Includes $5,476 "maintenance and operation of dams and other improvements of navigable water" and $15,000 non-federal contributed funds.

25 Includes $35,814 Code 711 funds, $113,321 Code 713 funds, and $113,094 (non-federal) contributed funds received and expended to date.

26 Includes $76,724 Code 711 funds.

27 Includes $51,854 Special Recreation Use Fees.

28 Includes $6,900,000 of U.S. Forest Service Funds.

29 Includes $8,126 "maintenance and operation of dams and other improvements of navigable water."

30 Includes $19,683 Code 711 funds, $353,995 Code 713 funds, & $353,995 non-Federal contributions in kind for recreation facilities.

31 Includes $573 “maintenance and operation of dams and other improvements of navigable water”.

32 Includes $133,413 Code 711 funds, $183,732 Code 713 funds, and $40,001(non-federal) contributed funds also includes $750,000 Code 801 funds.

33 Includes $114,280 Special Recreation Use Fees and $664,025 under "maintenance and operation of dams and other improvements of navigable water".

34 Includes $155,354 Code 713 funds and $193,422 (non-federal) contributed funds received and expended to date also includes $925,000 Code 801 funds.

35 Includes $215,000 Code 711 funds, $174,392 Code 713 funds, $239,200 (non-federal) contributed funds and $174,392 non-Federal contribution in kind for recreational facilities, $53,133,872 in Code 817 funds for major rehab..

36 Includes $1,185 Code 711 funds, $869,158 Code 713 funds, $7,797,604 contributed funds and $870,343 non-Federal contribution in kind for recreational facilities.

37 Includes $54,460 from Productive Employment Appropriation Act (PL 98-8) of 1983.

38 Includes $21,897 public works acceleration executive 1963 funds and $2,594,274 Code 711 funds received and expended to date, also includes $895,000 Code 801 funds

39 Includes $204,920 Special Recreation Use Fees and $52,000 Supplement Funds, $527,225 "maintenance and operation of dams and other improvements of navigable water".

40 Includes $20,568,369(non-federal) contributed funds received and $20,182,445 (non-federal) expended.

41 Includes $196,306 public works acceleration executive 1963 funds and $867,396 Code 711 funds, $22,612 Code 713 funds, and $22,612 (non-federal) contributed funds and $7,140,000 Code 540 funds.

42 Includes $236,640 Special Recreation Use Fees and $668,025 under "maintenance and operation of dams and other improvements of navigable water".

43 Includes $315,549 Code 713 funds, $163,867(non-federal) contributed funds, and $315,549 non-Federal contribution in kind for recreation facilities received and expended to date. Includes $675,000 Code 801 Funds

44 Includes $4,013,093 (non-federal) contributed funds received and expended to date.

45 Includes $529,361 Code 713 funds, $50,000 (non-federal) contributed funds, $529,361 non-Federal contribution in kind for recreation facilities, and $520,000 non-Federal cost for sewer relocation and dam.

46 Includes $58,571 for preconstruction planning, engineering and design completed before FY 1953.

47 Includes $8,764 "maintenance and operation of dams and other improvements of navigable water."

TABLE 24-B AUTHORIZING LEGISLATION

| Acts | Work Authorized | Documents |
|---|---|---|
| | **GREEN AND BARREN RIVERS, KY (See Section 3 of Text)** | |
| Aug 11, 1888 | Purchase of original improvement | H. Doc 111, 49th Cong., 2d Sess., Ann. Rept. 1887, p.1903 |
| Mar 3, 1893 [1] | Construction of Lock 2, Green River | Annual Report, 1891, p. 2439 |
| Jul 13, 1892 | Construction of Lock 5, Green River | |
| Jul 13, 1902 | Construction of Lock 6, Green River | Annual Report, 1891, p. 2478 |
| Mar 3, 1905 [2] | Appropriated $5,000 for continuing improvements of Green River above mouth of Big Barren River, with provision "That the Secretary of War may, in his discretion, expend such portion of said amount as may be necessary for removal of snags in Nolin River." | |
| Mar 3, 1909 | Construct new Lock 1 and new Lock and Dam 2, Green River | S. Doc. 82, 83d Cong., 2d Sess. |
| Jul 3, 1930 [2] | Construct new locks at Dam 5, Green River and Dam 1, Barren River; modification of Dam 5, Green River, widens bends in Bear Creek, KY | Rivers and Harbors Committee Doc. 2, 71st Cong., 1st Sess., and H. Doc. 685, 69th Cong., 2d Sess. |
| Jun 26, 1934 [3] | Operation and care of locks and dams with War Department Appropriations for rivers and harbors | |
| Aug 30, 1935 [2] | Improvement of Nolin River | H.D. 480, 72d Cong., 2d Sess. |
| Sep 3, 1954 | Channel enlargement of lower 103 miles of Green River revocation of authorities for improvement of Bear Creek and Nolin River | S.D. 82, 83d Congress, 2d Sess. |
| | **KENTUCKY RIVER (See Section 4 of Text)** | |
| 1879 | Existing project was adopted | H. Ex, Doc 47, 45th Cong., 3d Sess., Ann. Rept. 1879, p.1398 |
| Jun 26,1934 [3] | Operation and care of locks and dams | |
| Nov 17, 1986 | Authorized disposition of Kentucky River Locks & Dams 5 through 14 without any construction cost | Public Law 99-662, 99th Congress 2nd Session |
| 1992 | Appropriated not more than $300,000 to identify the most critical repair items to enhance the dependability of the dams for their water supply function prior to transfer to the Commonwealth of Kentucky | Public Law 102 – 102nd Congress 2nd Session |
| 1993 | Appropriated $5,000,000 for critical maintenance work on Locks and Dams 5-14 and directs the Corps to transfer those facilities to the Commonwealth of Kentucky | Public Law 103- |
| 1995 | Appropriated $3,000,000 to continue Locks and Dams 5-14 repairs in preparation for transfer | Public Law 104-46, 104th Congress 1st Session |
| Aug 26,1999 | Appropriated $2,000,000 for work on lock and dam #10 | Public Law 106-377, 106th Congress, 1st Session |
| Dec 21, 2000 | Authorization to stabilize and renovate lock and dam #10 | Public Law 106-553, 106th Congress 1st Session |
| | **OHIO RIVER BASIN (Louisville Dist.) (See Section 38 of Text)** | |
| Aug 28, 1937 | Construct levee, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin, projects to be selected by Chief of Engineers with approval of Secretary of War, at a cost not to exceed $24,877,000 for construction | Flood Control Committee Document 1, 75th Congress, 1st Session |
| Jun 28, 1938 | Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable in discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized $75 million for reservoirs and $50.3 million for local protection works, individual projects to be selected and approved by Chief of Engineers, subject to provision that authorization shall include diversion of Cache River above Cairo, Illinois, and protection of area north of Cairo drainage district by levees at an estimated cost of $2 million | Flood Control Committee Document 1, 75th Congress, 1st Session |
| Aug 18, 1941 | Additional $45 million for further prosecution of comprehensive plan for Ohio River Basin | |

**TABLE 24-B CONTINUED** **AUTHORIZING LEGISLATION**

| Acts | Work Authorized | Documents |
|---|---|---|
| Dec 22, 1944 | Additional $70 million for further prosecution of comprehensive plan for Ohio River Basin, including plan of improvement for flood control and other purposes in Kentucky River Basin | H. Doc. 504, 78th Congress, 2d Session |
| | Flood protection works at Taylorsville, KY at an estimated cost of $129,350 | S.D. 105, 78th Cong., 1st Sess. |
| | Channel improvement of lower Rough River and Barnett Creek at an estimated cost of $360,000 | H.D. 535, 78th Congress 2d Session |
| Jul 24, 1946 | Additional $125 million for further prosecution of comprehensive plan, including plan of improvement for flood control in Wabash River Basin, Illinois, and Indiana, at an estimated cost of $9,629,000 | H.D. 197, 80th Congress 1st Session |
| | Also, West Fork of Mill Creek at an estimated cost of $1,527,000. | H.D. 198, 80th Cong., 1st Session |
| May 17, 1950 | Additional $100 million for prosecution of comprehensive plan for Ohio River Basin, including necessary bank stabilization measures at New Harmony Bridge, Indiana, at an estimated cost of $500,000. | |
| Jul 3, 1958 | Flood control Act of 1958 modified comprehensive plan to provide for Monroe Reservoir on Salt Creek, White River Basin, Indiana, at an estimated cost to the United States of $4,350,000; cost to local interests, $5,141,000. | H.D. 192, 85th Congress, 1st Session |
| Oct 23, 1962 | Flood Control Act of 1962 deleted Jessamine Creek Reservoir on Kentucky River, Kentucky, from comprehensive plan for Ohio River Basin | H.D. 423, 87th Congress, 2d Session |
| Dec 30, 1963 | Additional $150 million for further prosecution of comprehensive plan for Ohio River Basin | Pub. Law 88-253, 88th Cong., 1st Session |
| Jun 18, 1965 | Additional $89 million for further prosecution of comprehensive plan for Ohio River Basin | Public Law 89-42, 89th Cong., 1st Session |
| May 12, 1967 | Additional $38 million for further prosecution of comprehensive plan for Ohio River Basin | Public Law 90-17, 90th Cong., 1st Session |
| Aug 13, 1968 | Additional $35 million for further prosecution of comprehensive plan for Ohio River Basin | Public Law 90-483, 90th Cong., 2nd Session |
| Jun 19, 1970 | Additional $69 million for further prosecution of comprehensive plan for Ohio River Basin | Public Law 91-282, 91st Cong., 2nd Session |
| Mar 7, 1974 | Additional $120 million for further prosecution of comprehensive plan for Ohio River Basin | Public Law 93-251, 93rd Congress, 2nd Session |
| | Fifty-four local protection projects and one reservoir project in comprehensive plan for Ohio River Basin were deauthorized August 5, 1977, under Section 12, Water Resources Development Act of 1974 | |
| | Two additional local protection projects in comprehensive plan for Ohio River Basin were deauthorized November 6, 1977, under Section 12, Water Resources Development Act of 1974 | |
| Nov 13, 1995 | Directed use of $1,000,000 of funds appropriated in PL 104-46 for construction of the Ohio River Flood Protection, Indiana Project. | Public Law 104-46, 104th Congress, 2nd Session |
| | **WABASH RIVER BASIN (See Section 43 of Text)** | |
| Aug 13, 1968 | Construction of five multipurpose reservoirs and one local protection project in Wabash River Basin, IL & IN, with provision that construction of Big Walnut Lake, IN, project must be approved by the President. Authorization of $50 million for initiation of partial accomplishment of project | S.D. 96, 90th Congress, 2nd Session |
| Dec 29, 1981 | Two multiple purpose reservoirs in Wabash River were deauthorized. | Public Law 97-128, 97th Congress, 2nd Session |

**TABLE 24-B CONTINUED** **AUTHORIZING LEGISLATION**

| Acts | Work Authorized | Documents |
|---|---|---|
| May 1, 1997 | Two Additional reservoir projects were deauthorized | Public Law 99-662, 99th Congress, 2nd Session<br>Public Law 100-676 100th Congress, 2nd Session |
| | **MIAMI RIVER BASIN, PLEASANT RUN, VICINITY** | |
| | **FAIRFIELD, OH** | |
| Nov 17, 1986 | Three dry bed reservoirs and a channel improvement were authorized in Section 401 of the Water Resource Development Act of 1986. | Public Law 99-662, 99th Congress, 2nd Session |
| | **HAZARD, KENTUCKY** | |
| Nov 17, 1988 | Approximately 6 miles of channel improvement were authorized in Section 3 of the Water Resources Development Act of 1988. | Public Law 100-676, 100th Congress, 2nd Session |
| Nov 28, 1990 | Flood control measures to prevent a January 1957 flood reoccurrence in the vicinity of Hazard, Kentucky at a total cost of $30,000,000 was authorized for design and construction in Section 108 of the Water Resource Development Act of 1990. | Public Law 101-640, 101st 2nd Session |
| | **HOLES CREEK, OHIO** | |
| Nov 17, 1986 | The project for flood control, Miami River, Little Miami River, Interim Report No2, West Carrollton - Holes Creek, Ohio: Report of the Chief of Engineers dated December 23, 1981, at a total cost of $8,910,000, with an estimated first Federal Cost of $6,230,000 and an estimated first non-Federal cost of $2,680,000. | Public Law 99-662, 99th Congress, 2nd Session |
| Aug 17, 1999 | Holds the total amount projected as the non-federal share as of September 30, 1996 in the Project Cooperation Agreement executed on that date; and 100% of the amount of any increases in the cost of the locally preferred plan over the cost estimated in the Project Cooperation Agreement. | Public Law 106-53 106th Congress, 1st Session |
| | **SALYERSVILLE, KENTUCKY** | |
| Nov 17, 1986 | Flood control measures to prevent a December 1978 flood reoccurrence in the vicinity of Salyersville, Kentucky at a total project cost of $7,000,000 was authorized for design and construction in section 401(e)(1) of the Water Resource Development Act of 1986. With respect to the project, Congress has determined that the benefits exceed the cost of such flood control measures. | Public Law 99-662, 99th Congress, 2nd Session |
| Nov 5, 1990 | Provided $400,000 to construct the Salyersville, Kentucky cut-through as authorized by PL 99-662 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989. | Public Law 101-514, 101st Congress, 2nd Session |
| Aug 17, 1991 | Provided $600,000 to continue construction of the Salyersville, Kentucky cut-through as authorized by PL 99-662 section 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989. | Public Law 102-104, 102nd Congress, 1st Session |
| Sep 12, 1996 | Additional $3,000,000 to continue construction of the Salyersville, Kentucky cut-through. | H.D. 3816, 104th Congress, 2nd Session |
| | **FRANKFORT, SOUTH FRANKFORT, KENTUCKY** | |
| Nov 28, 1990 | Flood protection in accordance with Plan R-1 of the Louisville District Commander's Re-evaluation Report, dated June 1990 and a executed LCA no later than October 1991 was authorized in Section 102 of the Water Resources Development Act of 1990. | Public Law 101-640, 101st Congress, 2nd Session |

**TABLE 24-B CONTINUED** **AUTHORIZING LEGISLATION**

| Acts | Work Authorized | Documents |
|---|---|---|
| | **POND CREEK, JEFFERSON COUNTY, KENTUCKY** | |
| Sep 25, 1996 | Provide $10,993,000 to construct the Pond Creek, Jefferson County, Kentucky project for flood control in accordance with the Report of the Chief of Engineers dated June 28, 1994. The major components of the Recommended Plan include detention basin storage and channel enlargement, in addition to wetland restoration and recreation. | Public Law 104-303, 104th Congress, 2nd Session |
| | **DUCK CREEK, CINCINNATI, OHIO** | |
| Sep 25, 1996 | Provide $11,960,000 to construct the Duck Creek, Cincinnati, Ohio flood damage reduction project in accordance with the Chief of Engineers Report dated June 24, 1994. The project consists of floodwalls/ levees and channel relocation. | Public Law 104-303, 104th Congress, 2nd Session |
| Jan 24,2000 | Modified to authorize the Secretary to carry out the project at a Total cost of $36,323,000 and non-Federal share of the cost Of the project shall not exceed $4,200,000. | Public Law 406-541, 106th Congress, 2nd Session |
| | **NEW HARMONY, INDIANA** | |
| Sep 25, 1996 | Provide $2,100,000 for streambank erosion protection along the Wabash River at the town of New Harmony, Indiana. | Public Law 104-303, 104th Congress, 2nd Session |
| | **WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, INDIANA** | |
| Sep 12, 1996 | Provide $7,000,000 for construction of recreation facilities and rehabilitation of existing flood protection features in downtown Indianapolis along the White River. | H.D. 3816, 104th Congress, 2nd Session |
| Aug 17, 1999 | Authorized to undertake the riverfront alterations described in the Central Indianapolis Waterfront Concept Plan, dtd Feb 1994 for the Canal Development(Upper Canal feature) and the Beveridge Paper feature, at a total cost not to exceed $25,000,000 of which$12,500,00 is the estimated Federal cost and $12,500,000 is the estimated non-federal cost. | Public Law 106-553, 106th Congress, 1st Session |
| | **BEARGRASS CREEK, KENTUCKY** | |
| Aug 17, 1999 | The project for flood control, Beargrass Creek, Kentucky: Report of the Chief of Engineers dtd May 12, 1998 at a total cost of $11,171,300 with an estimated Federal cost of $7,261,500 and an estimated non-federal cost of $3,909,800. | Public Law 106-553, 106th Congress, 1st Session |
| Nov 8, 2007 | OHIO RIVERFRONT, CINCINNATI, OHIO<br><br>Authorized to undertake ecosystem restoration and Recreation components of Central Riverfront Park master plan at total cost of $30 million. Provides non-Federal credit for planning, design, and construction. | Public Law 110-114, 110 th Congress 1st Session |

[1] Deficiency act.
[2] Authorization for Nolin River and Bear Creek revoked by Act of Sep. 3, 1954
[3] Permanent Appropriations Repeal Act.

**TABLE 24-C** **OTHER AUTHORIZED NAVIGATION PROJECTS**
**(See Section 6)**

| Name of Project | Status | For Last Full Report See Annual Report | Cost to Sep 30, 2009 Construction | Cost to Sep 30, 2009 Operation and Maintenance |
|---|---|---|---|---|
| Licking River | Completed | 1901 | $ 13,045 | $ 139,108 |
| Rough River, KY | Completed | 1951 | 105,500 | 101,196 |
| Tradewater River, KY | Completed | 1858 | 18,568 | 33,331 |
| White River, IN | Completed | 1909 | 119,312 | 0 |

**TABLE 24-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

| Project and Status [1] | For Last Full Report See Annual Report | Cost to Sep 30, 2009 Construction | Cost to Sep 30, 2009 Operation and Maintenance |
|---|---|---|---|
| **Local Protection:** | | | |
| Completed: | | | |
| Boone County, KY (Ohio River, Rabbit Hash) | 1977 | $ 392,443 | - |
| Brookport, IL | 1958 | 597,493 | - |
| Cannelton, IN | 1959 | 2,068,391 | - |
| Canoe Creek, Henderson, KY [2] | - | 1,206,852 | - |
| Chaplin River, Perryville, KY [2] | - | 832,700 | - |
| Cincinnati, OH | 1957 | 10,150,935 | - |
| Covington, KY | 1965 | 7,862,937 | - |
| Dayton, KY | 1987 | 13,177,345 | - |
| Delphi, IN (Wabash River) | 1953 | 144,563 | - |
| England Pond Levee, IL (Wabash River) | 1972 | 734,498 | - |
| English, IN (Little Blue River) [2] | 1965 | 372,353 | - |
| Evansville, IN | 1997 | 43,906,502 | - |
| Frankfort, KY (North Frankfort) (Kentucky River) [3 8] | 1979 | 2,960,970 | - |
| Frankfort, South Frankfort, KY | 1998 | 11,164,720 | |
| Gill Township Levee, IN (Wabash River) | 1948 | 561,200 | - |
| Golconda, IL | 1960 | 565,333 | - |
| Grassy Creek, Jackson County, IN (Muscatatuck River) [2] | 1953 | 70,304 | - |
| Harrisburg, IL | 1959 | 870,015 | - |
| Hawesville, KY | 1955 | 969,318 | - |
| Indianapolis, IN (Fall Creek Section) (White River) | 1953 | 1,788,840 | - |
| Indian Creek, Corydon, IN [2] | 1964 | 300,143 | - |
| Indianapolis, IN (Warfleigh Section) (White River) | 1976 | 153,410 | - |
| Jackson, KY (Kentucky River) | 1957 | 130,952 | - |
| Jeffersonville-Clarksville, IN | 1959 & 1996 | 4,836,361 | - |
| Lawrenceburg, IN | 1953 | 2,473,414 | - |
| Lebanon Junction, KY (Salt River) [2] | 1967 | 130,417 | - |
| Levee Unit No. 5, Wabash River, IN | 1987 | 7,517,464 | - |
| Levee Unit No. 8, White River, IN | 1952 | 700,534 | - |
| Louisville, KY [9] | - | 415,000 | - |
| Louisville, KY [4] | 1975 | 26,721,438 | - |
| Lyford Levee Unit, IN (Wabash River) | 1944 | 267,391 | - |
| Mason J. Niblack Levee, IN (Wabash River) [5] | 1987 | 4,337,617 | - |
| Miami River Basin, Pleasant Run, Vicinity Fairfield, OH [9] (Great Miami River) | - | 514,964 | - |
| Mill Creek, Jefferson County, KY [2] | 1973 | 292,710 | - |
| Mount Carmel, IL (Wabash River) | 1972 | 1,980,675 | - |
| Muncie, IN (White River) | 1956 | 887,835 | - |
| Neon-Fleming, KY (Kentucky River) | 1963 | 86,532 | - |
| New Albany, IN | 1957 | 5,375,471 | - |
| New Harmony Bridge, IL & IN (Wabash River) [2 7] | 1959 | 297,624 | - |
| Newburgh, IN (Ohio River) [6] | 1974 | 52,061 | - |
| Newport, KY | 1959 | 7,512,987 | - |
| Paducah, KY | 1959 | 4,761,551 | - |
| Panther Creek, KY (Green River) [2] | 1970 | 254,031 | - |
| Portland, IN (Salamonie River) [2] | 1962 | 237,657 | - |
| Reevesville, IL (Cache River) | 1954 | 600,300 | - |
| Rochester & McCleary's Bluff Levee, IL (Wabash River) | 1972 | 1,079,236 | - |
| Rosiclaire, IL | 1954 | 622,544 | - |
| Saline River & Tributaries, IL | 1981 | 7,826,219 | - |
| Shawneetown, IL [7] | - | 91,000 | - |
| Sturgis, KY | 1972 | 1,826,778 | - |
| Taylorsville, KY (Salt River) | 1952 | 378,050 | - |
| Tell City, IN | 1956 | 932,229 | - |
| Terre Haute (Conover Levee), IN (Wabash River) [7] | 1965 | 14,913 | - |

**TABLE 24-E CONTINUED** **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

| Project and Status [1] | For Last Full Report See Annual Report | Cost to Sep 30, 2009 Construction | Cost to Sep 30, 2009 Operation and Maintenance |
|---|---|---|---|
| Town Creek, Harrodsburg, KY [2] | 1967 | 56,505 | - |
| Triplett Creek, Morehead, KY (Licking River) [2] | 1972 | 893,094 | - |
| Southwestern Jefferson County, KY | 2003 | 70,049,492 | - |
| Uniontown, KY | 1956 | 1,070,926 | - |
| Vincennes, IN (Wabash River) [7] | 1964 | 3,308,941 | - |
| Wabash River, New Harmony | 2003 | 3,239,025 | - |
| West Fork Mill Creek, OH (Winton Road) [9] | - | 477,649 | - |
| West Terre Haute, IN (Wabash River) | 1977 | 1,095,704 | - |
| Whitewater River, Hagerstown, IN [2] | - | 641,398 | - |
| Active: | | | |
| Inactive: | | | |
| Blue River, Salem, IN | - | 15,000 | - |
| Cache River, Upper Basin, Ill | - | 44,000 | - |
| Columbus, IN | - | 283,000 | - |
| Fairfield, OH | - | - | - |
| Kentucky River National Recreation Area | - | - | - |
| Licking River, KY | - | - | - |
| Mount Vernon, IN | - | 30,000 | - |
| Southwest Ohio Urban Waterfront Development | - | - | - |
| Vincennes, IL (Wabash River) | 1964 | - | - |
| Wabash River, York Township, Clark County, IL | - | - | - |
| West Fork Drakes Creek, TN & KY | - | 58,000 | - |
| Whitewater River & Tributaries, IN & OH | - | 112,000 | - |
| **Reservoirs:** | | | |
| Active: | | | |

[1] All projects are on Ohio River unless otherwise noted.
[2] Authorized by the Chief of Engineers under Section 205, 1984 Flood Control Act, as amended.
[3] Cost includes $161,098 cash contribution consisting of $105,118 from the City of Frankfort, KY and $55,980 from the Commonwealth of Kentucky.
[4] Cost includes $1,716,301 cash contributions from the City of Louisville, KY.
[5] Cost shown are for levee and pump plants.
[6] The Water Resources Development Act of 1974 modified the Newburgh Locks & Dam project to include the bank protection works at Newburgh Locks & Dam project to include the bank protection works at Newburgh, IN.
[7] Partially completed to form a useful unit. Remaining portions of project inactive.
[8] Partially completed to form a useful unit. Remaining portions of project are active and inactive.
[9] Advance Engineering and Design funded with General Investigations Appropriation.

## TABLE 24-G DEAUTHORIZED PROJECTS

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| **Flood Control - Local Protection:** | | | | |
| Adams Levee, IN (Wabash River) | - | 1978 | $ - | - |
| Alton, IN | - | 1977 | - | - |
| Anderson, IN (White River) | 1940 | 1986 | 5,724 | - |
| Aurora, IN | - | 1977 | 35,420 | - |
| Bellevue, KY | - | 1977 | 19,023 | - |
| Bonpas Creek, IL (Wabash River) | - | 1981 | - | - |
| Brevoort Levee, IN (Wabash River) | | 2007 | 1,240,299 | |
| Bromley, KY | - | 1977 | - | - |
| California (Cincinnati), OH | - | 1977 | 16,465 | - |
| Carrollton, KY | - | 1977 | 9,713 | - |
| Caseyville, KY | - | 1986 | - | - |
| Cave-in-Rock, IL | - | 1977 | - | - |
| Cincinnati, OH (Unit 2) | - | 1977 | - | - |
| Cincinnati, OH (Unit 4) | - | 1977 | - | - |
| Cleves, OH | - | 1977 | 6,343 | - |
| Clinton, IN | - | 1977 | 6,848 | - |
| Cloverport, KY | - | 1986 | - | - |
| Concordia, KY | - | 1986 | - | - |
| Deer Creek, Prairie Levee, IN | - | 1977 | - | - |
| Derby, IN | - | 1977 | - | - |
| Eagle Creek, KY | | 2007 | 702,471 | |
| Elizabethtown, IL | - | 1977 | - | - |
| Evansville, Howell II | - | 1992 | - | - |
| Falmouth Lake | - | 1998 | 944,386 | - |
| Fletcher & Sunshine Gardens Levee, IN | - | 1977 | 3,361 | - |
| Frankfort, KY (Benson Creek) (Kentucky River) | 1979 | 1992 | - | - |
| Gallatin County Streambank Erosion, Area 1, Ohio River | - | 2002 | - | - |
| Grandview, IN | - | 1977 | 8,497 | |
| Greenfield Bayou, IN (Wabash River) | | 2007 | 157,935 | - |
| Hazard, KY | | 2007 | | |
| Honey Creek Levee, IN | - | 1977 | - | - |
| Island Levee, IN (Wabash River) | - | 2002 | 355,963 | - |
| Leavenworth, IN | - | 1977 | - | - |
| Levee Unit 1, Eel River, IN | - | 1977 | - | - |
| Levee Unit 2, Eel River, IN | - | 1977 | - | - |
| Levee Unit 2, East Fork White River, IN | - | 1977 | - | - |
| Levee Unit 3, East Fork White River, IN | 1938 | 1977 | 275 | - |
| Levee Unit 1, IL (Wabash River) | 1973 | 1986 | 60,000 | - |
| Levee Unit 1, Little Wabash River, IL | - | 1977 | - | - |
| Levee Unit 2, Little Wabash River, IL | - | 1977 | - | - |
| Levee Unit 2, Wabash River, IL | - | 1977 | - | - |
| Levee Units 3 and 4, Wabash River, IL | 1938 | 1977 | 216 | - |
| Levee Unit 6, Wabash River, IL | - | 1977 | 9,922 | - |
| Levee Unit 17, Wabash River Basin, IN | - | 1977 | - | - |
| Levee Unit 1, White River, IN | - | 1977 | - | - |
| Levee Unit 7, White River, IN | - | 1977 | - | - |
| Levee Unit 9, White River, IN | - | 1977 | - | - |
| Levee Unit 10, White River, IN | - | 1977 | - | - |
| Lewisport, KY | - | 1990 | - | - |
| Louisville, KY (Partial) | - | 1986 | - | - |
| Louisville Lake | - | 1998 | 2,355,395 | - |
| Ludlow, KY | - | 1977 | 14,503 | - |
| Madison, IN | - | 1977 | - | - |
| Mauckport, IN | - | 1977 | - | - |

**TABLE 24-G** **DEAUTHORIZED PROJECTS**
**CONTINUED**

| Project | For Last Full Report See Annual Report For | Date Deauthorized | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| **Flood Control - Local Protection (Cont'd.)** | | | | |
| Marion, IN (Wabash River) | 1979 | 1986 | 209,975 | - |
| McGinnis Levee, IN | 1950 | 1977 | 71,049 | - |
| Metropolis, IL | - | 1986 | 10,575 | - |
| Milton, KY | - | 1977 | - | - |
| Moscow, OH | - | 1977 | - | - |
| New Amsterdam, IN | - | 1977 | - | - |
| New Harmony, IN | - | 1977 | - | - |
| New Richmond, OH | - | 1977 | 7,104 | - |
| Newport-Wilder, KY | - | 1990 | - | - |
| Orleans, IN | 1972 | 1977 | 13,158 | - |
| Owensboro, KY | - | 1990 | - | - |
| Patriot, IN | - | 1977 | - | - |
| Prestonville, KY | - | 1977 | - | - |
| Raccoon Creek Levee, IN | - | 1977 | - | - |
| Rising Sun, IN | - | 1977 | - | - |
| Rockport, IN | - | 1977 | - | - |
| Rome, IN | - | 1977 | - | - |
| Russell and Allison, IL | - | 1992 | 52,088 | - |
| Shawneetown, IL | - | 1986 | 25,367 | - |
| Shoals, IN (East Fork White River) | 1938 | 1977 | - | - |
| Shufflebarger Levee, IN | 1950 | 1977 | 64,487 | - |
| Smithland, KY | - | 1992 | - | - |
| Sugar Creek Levee, IN | 1961 | 1977 | 28,061 | - |
| Terre Haute, IN | - | 1977 | - | - |
| Tolu, KY | - | 1986 | - | - |
| Tri Pond Levee, IL | 1972 | 1977 | 65,510 | - |
| Troy, IN | - | 1977 | - | - |
| Utica, IN | - | 1978 | - | - |
| Vevay, IN | - | 1977 | - | - |
| Vincennes, IN (Partial) | 1964 | 1986 | - | - |
| Westport, KY | - | 1977 | - | - |
| Wilders, KY | - | 1990 | - | - |
| **Flood Control - Reservoirs** | | | | |
| Big Blue Lake, IN | 1980 | 1981 | 1,079,867 | - |
| Big Pine Lake, IN (Wabash River) | 1977 | 2002 | 1,270,590 | - |
| Big Walnut Lake, IN (Wabash River) | 1980 | 2002 | 1,009,188 | - |
| Booneville Lake, KY (Kentucky River) | 1976 | 2002 | 1,038,595 | - |
| Camp Ground Lake, KY (Salt River) | 1983 | 2002 | 235,615 | - |
| Clifty Creek Lake, IN | 1979 | 1981 | 1,016,358 | - |
| Downeyville Lake, IN (Wabash River) | - | 1992 | - | - |
| Helm Lake, IL | 1976 | 1981 | 41,616 | - |
| Lafeyette Lake, IN (Wabash River) | 1977 | 2002 | 1,200,920 | - |
| Lincoln Lake, IL | 1979 | 1981 | 1,331,844 | - |
| Metomora Lake, IN | - | 1977 | - | - |
| Mining City Lake, KY (Green River) | - | 2002 | 350,747 | - |
| Red River Lake, KY ( | | | | |
| Taylorsville Lake, Floyd's Fork, KY | - | 2002 | - | - |
| **Navigation** | | | | |
| McAlpine Lock & Dam, KY & IN, Alteration of Railroad Bridge | - | 2002 | - | - |

**TABLE 24-H**

# NAVIGATION LOCKS AND DAMS
# PRINCIPAL FEATURES - GREEN & BARREN RIVERS
# AND KENTUCKY RIVER NAVIGATION SYSTEMS

| Lock and Dam | Miles above Mouth of River | Distance from Nearest Town | Width of Chamber | Lock Dimensions Greatest Length Available For Full Width (feet) | Lift (feet) | Upper Normal Pool Elevation (feet msl) | Depth of Miter Sills Upper (feet) | Depth of Miter Sills Lower (feet) | Character of Foundation | Percent Complete | Year Opened to Navigation | Cost of Lock and Dam |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER - For report on this improvement see this heading under Ohio River.** | | | | | | | | | | | | |
| **GREEN AND BARREN RIVERS, KY (See Section 3 of Text)** | | | | | | | | | | | | |
| **Green River** | | | | | | | | | | | | |
| New 1 | 9.1 | Spottsville, KY | 84.0 | 600.0 | 11.8 | 349.1 | 12.1 | 11.3 | Shale and Coal | 100 | 1956 [2] | $5,101,978 [3] |
| New 2 | 63.1 | 0.3 miles below Calhoun, KY | 84.0 | 600.0 | 14.3 | 363.4 | 15.0 | 11.7 | Shale | 100 | 1956 [4] | 4,799,271 [5] |
| 3 | 108.5 | 0.3 miles below Rochester, KY | 35.8 | 137.5 | 17.0 | 380.4 | 7.3 | 5.6 | Rock | 100 | 1836 [6] | 121,377 |
| 4 | 149.0 | Woodbury, KY | 35.8 | 138.0 | 16.4 | 396.8 | 7.1 | 6.5 | Rock | 100 | 1839 [7] | 125,718 |
| 5 | 168.1 | 0.3 miles below Glenmore, KY | 56.0 | 360.0 | 15.2 | 412.0 [8] | 12.0 | 9.3 | Piles and Rock | 100 | 1934 [9] | 1,020,868 [10] |
| 6 | 181.7 | 2.8 miles above Brownsville, KY | 36.0 | 145.0 | 9.2 | 421.1 | 8.0 | 8.8 | Gravel | 100 | 1905 [9] | 168,415 |
| **Barren River** | | | | | | | | | | | | |
| 1 | 15.0 [11] | 0.3 miles above Greencastle, KY | 56.0 | 360.0 | 15.2 | 412.0 | 12.0 | 9.3 | Gravel | 100 | 1841 [12] | 871,565 [13] |
| **TUCKY RIVER, KY (See Section 4 of Text)** | | | | | | | | | | | | |
| tucky River | | | | | | | | | | | | |
| 1 | 4.0 | 3.8 miles above Carrolton, KY | 38.0 | 145.0 | 8.2 [14] | 430.0 | 8.2 | 4.8 | Rock and Clay | 100 | 1839 [15] | - |
| 2 | 31.0 | Lockport, KY | 38.0 | 145.0 | 13.9 | 443.9 | 7.6 | 6.1 | Rock | 100 | 1839 [15] | - |
| 3 | 42.0 | Gest, KY | 38.0 | 145.0 | 13.2 | 457.1 | 8.6 | 6.5 | Rock | 100 | 1844 [15] | 1,350,385 [16] |
| 4 | 65.0 | 1.0 mile below Frankfort, KY | 38.0 | 145.0 | 13.2 | 470.3 | 6.4 | 6.3 | Rock | 100 | 1844 [15] | - |
| 5 | 82.2 | 2.8 miles below Tyrone, KY | 38.0 | 145.0 | 15.0 | 485.3 | 10.0 | 6.4 | Rock | 100 | 1844 [15] [17] | - |
| 6 | 96.2 | 21.6 miles below High Bridge, KY | 52.0 | 147.0 | 14.0 | 499.3 | 9.4 | 6.4 | Rock and Piles | 100 | 1894 [17] | 314,847 |
| 7 | 117.0 | 0.8 mile below High Bridge, KY | 52.0 | 147.0 | 15.3 | 514.6 | 9.1 | 6.8 | Rock | 100 | 1897 [17] | 290,788 |
| 8 | 139.9 | 4.7 miles above Camp Nelson, KY | 52.0 | 146.0 | 18.7 | 533.6 | 10.6 | 6.0 | Rock | 100 | 1900 [17] | 275,463 |
| 9 | 157.5 | Valley View, KY | 52.0 | 148.0 | 17.3 | 550.6 | 10.0 | 6.6 | Rock | 100 | 1907 [17] | 237,646 |
| 10 | 176.4 | 1.0 mile below Ford, KY | 52.0 | 148.0 | 17.0 | 567.6 | 9.0 | 6.0 | Rock | 100 | 1907 [17] | 221,500 |
| 11 | 201.0 | 17.2 miles below Irvine, KY | 52.0 | 148.0 | 18.0 | 585.6 | 10.0 | 6.0 | Rock | 100 | 1906 [17] | 296,593 |
| 12 | 220.0 | Ravenna, KY | 52.0 | 148.0 | 17.0 | 602.6 | 9.6 | 6.0 | Rock | 100 | 1910 [17] | 425,693 |
| 13 | 239.9 | 2.2 miles below Willow, KY | 52.0 | 148.0 | 18.0 | 620.6 | 9.6 | 6.0 | Rock | 100 | 1915 [17] | 461,476 |
| 14 | 249.0 | Heidelberg, KY | 52.0 | 148.0 | 17.0 | 63.6 | 8.6 | 6.0 | Rock | 100 | 1971 [17] | 392,902 |

1 At normal pool Dam 48, Ohio River, Elev. 337.3, Green River datum (Elev. 338.0 Ohio River datum)

2 New Lock 1 placed in operation May 25, 1956, old Dam 1, completed 1835-40, replaced with new cellular concrete masonry dam constructed 1970-71 with O&M funds at cost of $822,000.

3 Does not include $179,110 cost of old Lock and Dam 1.

4 New Lock and Dam 2, placed in operation June 18, 1956.

5 Does not include $295,696 cost of old Lock and Dam 2.

6 Operation discontinued September 30, 1981.

7 Breaching of dam on May 24, 1965, stopped through traffic to Bowling Green, KY.

8 With moveable A-frame crest 3 feet high.

9 Operation discontinued August 1, 1951.

10 Does not include $179,434 cost of old Lock and Dam 5. Transferred to State, December 1996.

11 Distance from mouth of Green River is 164.5 miles. Lock closed to navigation as the result of loss of pool at Green River Lock and Dam 4 on May 24, 1965.

12 Piles in old gravel dam completed in 1934.

13 Includes $729,269 for new large lock completed in 1934.

14 At normal pool McAlpine Dam, Ohio River Elev. 421.8 Kentucky River datum (Elev. 420 Ohio River datum).

15 Reconstruction completed by United States in 1882.

16 Built by State of Kentucky. Cost given is for repairs by United States to Locks and Dams 1 through 5. Original construction costs to State were: L&D 1, $220,300; L&D 2, $151,983: L&D 3 $135,857; L&D 4, $131,607; and L&D 5, $137,436.

17 Lock was closed to traffic and placed in caretaker status in September 1982.

**TABLE 24-I**

**OHIO RIVER BASIN**
**TOTAL COST OF BASIN PLAN**
**(See Section 38 of Text)**

| LOCAL PROTECTION | | Estimated Cost | | |
|---|---|---|---|---|
| **Project and Status [1]** | **Type of Construction** | **Federal** | **Non-Federal [2]** | **Total** |
| **Completed:** | | | | |
| Barnett Creek, KY (Rough River) [3] [4] | Channel improvement | $ 144,000 | $ 18,000 | $ 162,000 |
| Boone County, KY | Bank Protection | 392,443 | 83,000 | 475,443 |
| Brookport, IL [5] [6] | Wall and levee | 597,493 | 8,500 | 605,993 |
| Cannelton, IN [5] [7] | Wall and levee | 2,068,391 | 29,105 | 2,097,496 |
| Cincinnati, OH [5] [8] | Wall and barrier dam | 10,150,935 | 1,309,146 | 11,460,081 |
| Covington, KY [5] [9] | Wall and levee | 7,862,937 | 1,051,102 | 8,914,039 |
| Dayton, KY | Wall and levee | 13,117,345 | 2,013,000 | 15,130,345 |
| Delphi, IN (Wabash River) [5] [10] | Levee | 144,563 | 17,164 | 161,727 |
| England Pond Levee, IL (Wabash River) [11] | Levee | 734,498 | 107,000 | 841,498 |
| Evansville, IN [4] | Wall and levee | 43,906,502 | 5,500,000 | 49,406,502 |
| Frankfort, KY, North Frankfort (Kentucky River) [5] | Wall and levee | 2,960,970 | 272,100 | 3,233,070 |
| Frankfort, KY (Kentucky River) South Frankfort [5] | Wall | 8,373,540 | 2,791,180 | 11,164,720 [36] |
| Golconda, IL [5] [12] | Wall and levee | 565,333 | 10,900 | 576,233 |
| Harrisburg, IL [5] [10] | Wall and levee | 870,015 | 20,000 | 890,015 |
| Hawesville, KY [5] [13] | Levee | 969,318 | 42,593 | 1,011,911 |
| Jackson, KY (Kentucky River) [5] [8] | Cutoff channel | 130,952 | 3,000 | 133,952 |
| Jeffersonville-Clarksville, IN [7] | Wall and levee | 4,226,361 | 590,888 | 4,817,249 |
| Lawrenceburg, IN [5] | Wall and levee | 2,473,689 | 284,725 | 2,758,414 |
| Louisville, KY [5] [14] | Wall and levee | 25,005,137 | 1,716,301 | 26,721,438 |
| Mason J. Niblack Levee, IN (Wabash River) [4] [5] | Levee and pump plants | 4,337,617 | 109,200 | 4,446,817 |
| New Albany, IN [5] [8] | Wall and levee | 5,375,471 | 740,000 | 6,115,471 |
| New Harmony Bridge, IL & IN (Wabash River) [5] [7] | Bank Protection | 297,624 | | 297,624 |
| Newport, KY [5] [7] | Wall and levee | 7,512,987 | 298,506 | 7,811,493 |
| Paducah, KY [5] [7] | Wall and levee | 4,761,551 | 232,000 | 4,993,551 |
| Perryville, KY, Chapin River | Channel Improvement | 823,700 | 11,000 | 834,700 |
| Reevesville, IL (Cache River) [5] [15] | Levee | 600,300 | 40,000 | 640,300 |
| Rochester and McCleary's Bluff Levee, IL (Wabash River) [11] | Levee | 1,079,236 | 100,000 | 1,179,236 |
| Rough River, KY [3] [4] | Channel improvement | 654,000 | 5,000 | 659,000 |
| Southwest Jefferson County | Wall and Levee | 60,207,439 | 9,842,053 | 70,049,492 |
| Sturgis, KY (Tradewater River) [11] | Levee | 1,826,778 | 93,000 | 1,919,778 |
| Taylorsville, KY (Salt River) [5] [16] | Levee | 378,050 | 63,309 | 441,359 |
| Tell City, IN [5] [14] | Wall and levee | 932,229 | 32,707 | 964,936 |
| Uniontown, KY | Levee | 1,070,926 | 72,153 | 1,143,079 |
| Vincennes, IN [5] [17] (Wabash River)(completed portion) [5] | Wall and levee | 3,308,941 | 285,000 | 3,593,941 |
| Wabash River, New Harmony, In | Erosion Control | 2,429,269 | 809,756 | 3,239,025 |
| West Terre Haute, IN (Wabash River) | Levee | 1,095,704 | 150,000 | 1,245,704 |
| Active: | | | | |
| Salyersville, KY | Channel Improvement | 7,906,409 | 829,955 | 8,736,364 |
| Inactive: | | | | |
| Hazard, KY | Channel Improvement | - | - | - |

**TABLE 24-I**
**CONTINUED**

**OHIO RIVER BASIN**
**TOTAL COST OF BASIN PLAN**
**(See Section 38 of Text)**

| LOCAL PROTECTION | | Estimated Cost | | |
|---|---|---|---|---|
| **Project and Status** [1] | **Type of Construction** | **Federal** | **Non-Federal** [2] | **Total** |
| **Deauthorized:** | | | | |
| Adams Levee, IN (Wabash River) [32] | Levee | $ 292,000 | $ 14,000 | $ 306,000 [27] |
| Alton, IN [30] | Levee | 255,000 | 40,000 | 295,000 |
| Aurora, IN [31] | Wall and levee | 4,300,000 | 1,190,000 | 5,490,000 |
| Bellevue, KY [30] | Wall and levee | 1,570,000 | 400,000 | 1,970,000 |
| Bonpas Creek, IL (Wabash River) [5] [33] | Channel Improvement | 1,080,000 | 630,000 | 1,710,000 [28] |
| Bromley, KY [30] | Wall and levee | 1,250,000 | 925,000 | 2,175,000 |
| California (Cincinnati), OH [31] | Wall and levee | 1,750,000 | 720,000 | 2,470,000 |
| Carrollton, KY [30] | Wall and levee | 2,220,000 | 97,000 | 2,317,000 |
| Caseyville, KY [5] [34] | Levee | 396,000 | 35,000 | 431,000 |
| Cave-in-Rock, IL [30] | Levee | 661,000 | 125,000 | 786,000 |
| Cincinnati, OH (Unit 2) [30] | Wall and levee | 16,800,000 | 2,900,000 | 19,700,000 |
| Cincinnati, OH (Unit 4) [30] | Wall | 14,900,000 | 621,000 | 15,521,000 |
| Cleves, OH [30] | Levee | 1,240,000 | 67,000 | 1,307,000 |
| Clinton, IN (Wabash River) [30] | Levee | 77,000 | 9,000 | 86,000 |
| Cloverport, KY [5] [34] | Wall and levee | 728,000 | 193,000 | 921,000 |
| Concordia, KY [5] [34] | Levee | 590,000 | 55,000 | 645,000 |
| Deer Creek Prairie Levee, IN (Wabash River) [30] | Levee | 213,000 | 10,000 | 223,000 [24] |
| Derby, IN [30] | Wall and levee | 553,000 | 67,000 | 620,000 |
| Elizabethtown, IL [30] | Wall and levee | 559,000 | 153,000 | 712,000 |
| Fletcher and Sunshine Gardens Levee, IN (Wabash River) [30] | Levee | 548,000 | 26,000 | 574,000 [24] |
| Frankfort, KY (Kentucky River) Benson Creek [5] | Wall and Levee | 3,340,000 | 1,150,000 | 4,490,000 [22] |
| Grandview, IN [30] | Levee | 580,000 | 133,000 | 713,000 |
| Greenfield Bayou Levee, IN (Wabash River) [5] [35] | Levee | 4,600,000 | 1,087,000 | 5,687,000 [23] |
| Honey Creek Levee, IN [30] | Levee | 653,000 | 32,000 | 685,000 |
| Island Levee, IN (Wabash River) [5] [35] | Levee | 4,630,000 | 528,000 | 5,158,000 [23] |
| Leavenworth, IN [30] | Wall and levee | 1,470,000 | 266,000 | 1,736,000 |
| Levee Unit 1, Eel River, IN [30] | Levee | 204,000 | 40,000 | 244,000 |
| Levee Unit 1, Little Wabash River, IL [30] | Levee | 2,850,000 | 164,000 | 3,014,000 [27] |
| Levee Unit 1, White River, IN [30] | Levee | 2,180,000 | 116,000 | 2,296,000 [27] |
| Levee Unit 17, IN [30] | Levee | 1,580,000 | 118,000 | 1,698,000 [28] |
| Levee Unit 2, Eel River, IN [30] | Levee | 2,090,000 | 715,000 | 2,805,000 |
| Levee Unit 2, Little Wabash River, IL [30] | Levee | 3,410,000 | 136,000 | 3,546,000 [28] |
| Levee Unit 2, White River, IN [30] | Levee | 724,000 | 73,000 | 797,000 [27] |
| Levee Unit 6, Wabash River, IL [30] | Levee | 1,160,000 | 56,000 | 1,216,000 |
| Levee Unit 7, White River, IN [30] | Levee | 1,490,000 | 88,000 | 1,578,000 [27] |
| Lewisport, KY [5] [35] | Wall and levee | 610,000 | 243,000 | 853,000 [24] |
| Ludlow, KY [30] | Wall and levee | 2,540,000 | 745,000 | 3,285,000 |
| Madison, IN [30] | Levee | 3,820,000 | 360,000 | 4,180,000 |
| Mauckport, IN [30] | Levee | 506,000 | 105,000 | 611,000 |
| McGinnis Levee, IN (Wabash River) [30] | Levee | 1,820,000 | 104,000 | 1,924,000 |
| Metropolis, IL [5] [34] | Wall and levee | 3,070,000 | 431,000 | 3,501,000 |
| Milton, KY [30] | Wall | 2,480,000 | 41,000 | 2,521,000 |
| Moscow, OH [30] | Levee | 1,170,000 | 372,000 | 1,542,000 |
| New Amsterdam, IN [30] | Levee | 476,000 | 13,000 | 489,000 |
| New Harmony Bridge, IL & IN (Wabash River) [37] | Bank Protection | 664,376 | 99,000 | 763,376 [25] |
| New Harmony, IN (Wabash River) [30] | Levee | 616,000 | 25,000 | 641,000 |
| Wilder, KY [35] | Wall and levee | 10,800,000 | 959,000 | 11,759,000 [26] |

[1] All projects are on an Ohio River unless otherwise noted.
[2] Latest cost estimate revision 1954 unless otherwise noted.
[3] Part of Rough River Reservoir and Channel Improvement Project, KY.
[4] Details of this project are in individual report.
[5] Also see "Other authorized flood control projects."
[6] See Annual Report for 1958 for details.
[7] See Annual Report for 1959 for details.
[8] See Annual Report for 1957 for details.
[9] See Annual Report for 1965 for details.
[10] See Annual Report for 1953 for details.
[11] See Annual Report for 1972 for details.
[12] See Annual Report for 1960 for details.
[13] See Annual Report for 1955 for details.
[14] See Annual Report for 1962 for details.
[15] Substitute project for Belknap, Karnak, and Ullin, IL, complete. See Annual Report for 1954 for details.
[16] See Annual Report for 1952 for details.
[17] See Annual Report for 1956 for details.
[18] Latest cost estimate revision 1988.
[19] Latest cost estimate revision 1986.
[20] Latest cost estimate revision 1984.
[21] Latest cost estimate revision 1983.
[22] Latest cost estimate revision 1976.
[23] Latest cost estimate revision 1978.
[24] Latest cost estimate revision 1960.
[25] Latest cost estimate revision 1971.
[26] Latest cost estimate revision 1977.
[27] Latest cost estimate revision 1961.
[28] Latest cost estimate revision 1973.
[29] Latest cost estimate revision 1989.
[30] Deauthorized Aug 05, 1977 under Section 12, Water Resources Development Act of 1971 (P.L. 93-251).
[31] Deauthorized Nov 06, 1977 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).
[32] Deauthorized Oct 03, 1978 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).
[33] Deauthorized May 06, 1981 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).
[34] Deauthorized Nov 17, 1986 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).
[35] Deauthorized Jan 01, 1990 under Section 1001 (b)(1), Water Resources Development Act of 1986 (P.L. 99-662).
[37] Deauthorized Jul 19, 1992.

**TABLE 24-I**
**CONTINUED**

# OHIO RIVER BASIN
# TOTAL COST OF BASIN PLAN
**(See Section 38 of Text)**

**RESERVOIRS**

| Tributary Basin Reservoirs | Status | Stream | Estimated Cost [1] Federal | Non-Federal | Total |
|---|---|---|---|---|---|
| Great Miami River: | | | | | |
| Brookville Lake, IN [2] | Complete | East Fork of Whitewater River | $ 37,905,073 | $ 7,497,492 [3] | $ 45,402,565 |
| Metamora Lake, IN | Deauthorized | West Fork of Whitewater River | 35,300,000 | | 35,300,000 [4] |
| Green River: | | | | | |
| Barren River Lake, KY [2] | Complete | Barren River | 27,371,299 | 108,418 [5] | 27,479,717 |
| Green River Lake, KY [2] | Complete | Green River | 33,238,597 | 223,733[13] | 33,462,330 |
| Mining City Lake, KY | Deauthorized | Green River | 69,100,000 | | 69,100,000 [4] |
| Nolin Lake, KY [2] | Complete | Nolin River | 17,193,278 | | 17,193,278 |
| Rough River Kentucky [2] | Complete | Rough River | 10,620,389 | 22,612 | 10,643,001 |
| Kentucky River: | | | | | |
| Booneville Lake, KY | Deauthorized | South Fork of Kentucky River | 60,700,000 | | 60,700,000 [8] |
| Buckhorn Lake, KY [2] | Complete | Middle Fork of Kentucky River | 11,766,206 | | 11,766,206 |
| Carr Fork Lake, KY [2] | Complete | North Fork of Kentucky River | 50,854,826 | | 50,854,826 |
| Eagle Creek Lake, KY | Inactive | Eagle Creek | 27,800,000 | - | 27,800,000 [14] |
| Red River Lake, KY | Deauthorized | Red River | 38,551,692 | 1,794,308 | 40,346,000 |
| Licking River: | | | | | |
| Cave Run Lake, KY [2] | Complete | Licking River | 81,162,282 | | 81,162,282 [7] |
| Falmouth Lake, KY | Deauthorized | Licking River | 125,000,000 | | 125,000,000 [8] |
| Little Miami River: | | | | | |
| Caesar Creek Lake, OH [2] | Complete | Caesar Creek | 62,893,882 | 5,037,000 [9] | 67,930,882 |
| William H. Harsha Lake, OH [2] | Complete | East Fork of Little Miami River | 52,023,157 | 3,485,840 [9] | 55,508,997 |
| Mill Creek: | | | | | |
| West Fork of Mill Creek Lake, OH [2] | Complete | West Fork of Mill Creek | 3,622,302 | 1,100,161[10] | 4,722,463 |
| Wabash River: | | | | | |
| Cagles Mill Lake, IN [2] | Complete | Mill Creek | 4,256,903 | 113,094 [5] | 4,369,997 |
| Cecil M. Harden Lake, IN [2] | Complete | Raccoon Creek | 6,633,812 | 353,995 [5] | 6,987,807 |
| Monroe Lake, IN [2] | Complete | Salt Creek | 7,902,827 | 8,667,947[11] | 16,570,774 |
| Patoka Lake, IN [2] | Complete | Patoka River | 53,095,790 | 20,568,369 | 73,664,159 |

[1] Latest cost estimate revision 1989 unless otherwise noted.
[2] Details of this project given in individual report.
[3] Cash contributions for water supply storage.
[4] Latest cost estimate revision 1954.
[5] For Code 713 recreation development.
[6] Latest cost estimate revision 1975.
[7] Includes $6,900,000 United States Forest Service cost.
[8] Latest cost estimate revision 1979.
[9] Reimbursement for water supply storage.
[10] Includes $520,800 for non-Federal cost for sewer relocation and dam, $50,000 for contributed funds in fulfillment of project authorization, and $529,361 for Code 713 recreation development.
[11] Includes $7,797,604 cash contribution for storage for low-flow regulation and $870,343 non-Federal contribution in kind for recreational facilities.
[12] Includes $14,180,677 cash contribution for water supply storage, and $6,387,692 for initial recreation development.
[13] For $183,732 Code 713 recreation development and $40,001 contributed funds.
[14] Latest cost estimate 1974

**TABLE 24-J**

# WABASH RIVER BASIN
# TOTAL COST OF BASIN PLAN
# (FLOOD CONTROL)
**(See Section 43 of Text)**

| Projects | Type of Construction or Stream | Status | Estimated Cost Federal | Estimated Cost Non-Federal | Estimated Cost Total |
|---|---|---|---|---|---|
| **LOCAL PROTECTION** | | | | | |
| Marion, IN | Wall and Levee | Inactive | $ 3,900,000 | $ 854,000 | $ 4,754,000 [2] |
| **RESERVOIRS** | | | | | |
| Big Blue Lake, IN | Big Blue River | Deauthorized | 87,200,000 | 53,836,000 [3] | 141,036,000 [4] |
| Big Walnut Lake, IN | Big Walnut Creek | Deauthorized | 81,800,000 | 45,069,000 [5] | 126,869,000 [4] |
| Downeyville Lake, IN | Flatrock and Little Flatrock Rivers | Inactive | 74,200,000 | 64,448,000 [6] | 138,648,000 [1] |
| Helm Lake, IN | Skillet Fork | Deauthorized | 25,171,000 | 14,829,000 [7] | 40,000,000 [8] |
| Louisville Lake, IL | Little Wabash River | Deauthorized | 113,000,000 | 14,435,000 [9] | 127,435,000 [10] |

[1] Latest cost revision 1984 unless otherwise noted.

[2] Latest cost estimate revision 1977.

[3] Includes $38,190,000 reimbursable by non-Federal interests for water supply and $15,656,000 reimbursable for initial recreation facilities.

[4] Latest cost estimate revision 1979.

[5] Includes $26,663,000 reimbursable by non-Federal interests for water supply and $18,406,000 reimbursable for initial recreation facilities.

[6] Includes $53,084,000 reimbursable by non-Federal interests for water supply, $8,749,000 reimbursable for initial recreation facilities.

[7] Includes $12,696,000 reimbursable by non-Federal interests for water supply and $2,133,000 reimbursable for initial recreation facilities.

[8] Latest cost estimate revision 1975.

[9] Includes $8,402,000 reimbursable by non-Federal interests for water supply and $6,033,000 reimbursable for initial recreation facilities.

[10] Latest cost estimate revision 1982.

**TABLE 24-K**

**INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS**
**(See Section 46 of Text)**

| Projects | Date of Inspection |
|---|---|
| **Local Protection Projects** | |
| Bardstown, KY | April 2008 |
| Brevoort Levee, IN | Sep 2006 |
| Brookport, IL | Jun 2008 |
| Cache River Levee, IL | Aug 2003 |
| Cannelton, IN | Apr 2008 |
| Cincinnati, OH | Jul 2008 |
| Covington, KY | Jul 2008 |
| Dayton, KY | Jul 2008 |
| Delphi, IN | Sep 2006 |
| England Pond Levee, IL | Sep 2006 |
| Evansville, IN | Jul 2008 |
| Frankfort, KY, North Frankfort | May 2008 |
| Gill Township Levee, IN | Sep 2006 |
| Golconda, IL | May 2008 |
| Harrisburg, IL | May 2008 |
| Hagerstown, IN | Aug 2008 |
| Hawesville, KY | Apr 2008 |
| Indianapolis, IN | Jul 2008 |
| Jeffersonville-Clarksville, IN | May 2008 |
| Lawrenceburg, IN | Jul 2008 |
| Lebanon Junction, KY | May 2008 |
| Levee Unit No. 5, Wabash River, IN | Sep 2006 |
| Levee Unit No. 8, Wabash River, IN | Aug 2004 |
| Louisville, KY | Mar 2009 |
| Lyford Levee, IN | Sep 2006 |
| Mason J. Niblack Levee, IN | Jul 2006 |
| Mount Carmel, IL | Sep 2006 |
| Muncie, IN | Jul 2008 |
| New Albany, IN | May 2008 |
| Newport, KY | Jul 2008 |
| Paducah, KY | Jun 2008 |
| Perryville, KY | Apr 2008 |
| Reevesville, IL | Jun 2008 |
| Rochester-McClearys Bluff Levee, IL | Sep 2006 |
| Rosiclare, IL | Jun 2008 |
| Rushville, IN | Aug 2008 |
| Shawneetown, IL | Dec 2005 |
| Southwestern Jefferson County, KY | Mar 2009 |
| Sturgis, KY | May 2008 |
| Taylorsville, KY | May 2008 |
| Tell City, IN | Apr 2008 |
| Terre Haute (Conover Levee), IN | Jul 2006 |
| Uniontown, KY | May 2008 |
| Vincennes, IN | Aug 2007 |
| West Terre Haute, IN | Jul 2006 |
| **Channel Improvements** | |
| Canoe Creek, Henderson, KY | Jul 2004 |
| Cypress Creek, McLean County, KY | Sep 1998 |
| Eel River, Brazil Waterworks, IN | May 2003 |
| English, IN (Little Blue River) | Jun 1994 |
| Grassy Creek, Jackson County, IN | Sep 1995 |
| Harrodsburg, KY (Town Creek) | May 2005 |
| Indian Creek, Corydon, IN | Nov 2003 |
| Jackson, KY (North Fork Kentucky River) | Sep 1998 |

**TABLE 24-K**
**CONTINUED**

# INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

**(See Section 46 of Text)**

| Projects | Date of Inspection |
|---|---|
| **Channel Improvements Con't.** | |
| Lancassange Creek, Clark Co, IN | Apr 2003 |
| Lick Creek, Hartford City (Blackford County), IN | Oct 2002 |
| Mill Creek, Jefferson County, KY | Apr 2003 |
| Muscatatuck River, Crothersville, IN | Oct 2002 |
| Neon-Fleming, KY (North Fork Kentucky River) | Nov 2002 |
| Nicholasville (Town Fork) Vicinity, KY | Apr 2003 |
| Panther Creek, Curdsville, KY | Sep 1998 |
| Plum Creek, Spencer County, KY | Apr 2003 |
| Portland, IN (Salamonie River) | Jun 2005 |
| Rough River, Hartford, Ohio County, KY | Nov 1999 |
| Salamonie River, Wells County, IN | Oct 2002 |
| Saline River and Tributaries, IL | Jul 2004 |
| Tripplett Creek, Morehead, KY | Nov 2002 |
| Troublesome Creek, Hindman, KY | Sep 1998 |
| Wabash River, Adams County, IN | Nov 1999 |
| Whitesburg, KY (North Fork Kentucky River) | Aug 1998 |
| **Bank Revetments** | |
| Crooked Creek, City Garage, Madison, IN | Mar 2004 |
| Crooked Creek, John Paul Park, Madison, IN | Mar 2004 |
| Eagle Creek, Indianapolis, IN | Jun 2003 |
| East Fork White River, Brownstown, (Jackson County), IN | Mar 2003 |
| Eighteen Mile Island, Oldham County, KY | Jun 1993 |
| Great Miami River, Sidney, OH | Aug 1995 |
| Green River, Calhoun, KY (River Mile 63.6) | Sep 1995 |
| Green River, Calhoun, KY (River Mile 63.4) | Sep 1998 |
| Indian Creek, Burton Lane, Morgan County, IN | Oct 1999 |
| Licking River, Butler, KY | Aug 1995 |
| Lusk Creek, Golconda, IL | Apr 2006 |
| Little Miami River, Indian Hill, OH | Nov 1999 |
| Little Miami River, Milford, OH | Jul 2005 |
| Nameless Creek, Warren County, IN | Jun 1995 |
| North Fork, Kentucky River, Whitesburg, KY | Oct 2002 |
| Great Miami River, Ice Jam Flooding, Port Jefferson, OH | Nov 1999 |
| Ohio River, Brandenburg, KY | Apr 2003 |
| Ohio River, Carrolton, KY | Feb 2003 |
| Ohio River, Cloverport, KY | Nov 2002 |
| Ohio River, Daviess County, KY | Sep 1998 |
| Ohio River, Fort Massac State Park, IL | Apr 2005 |
| Ohio River, Hawesville, KY | Sep 1998 |
| Ohio River, Lewisport, KY | Nov 2002 |
| Ohio River, Madison, IN | Mar 2004 |
| Ohio River, Moscow, OH | Jan 2000 |
| Ohio River, Mount Vernon, IN | Jul 2004 |
| Ohio River, Newburgh, IN | Jul 2004 |
| Ohio River, Ohio Street, Evansville, IN | Jul 2004 |
| Ohio River, Otter Creek Park, KY | Mar 2004 |
| Ohio River, Owensboro, KY | Sep 1998 |
| Ohio River, Owensboro Riverport Authority, KY | Feb 1995 |
| Ohio River, Rabbit Hash, Boone County, KY | May 2004 |
| Ohio River, Rockport/Rockport Landing, IN | Aug 1998 |
| Ohio River, Sellersburg, IN | Nov 2002 |
| Ohio River, SR 66, Cannelton, IN | Nov 2002 |
| Ohio River, Troy, IN | Nov 2002 |

**TABLE 24-K**
**CONTINUED**

# INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

**(See Section 46 of Text)**

| Projects | Date of Inspection |
|---|---|
| **Bank Revetments Con't** | |
| Ohio River, Upper River Road, Jefferson County, KY | Jul 1991 |
| Ohio River, Vanderburg County, IN | Aug 1998 |
| Patoka River, Jasper, IN | Oct 1993 |
| Patoka River, Winslow, IN | Jul 1995 |
| South Fork of Wildcat Creek, County Road 7 East, Tippecanoe County, IN | May 2004 |
| Stoner Creek, North Middletown, KY | Jul 1994 |
| Wabash River, near Merom, IN | Aug 2004 |
| Wabash River, New Harmony, IN | Sep 2004 |
| Wabash River, Terre Haute STP Outfall | May 2005 |
| Wabash River, Vigo County, County Road 83 West | May 2005 |
| Wabash River, Vigo County, Little Road | May 2005 |
| White River, Morgan County, Blue Bluff Road, IN | Oct 1999 |
| White River, Petersburg (Pike County), IN | Jul 1995 |
| Whitewater River, Levee Road, near Brookville, IN | Apr 1995 |
| Wastewater Treatment Plant, Great Miami River, Ross, OH | Apr 1995 |

**TABLE 24-L**

# FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

**(See Section 48 of Text)**

| | Fiscal Year Cost | | |
|---|---|---|---|
| | **Federal** | **Non-Fed** | **Total** |
| **Environmental Restoration (Section 1135)** | | | |
| Hovey Lake Habitat Development ARRA[2] | 31791 | | 31791 |
| Green River Dam, MOD KY[2] | 94000 | | 94000 |
| **Flood Control (Section 205)** | | | |
| Banklick Creek, Kenton County, KY | 0 | 0 | 0 |
| Beaver Creek, Frenchburg, KY [2] | 5703 | | 5703 |
| Coordination Account [8] | 14740 | | 14740 |
| Dugan Run, Urbana, OH [2] | 9968 | | 9968 |
| Elizabethtown, KY [2] | 180 | | 180 |
| Feather Creek, Clinton, IN [1] | 3154 | | 3154 |
| Hinkston Creek Mt. Sterling, KY [2] | 0 | 2722 | 2722 |
| Pleasant Creek, Greenwood, IN [2] | -40838 | 40838 | 0 |
| Rolling Fork River, Lebanon Junction, KY [3] | 85687 | -85687 | 0 |
| White River, Anderson, IN [3] | 3645 | | 3645 |
| Amberly Creek[2] | -17143 | 17143 | 0 |
| **Emergency Bank Protection (Section 14)** | | | |
| Coordination Account [8] | 3782 | | 3782 |
| Crooked Creek, Madison, IN [1] | 5203 | | 5203 |
| Hodgenville, KY[1] | 60416 | 20327 | 80743 |
| Rockport, IN [1] | 9778 | 10075 | 19853 |
| South Harrison Co., IN [1] | 0 | | 0 |
| South Harrison Co., Water Corp, IN [4] | 0 | | 0 |
| White River, Knox County, Hwy 358, KY [1] | 5392 | | 5392 |
| Bluffton, Wells County IN[2] | 24981 | | 24981 |
| **Snagging & Clearing (Section 208)** | | | |
| Deer Creek, Webster Co., KY [1] | 70 | | 70 |
| **Navigation – Rivers & Harbors (Sec 107)** | | | |
| None | | | |
| **Aquatic Ecosystem Restoration (Section 206)** | 0 | 0 | 0 |
| None | | | |

[1] Planning and Design Analysis (PDA).
[2] Feasibility Report.
[3] Plans and Specifications.
[4] Construction Funds Received or Construction Underway.
[5] Construction Completed.
[6] Study Terminated.
[7] Preliminary Restoration Plan.
[8] Coordination Account.

**TABLE 24-M**

# GENERAL INVESTIGATIONS

**(See Sections 49,50,51 & 52 of Text)**

| Projects | Fiscal Year Cost Federal | Non-Fed | Total |
|---|---|---|---|
| **SURVEYS** | | | |
| **Navigation Studies** | | | |
| Ohio River Mainstem, Uniontown, KY, IL, IN | 15460 | | 15460 |
| **Flood Damage Prevention Studies** | | | |
| Metro Louisville, Mill Creek, KY | 48427 | 13779 | 62206 |
| Metropolitan Louisville, Southwest | 0 | 29616 | 59616 |
| Ohio River, Southeastern, IL | 4958 | 0 | 4958 |
| **Subtotal** | **53385** | **73395** | **126780** |
| Special Studies | | | |
| Central Wasbash Corridor | 14316 | | 14,316 |
| Grayville Dam, IL | 10987 | | 10,987 |
| Ohio River & Tributaries | 62339 | | 62339 |
| Paducah KY | 213730 | 53,156 | 266886 |
| Northern KY Riverfront Commons, KY | 3124 | | 3124 |
| **Subtotal** | **304496** | | **357652** |
| **Review of Authorized Projects** | | | |
| **None** | **0** | | **0** |
| **Miscellaneous Activities** | | | |
| Federal Energy Regulatory Commission | 3803 | | 3803 |
| Intra-Agency Water Resources Development | 19971 | | 19971 |
| N. American Waterfowl Management Plan | 1295 | | 1295 |
| Special Investigation, KY | 24752 | - | 24752 |
| **Subtotal** | **49821** | | **49821** |
| **PRECONSTRUCTION ENGINEERING AND DESIGN** | | | |
| **Navigation Project - Lock and Dams** | | | |
| John T. Myers Locks and Dam | 0 | - | 0 |
| **Flood Control Projects - Local Protection** | | | |
| Ohio Riverfront Study, Cincinnati, OH | 0 | | 0 |
| Licking River Watershed, Cynthiana, KY | 39466 | 17,554 | 57020 |
| **Subtotal** | **39466** | | **57020** |
| **COORDINATION WITH OTHER AGENCIES** | | | |
| **Coordination with other Agencies and Non-Federal Interest** | | | |
| Coop w/other Water Agencies | **6929** | **-** | **6929** |
| **Planning Assistance to States** | | | |
| PAS-IN-Gibson Co. | 0 | 0 | 0 |
| PAS-IN-Lafayette, Tippecanoe Co. | 0 | 625 | 625 |
| PAS-IN-Lafayette, Wabash River | 10527 | 12834 | 23361 |
| PAS-KY-City of Owensboro | 0 | 0 | 0 |
| PAS-KY-Harrodsburg. | 0 | 6698 | 6698 |
| PAS-KY-Radcliff, Hardin Co | 1133 | 59118 | 60251 |
| PAS-KY-Richmond | 1350 | 1411 | 2761 |
| PAS-Negotiation Funds | 25338 | - | 25338 |
| PAS-OH-Sydney. | 141492 | 175272 | 316764 |
| PAS-OH-Wolf Creek Watershed, Montgomery Co. | 0 | 301 | 301 |
| PAS-KY-Louisville Parks Watershed Study | 13393 | 8080 | 21473 |
| PAS-KY- Shelby County | 11488 | 99489 | 110977 |
| PAS-Wabash River Enhancement Project | 107820 | 5185 | 113005 |
| Subtotal | **312541** | **369013** | **681554** |
| **COLLECTION AND STUDY OF BASIC DATA** | | | |
| **Flood Plain Management Services** | | | |
| Flood Plain Management Services | 45496 | - | 45496 |
| Quick Responses | 2402 | - | 2402 |
| Technical Service, General | 16686 | - | 16686 |
| **Subtotal** | **64584** | | **64584** |
| **Hydrologic Studies** | | | |
| Hydrologic Studies | 0 | - | 0 |

# HUNTINGTON, WV, DISTRICT

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in the text and also appear at the end of this chapter.

The Huntington District includes central and south-eastern Ohio, all of West Virginia except the northern panhandle and northeastern portion, the eastern portion of Kentucky, a portion of midwestern Virginia, and a very small portion of northwestern North Carolina, embraced in the drainage basin of the Ohio River and its tributaries from approximate river mile 127 (below Pittsburgh, PA) to approximate river mile 438, immediately upstream from Foster, KY. The drainage area of the Huntington District is approximately 44,914 square miles.

# Improvements


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## NAVIGATION

## 1. CONSTRUCTION OF LOCKS AND DAMS ON THE OHIO RIVER

See this heading under Chapter 19 – Ohio River.

## 2. KANAWHA RIVER, WV

**Location.** The Kanawha River is approximately 97 miles in length and is formed by the junction of the New and Gauley Rivers, a short distance above Kanawha Falls, WV, and flows generally northwesterly to the confluence with the Ohio River at Point Pleasant, WV.

**Previous projects.** For details of previous projects see the Annual Reports for 1875, 1915 and 1938.

**Existing project.** The existing project consists of three navigation structures on the Kanawha River. London Locks and Dam are located approximately 83 miles above the mouth of the Kanawha River and approximately two miles downstream from Montgomery, WV. Marmet Locks and Dam are located approximately 68 miles above the mouth of the Kanawha River at Marmet, WV. Winfield Locks and Dam are located approximately 31 miles above the mouth of the Kanawha River at Winfield, WV. The lower 31 miles of the Kanawha River are located in the Robert C. Byrd Locks and Dam navigation pool. For information about Robert C. Byrd Locks and dam, see Chapter 19 – Ohio River. This system of locks and dams provides a navigable depth of nine feet from the mouth of the Kanawha River to a point approximately 91 miles upstream. For further cost details see Table 25-A and Appendix C. Public Law 99-88 authorized the initiation of engineering and design and real estate acquisition for Winfield locks replacement, and WRDA 1986 authorized the construction of the project. The project consisted of construction of an additional 800 foot by 110 foot lock chamber adjacent to the existing locks and continued use of the riverward lock chamber and the navigation dam. The contracts for Lock Replacement are complete. Dedication of the new lock took place on November 21, 1997. The fully funded estimate is $236,300,000, which is 50 percent Federal cost and 50 percent Inland Waterways Trust Fund cost. Remaining activities include completion of the system environmental mitigation requirements and disposal of surplus lands to the National Guard.

Public Law 104-303 authorized construction of a new lock chamber at Marmet Locks and Dam. The plan includes construction of a new 800 foot by 110 foot lock chamber on the right descending bank landward of the existing locks and the continued use of the twin 360 foot by 56 foot chambers and rehabilitation of the existing navigation dam. The contract for lock replacement was awarded in May 2002 and is 99% complete. The new lock chamber was placed in service on January 22, 2008. All construction is scheduled for completion in 2010. The fully funded estimate is $405,800,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost. The major rehabilitation report is scheduled for completion in 2010. The London Locks and Dam major rehabilitation efforts are complete. For details, see the Annual Report for 2004.

In addition to the navigation structures on the Kanawha River, the Corps of Engineers participated with the City of Charleston in construction of a riverfront park on the right descending bank near downtown Charleston. For details, see the Annual Report for 2005.

Security measures were completed at the London Locks and Dam at a cost of $690,000 in FY 2006; at the Marmet Locks and Dam at a cost of $686,000 in FY 2005; and at Winfield Locks and Dam at a cost of $1,736,000. For details, see the Annual Report for FY 2008.

**Local cooperation.** All requirements for local cooperation have been completed.

**Terminal facilities.** There are 100 terminals along the Kanawha River located from the mouth of the river to 30 miles east of Charleston, WV. These terminals are constructed principally of steel and wood mooring piles and steel pile mooring cells. Eighteen of these terminals have railroad connections. Five terminals are paved wharves and one is owned by the City of Charleston, WV. The remaining terminals are privately owned. The principal commodities handled are coal, chemicals, acids, cement, gasoline and oil, and sand and gravel. For further details see the 1962 Annual Report.

**Operations during the fiscal year.** The locks and dams were operated as required and necessary repairs and improvements were made to the locks and dams as well as to the appurtenant structures and grounds. Channel inspections were conducted periodically. In FY 2009, 19,000 cubic yards at a cost of $236,900 was dredged by contract on the Kanawha River

Maintenance activities accomplished in FY 2009 include replacement of the bulkhead crane and rails at London L&D, replacement of the roller gate chain segments at Winfield L&D, and initiation of plans and specifications for the needle dam. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include completing a geotechnical investigation of the left abutment seepage and misalignment at Winfield L&D, performing a comprehensive evaluation of project datums at all L&Ds, dredging the navigational channel, replacing the culvert intake screens at London L&D, removing lead paint in the operations building at Winfield L&D, developing Historic Properties Management Plans for all L&Ds, and hiring additional maintenance staff.

## 3. OPEN CHANNEL WORK, OHIO RIVER

See this heading under Chapter 19 – Ohio River.

## 4. DREDGING

Channel inspections are conducted periodically on the Big Sandy River, Elk River, and the Portsmouth Harbor as necessary. No dredging was conducted at the Portsmouth Harbor in FY 2009. During FY 2009, 212,000 cubic yards was dredged by contract on the Big Sandy River at a cost of $1,297,500. During FY 2009, 57,000 cubic yards was dredged by contract on the Elk River at a cost of $351,200 using American Recovery and Reinvestment Act (ARRA) funds.

## 5. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 25-c.

### FLOOD CONTROL

## 6. ALUM CREEK LAKE, OH

**Location.** The dam site is located in Delaware County, OH, on Alum Creek, a tributary of Big Walnut Creek, approximately 26 miles above the mouth of Alum Creek and 15 miles north of Columbus, OH, and approximately 157 miles above the mouth of the Scioto River. The reservoir is located in Delaware County, OH.

**Existing project.** The existing project consists of a rolled earth fill dam 93 feet in height and 10,200 feet in length with a gate controlled spillway located in the right abutment. The reservoir provides for a total storage of 134,800 acre-feet and controls a drainage area of approximately 123 square miles. See also Appendix A. Construction of the dam and appurtenant works was completed in August 1974. A total of 405 tracts of land were acquired for the project. The non-Federal sponsor is required to reimburse the Government an estimated $27,880,000, exclusive of interest, for cost allocated to water supply. The Ohio Department of Natural Resources reimburses the Government $1,500,000 towards the principal and interest on this amount and $250,000 for the cost of providing the water annually. The total cost of the project was $56,267,422.

**Local cooperation.** For details of required local cooperation see the 1981 Annual Report.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $57,999. To date, the project has prevented an estimated $11,030,384 in flood damages.

Maintenance activities accomplished in FY 2009 include replacement of concrete paved gutter along the toe of the embankment with stone and constructing a picnic shelter. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include updating the Master Plan, replacing playground equipment, paving access roads, placing rip rap to protect a historical cemetery, hiring additional staff, replacing the patrol boat, and pouring sidewalks for ADA accessibility.

## 7. BEECH FORK LAKE, WV

**Location.** The dam site is located in Wayne County, WV, on Beech Fork Creek, a tributary of Twelvepole Creek, approximately four miles above the mouth of Beech Fork Creek and 20 miles above the confluence of Twelvepole Creek and the Ohio River. The reservoir is located in Wayne County, WV.

**Existing project.** The existing project consists of a rolled earth fill dam 86 feet in height and 1,080 feet in length, an uncontrolled spillway landward of

the left abutment of the dam with a control structure at the upstream end. The reservoir provides a total storage of 37,540 acre-feet and controls a drainage area of approximately 78 square miles. Construction of the dam was initiated in December 1972 and completed in February 1977. See also Appendix A. A total of 485 tracts of land were acquired for the project. The total cost of the project was $41,987,500.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date the project has prevented an estimated $20,437,000 in flood damages.

Maintenance activities accomplished in FY 2009 include replacement of a waterline from the dam to the beach. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include rehabilitating the Visitor Center, replacing playground equipment, and hiring additional staff.

## 8. BLUESTONE LAKE, WV

**Location.** The dam site is located on the New River in Summers County, WV, approximately three miles above Hinton, WV, and one mile from the confluence of the New and Greenbrier Rivers. The reservoir is located in Summers County, WV, and Giles County, VA.

**Existing project.** The existing project consists of a concrete gravity dam 165 feet in height and 2,048 feet in length. Appurtenant structures consist of a gated spillway 790 feet in length located in the channel section of the dam. The stilling pool is formed by a 23-foot-high weir located 364 feet downstream of 16 gated sluices through the spillway section and discharging into the stilling pool. Penstocks were installed at the time of construction to permit the future installation of hydropower. The reservoir provides for a total storage of 631,000 acre-feet and controls a drainage area of approximately 4,565 square miles. See also Appendix A. For further details see the 1939 and 1962 Annual Reports. Construction of the dam was initiated in January 1942 and completed in April 1952. A total of 338 tracts of land were acquired for the project. The total cost of the project was $29,458,652, which includes expenditures under the recreation at completed projects program.

In FY 2000 Dam Safety Assurance activities were initiated at Bluestone Dam. The project has been categorized as Class II in the Corps inventory based on the 2005 Portfolio Risk Assessment. Modifications include increasing the height of the dam eight feet; installing over 600 anchors; constructing thrust blocks; constructing gate closures across State Route 20; modifying penstocks to supplement discharge capacity; and relocating electrical lines. The Phase 1 contract, consisting of construction of a temporary access bridge, modification to existing penstocks, and construction of concrete thrust block is complete. Phase 2A, consisting of constructing a fishing pier, Route 20 gate closure, east abutment, and miscellaneous other work, was awarded in June 2004 and is complete. Phase 2B, consisting of installation of anchors on critical monoliths, was awarded in August 2005 and is about 45% complete to date. Delays early in the contract were due to a bid protest which delayed the notice to proceed. A recent review by an interagency team (Issue Evaluation Study – IES) identified additional risk and life safety issues associated with flood frequency curves, factors of safety, consequences, scour and rock strengths. As a result of the risk assessment, both risk management and risk communications are underway and several features of the project have been advanced to expeditiously reduce risk – ARRA funds added anchoring actions to the existing Phase 2B contract to strengthen key monoliths so that the interim maximum flood control pool could be increased. Phase 3 will provide a scour protection system in the penstock area and Phase 4 will focus anchor installation in key monoliths to provide for an additional increase in the interim maximum flood control pool. The issues highlighted in the IES will shape the final design phase, Phase 5. The fully funded estimate for this work is $232,000,000 (full Federal expense). Once final design solutions are determined, there will be an impact to the fully funded estimate.

Public Law 106-53, Section 361, authorized the Corps to implement a plan for debris management at Bluestone Lake, which included a multi-level intake tower for passing drift through the dam, improved access to Leatherwood Landing to facilitate debris removal from the lake surface, improved operating equipment, a public awareness program, and downstream cleanup of manmade debris. In April 2001, a contract to construct the tower and other project features was awarded and is complete. The fully funded estimate for this work is $15,700,000.

The Cooperative Agreement to provide for downstream cleanup was executed September 2009. The public awareness program has been developed and is being conducted by non-Federal interests throughout the watershed.

Security measures were completed at the project at a cost of 390,000 in FY 2006. For details, see the Annual Report for FY 2008.

The Tri-Cities Power Authority (TCPA) has been authorized to develop and construct hydroelectric generating facilities at Bluestone Lake by Section 4 of the Flood Control Act of June 28, 1938 (52 Stat. 1217), as amended by Section 547 WRDA 2000, P.L. 106-541 and Section 122 of E&WDAA 2005, P.L. 109-103. TCPA, an administrative entity established pursuant to Section 8-23-1 et seq. of the West Virginia code, is comprised of the West Virginia cities of Hinton, Philippi and White Sulphur Springs. WRDA 2000 requires TCPA to enter into a tri-party agreement with the Secretary of the Army (acting through the Commander, U.S. Army Corps of Engineers, Huntington District) and the Secretary of Energy (acting through the Administrator of the Southeastern Power Administration (SEPA)). The Huntington District, SEPA and TCPA are currently in the process of developing the tri-party agreement. Concurrently, TCPA is responsible for performing analyses and developing documentation for the NEPA process. As the Corps of Engineers is the lead Federal agency in this project, the Huntington District is responsible for providing oversight and input to the NEPA process.

During FY 2009, TCPA elected not to renew their agreement with the developer for the project, Mancor Industries, Inc. Subsequently, TCPA advertised for and solicited a new developer. As a result of that solicitation, TCPA conducted more detailed discussions with American Municipal Power (AMP), of Columbus, OH. AMP conducted a preliminary analysis of the proposed project, and determined that the economic feasibility of the project was less attractive than similar analyses by Mancor.

As of this date, it is expected that the project will be delayed either indefinitely, or until all of the Dam Safety Assurance construction completed.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $28,000. To date, the project has prevented an estimated $2,070,558,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include rehabilitating foundation drains, replacing playground equipment, upgrading an access road, and hiring additional staff.

## 9. BURNSVILLE LAKE, WV

**Location.** The dam site is located in Braxton County, WV, on the Little Kanawha River, approximately two miles above Burnsville, WV, and 124 miles above the confluence of the Little Kanawha River and the Ohio River. The reservoir is located in Braxton County, WV.

**Existing project.** The existing project consists of a rock fill embankment dam 89 feet in height and 1,400 feet in length with a gated spillway in the left abutment. The outlet works is an integral part of the spillway, consisting of five sluice gates and one low flow sluice. The reservoir provides for a total storage of 65,900 acre-feet and controls a drainage area of approximately 165 square miles. Construction of the dam was completed in January 1976. See also Appendix A. A total of 357 tracts of land were acquired for the project. The total cost of the project was $57,166,839.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $1,408,000. To date, the project has prevented an estimated $145,496,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include upgrading utilities in the campground, replacing playground equipment, performing maintenance on the National Historic Trail and structures in the Bulltown historic area, and hiring additional staff.

## 10. DEER CREEK LAKE, OH

**Location.** The dam site is located in Pickaway County, OH approximately seven miles south of Mount Sterling, OH, on Deer Creek, a tributary of the Scioto River, approximately 21 miles above the mouth of Deer Creek and approximately 106 miles above the mouth of the Scioto River. The reservoir is located in Pickaway and Fayette Counties, OH.

**Existing project.** The existing project consists of a rolled earth fill dam 93 feet in height and 3,880 feet in length, a 741-foot concrete gravity channel section controlled by three tainter gates, an outlet works consisting of five gated sluices through a concrete spillway section discharging into a stilling basin and an earth dike 15 feet by 4,600 feet in a saddle located approximately four miles southwest of the dam site. The reservoir provides a total storage of 102,540 acre-feet and controls a drainage area of approximately 278 square miles. Construction of the dam was completed in May 1968. A total of 138 tracts of land were acquired for the project. For further project details see the 1965 Annual Report. See also Appendix A. The total cost of the project was $20,406,545, including expenditures under the recreation at completed projects program.

**Local cooperation.** For details of required local cooperation see the 1981 Annual Report.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated $42,000 in flood damages during the fiscal year. To date, the project has prevented an estimated $75,131,000 in flood damages.

Maintenance activities accomplished in FY 2009 include replacing the elevator and motor control panel in the intake structure, repairing the emergency spillway gate arms, installing a restroom in the fisherman's access area, and purchasing and installing playground equipment in the downstream area. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include repairing the Visitor Center roof, paving access roads and parking areas, removing invasive species, installing ADA accessible doors in the Information Center, constructing sidewalks in the downstream recreation area, and hiring additional staff.

## 11. DELAWARE LAKE, OH

**Location.** The dam site is located on the Olentangy River, approximately six miles north of Delaware, OH, and approximately 32 miles above the confluence of the Olentangy and Scioto Rivers at Columbus, OH. The reservoir is located in Delaware, Marion and Morrow Counties, OH.

**Existing project.** The existing project consists of a rolled earth fill dam 92 feet in height and 18,600 feet in length, a gate controlled concrete gravity spillway, and five outlet conduits in the channel. The reservoir provides for a total storage of 132,800 acre-feet and controls a drainage area of approximately 386 square miles. Construction of the dam was completed in July 1948. For further details see the 1962 Annual Report. See also Appendix A. Total real estate requirements of 7,703 acres of fee acquisition and 2,428 acres of flowage easements were acquired for the project. The total cost for the project was $7,631,821.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $24,000. To date, the project has prevented an estimated $133,660,000 in flood damages.

Maintenance activities accomplished in FY 2009 include repairing concrete in the stilling basin; installing generators, pads platforms and security fence at Waldo Levee pump station; replacing the sluice gate electrical supply and switch control system; and constructing vehicle and equipment turn pads at Waldo Levee pump stations. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include updating the Master Plan; renovating the spillway gates; constructing a picnic shelter and playground; preparing the Levee Certification for Waldo Levee per FEMA requirements; installing a restroom in the downstream fisherman's area; extending water and electric service to all picnic shelters and downstream restrooms; replacing and constructing ADA accessible sidewalks, table, shelter, and kiosk concrete pads; and hiring additional staff.

A Dam Safety Assurance Program Evaluation Report for Delaware Dam was initiated in FY 2009.

## 12. DEWEY LAKE, KY

**Location.** The dam site is located on Johns Creek, approximately seven miles southeast of Paintsville, KY, and approximately six miles above the confluence of Johns Creek and the Levisa Fork of the Big Sandy River. The reservoir is located in Floyd County, KY.

**Existing project.** The existing project consists of an earth fill dam 118 feet in height and 913 feet in length, a controlled outlet works discharging through a channel excavated in the left abutment, and a rolled earth fill dike blocking a low divide to Brandykeg Creek and the Levisa Fork. The reservoir provides for a total storage of 93,300 acre-feet and controls a drainage area of approximately 207 square miles. Construction of the dam was completed in July 1949. For further project detail see the 1965 Annual Report. See also Appendix A. Total real estate requirements for the project of 12,458 acres in fee acquisition and 1,170 acres in flowage easements were acquired for the project. The total cost of the project was $7,845,547, including expenditures under the recreation at completed projects program.

Dam safety assurance activities are complete at Dewey Dam. For details, see the Annual Report for FY 2008.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $1,941,000. To date, the project has prevented an estimated $93,148,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include replacing playground equipment, surveying and marking the boundary at the project, and hiring additional staff.

## 13. DILLON LAKE, OH

**Location.** The dam site is located on the Licking River, approximately six miles above the confluence of the Licking and Muskingum Rivers at Zanesville, Ohio. The reservoir is located in Muskingum County, OH.

**Existing project.** The existing project consists of a rolled earth fill dam 118 feet in height and 1,400 feet in length, a controlled outlet works discharging through a 20-foot conduit in the right abutment, an ungated 280-foot spillway adjacent to the left abutment of the dam, and two rolled earth fill dikes. The reservoir provides for a total storage of 274,000 acre-feet and controls a drainage area of approximately 748 square miles. Construction of the dam was completed in July 1959. For further project details see the 1962 Annual Report. See also Appendix A. Total real estate requirements of 8,232 acres in fee acquisition and 5,380 acres of flowage easements were acquired for the project. See also Appendix A. The total cost of the project was $30,218,135.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $186,000. To date, the project has prevented an estimated $640,611,000 in flood damages.

Maintenance activities accomplished in FY 2009 include repairing the intake structure bridge and paving multiple areas at the project. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include installing a waterless restroom, replacing the office roof with a metal roof and solar panels, purchasing ADA accessible picnic tables and constructing accessible paths to the below dam area, and hiring additional staff.

## 14. EAST LYNN LAKE, WV

**Location.** The dam site is located in Wayne County, WV, approximately six miles southeast of Wayne, WV, 10 miles above the mouth of East Fork and 42 miles above the confluence of Twelvepole Creek and the Ohio River. The reservoir is located in Wayne County, WV.

**Existing project.** The existing project consists of an earth fill dam 113 feet in height and 652 feet in

length, an uncontrolled spillway near the left abutment of the dam, and a 13-foot reinforced concrete tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 82,500 acre-feet and controls a drainage area of approximately 133 square miles. Construction of the dam was completed in 1971. A total of 552 tracts of land were acquired for the project. See also Appendix A. The total cost of the project was $85,872,963.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $1,990,000. To date, the project has prevented an estimated $86,092,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include completing stream bank repair and protection, removing drift and debris, replacing playground equipment, paving access roads, purchasing a picnic shelter, and hiring additional staff.

## 15. FISHTRAP LAKE, KY

**Location.** The dam site is located in Pike County, KY, on the Levisa Fork of the Big Sandy River, approximately 15 miles upstream from Pikeville, KY, approximately three miles above the confluence of Levisa and Russell Forks and 103 miles above the mouth of the Levisa Fork. The reservoir is located in Pike County, KY.

**Existing project.** The existing project consists of a rock fill dam 195 feet in height and 1,100 feet in length, a controlled spillway containing four tainter gates located in the valley wall adjacent to the left abutment of the dam; the outlet works consist of an intake structure with three conduits controlled by slide gates and discharging into a horseshoe shaped tunnel. The reservoir provides for a total storage of 164,360 acre-feet and controls a drainage area of approximately 392 square miles. Construction of the dam was completed in February 1969. See also Appendix A. A total of 1,301 tracts of land were acquired for the project. The total cost for the project was $54,754,126, which includes expenditures under the recreation at completed projects program.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $2,584,000. To date, the project has prevented an estimated $608,139,000 in flood damages.

Maintenance activities accomplished in FY 2009 include replacing the security cameras at the project. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include updating the Master Plan, renovating security fencing, rehabilitating the campground including upgrading the electric service, replacing playground equipment, stabilizing the shoreline and roadway embankment, and hiring additional staff.

## 16. GRAYSON LAKE, KY

**Location.** The dam site is located in Carter County, KY, on the Little Sandy River approximately 49 miles above the confluence with the Ohio River, and 11 miles upstream from Grayson, KY. The reservoir is located in Carter County, KY.

**Existing project.** The existing project consists of a random earth fill dam 120 feet in height and 1,460 feet in length, and a controlled outlet works discharging though a 14-foot spillway beyond the left abutment. The reservoir provides for a total storage of 119,000 acre-feet and controls a drainage area of approximately 196 square miles. Construction of the dam was completed in January 1968. See also Appendix A. A total of 484 tracts of land were acquired for the project. The total cost of the project was $19,162,741, which includes expenditures for recreation facilities under the completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The Rattlesnake Ridge Water District reimburses the Government $5,600 towards the principal and interest of the construction cost and $4,500 for the cost of providing the water annually.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were

made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $16,000. To date, the project has prevented an estimated $109,402,000 in flood damages.

Maintenance activities accomplished in FY 2009 include installing a restroom and replacing playground equipment. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include updating the Master Plan, maintaining the Historic Horton House, stabilizing the stream bank along the nature trail, laying gravel in parking areas, and hiring additional staff.

## 17. GREENBRIER RIVER, MARLINTON, WV

**Location**. The Greenbrier River Basin is located in eastern West Virginia. The Greenbrier River flows 167 miles through the counties of Pocahontas, Greenbrier, Monroe, and Summers. The basin has a drainage area of 1,641 square miles. The town of Marlinton is located along the Greenbrier River, 109 miles upstream from its confluence with the New River. The project area includes approximately four miles of the Greenbrier River, the lower mile of Knapps Creek, and along Stony Creek downstream of the community of Campbelltown. Marlinton is served by WV Route 39 (WV 39) and US Route 219. The tributaries of Stony Creek (23 sq. mi. drainage area) and Knapps Creek (134 sq. mi. drainage area) both enter the Greenbrier River within the project area. The drainage area for the Greenbrier River at Marlinton is approximately 518 square miles.

**Existing Project**. The plan for the Marlinton Local Protection Project consists of over 16,000 feet of levee/floodwall to be built on both sides of the river, protecting the downtown Marlinton and Riverside areas, with pump stations to handle interior drainage, in addition to utility relocations, acquisitions, and environmental mitigation. There will be four gate openings in the Marlinton section of the project, two for the Greenbrier Trail and two for town streets, as well as two on the Riverside portion. The current project estimate is $194,940,000 and the project is to be cost shared 87% Federal and 13% non-Federal, in accordance with ability to pay legislation. The project was authorized by Sec 579 WRDA 1996, P.L. 104-303, as amended by Sec. 360 of WRDA 1999, P.L. 106-53, and Sec 3168 of WRDA 2007; with this latest amendment $99,000,000 is authorized to be appropriated.

**Local cooperation**. Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary; pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities. The local share is $25,340,000 and is to be used for Lands, Easements, Rights of Way, Relocations, and Disposals (LERRDs). The local cost share to date has been deferred under a design waiver and is due to be paid back when the Project Partnership Agreement is executed.

**Operations during the fiscal year.** Project construction for this project has not started. During FY 2009, $830,880 was expended in the various activities related to this project. Current estimated completion date is 2019, contingent on execution of a PPA in FY 2010.

## 18. ISLAND CREEK AT LOGAN, WV

**Location**. The project is located at Logan, WV, at the confluence of the Guyandotte River and Island Creek. It consists of approximately 0.7 miles of channel improvement, construction of two retaining walls, and installation of a flood warning system. The proposed channel project, along with the flood warning system, will significantly reduce the threat to life and property.

**Existing Project**. The recommended project includes widening the Island Creek channel to an 80-foot bottom width for a distance of 3,700 feet upstream of its confluence with the Guyandotte River. In two locations along this channel reach, post and panel retaining walls will be constructed to stabilize the creek bank behind adjacent commercial structures. The project also includes removal of an existing sandbar and implementation of a flood warning system. The project was authorized by Section 401 of the Water Resources Development Act of 1986 (P.L. 99-662) at a total cost of $86,000,000, with an estimated first Federal cost of $62,200,000 and an estimated first non-Federal cost of $23,800,000.

**Local cooperation**. Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary; pay a cash contribution of at least 5%, as

required by the Water Resources Development Act of 1986, of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities. The sponsor's financial partner (West Virginia Conservation Agency) for the channel currently has funds set aside to begin acquisition of LERRDs. The sponsor signed an agreement for the Corps to acquire real estate for the project on their behalf. The Project Partnership Agreement (PPA) was executed on January 25, 2008. The total estimated cost of the project is $36,000,000, of which $10,070,000 is non-Federal. The sponsor for the flood warning system (FWS) will be the West Virginia Division of Homeland Security and Emergency Management.

**Operations during the fiscal year**. Funds to initiate construction were appropriated in FY 2006. In FY 2009, $241,865 was expended finalizing Plans and Specifications (P&S) and continuing real estate acquisition. Funding has also been used to coordinate the draft PPA with the State of WV for the implementation of the FWS.

## 19. JOHN W. FLANNAGAN DAM AND RESERVOIR, VA

**Location.** The dam site is located in Dickenson County, VA, approximately four miles northwest of Haysi, VA, on the Pound River approximately two miles above the confluence of the Pound River and Russell Fork and approximately 150 miles above the mouth of the Big Sandy River. The reservoir is located in Dickenson County, VA.

**Existing project.** The existing project consists of a rock fill dam 250 feet in height and 970 feet in length, an outlet tunnel located near the left abutment of the dam with a control structure at the upstream end, and spillway controlled by six tainter gates located in a saddle just upstream from the dam site. The reservoir provides for a total storage of 145,700 acre-feet and controls a drainage area of approximately 221 square miles. The project was modified to include water quality control by adding control gates to the previously uncontrolled spillway, which increased the total storage capacity by 39,000 acre-feet. Construction of the dam was completed in December 1963. See also Appendix A. A total of 382 tracts of land were acquired for the project. The total cost of the project was $20,444,383, which includes expenditures under the recreation at completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The John W. Flannagan Water Authority reimburses the Government $8,700 for the cost of providing the water annually.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $295,000. To date, the project has prevented an estimated $285,019,000 in flood damages.

Maintenance activities accomplished in FY 2009 include upgrading the electrical service at the Lower Twin Campground, constructing a park attendant building at Cranesnest Campground, and completing plans and specifications for the rehabilitation of the spillway gates. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include upgrading and paving access roads, replacing the pedestrian bridge at Lower Twin Branch, replacing playground safety surfacing, improving campsite surfaces, and hiring additional staff.

## 20. LEVISA AND TUG FORKS OF THE BIG SANDY RIVER AND UPPER CUMBERLAND RIVER, WV, VA, AND KY

**Location.** The Levisa and Tug Forks form the Big Sandy River at Louisa, KY. The Cumberland portion is the Upper Cumberland River basin above Cumberland Falls, KY. The basin is approximately 100 miles in length and averages approximately 30 miles in width in the lower portion and approximately 10 miles in width above Harlan, KY. The Big Sandy Basin is within the Huntington District, and the Cumberland Basin is within the Nashville District. This report covers that portion of the project located in the Huntington District.

**Existing project.** The authorizing language (Section 202 of PL 96-367, 1981) authorized the Corps of Engineers to design and construct such flood control measures as are determined to be necessary and advisable to prevent future flood damages at several named communities in the Tug and Levisa Forks and Upper Cumberland River Basins, such as occurred in April 1977. The plan

includes levees, floodwalls, and pump stations; the floodproofing and evacuation of structures located in the flood hazard areas; and development of relocation sites for the affected areas. Work continues on an annual basis with available funding. Structural measures have been completed at West Williamson and Williamson, WV; South Williamson, KY; and Matewan, WV. Flood warning systems have been completed for the Levisa Basin and Tug Basin. Non-structural measures are complete at Williamson, WV; Matewan, WV; South Williamson, KY; Upper Mingo County, WV; Lower Mingo County, WV; Wayne County, WV and Hatfield Bottom, WV.
Subsequent legislation (WRDA 1986), required that non-Federal interests cost share construction at no less than 5%. The fully funded estimate for the project is $2,471,474,000, which includes $133,365,000 in non-Federal contributions.

**Local cooperation.** Local cooperation requirements are met through execution of Project Partnership Agreements (PPAs) with local sponsors as each project moves into the implementation phase. The agreements contain requirements in accordance with the cost sharing legislation outlined above.

**Operations during the fiscal year.** Planning efforts to determine what is necessary and advisable to address flooding problems have been completed for the Levisa and Tug Fork Basins and are underway for for Floyd County and Johnson County, in Kentucky.

Implementation of structural and non-structural measures is underway throughout the project basins as follows:
**West Virginia Elements**: McDowell Co. During FY 2008, school relocations were initiated for Bradshaw Elementary and High Schools, and the voluntary floodproofing and acquisition program continued. A McDowell Supplemental Detailed Project Report has been initiated to formulate plans to provide flood protection as authorized by WRDA 2007.

**Kentucky LRH Elements**: Floodproofing and acquisition continues for Pike and Martin Counties. Town of Martin, KY, construction of the Phase 1 redevelopment site is complete and will serve as the location of an alternative school, town hall, and police station. Detail Project Report (DPR) activities for Pike Levisa and Floyd County (Phase 1) are being reviewed and finalized. The Johnson County DPR continues.

**Virginia Elements:** In Grundy, VA, levee/ringwall construction was completed. Flood Warning and Emergency Evacuation Plans were initiated for Buchanan and Dickenson Counties. A Design Documentation Report for the eligible schools (Ervinton HS, Sandlick Elem &Cliinchco Elem) in the Dickenson County Nonstructural Project was initiated.

To date, flood damages prevented in the area include: South Williamson, KY: $1,826,000; and Williamson LPP, WV: $3,801,000.

## 21. LOWER MUD RIVER, MILTON, WV

**Location**. The project is located along the Mud River near Milton, WV.

**Existing Project**. The plan will provide flood protection for the City of Milton, located in Cabell County, WV. The recommended plan is a levee, approximately 8,300 feet long, which would provide protection up to a 250-year flood event (0.4% annual probability of exceedance). Milton has experienced major flooding each decade since the 1960's. The March 1997 flood of record was a 27-year event. A recurrence of that flood today would cause damages in excess of $31 million, and damage more than 350 residential structures, 80 businesses, and 20 public facilities. The project was authorized for construction by Sec. 580 WRDA 1996 (PL 104-30) as amended by Sec 340 WRDA 2000 (PL 106-54) and Section 3170 of WRDA 2007 (PL 110-114).

**Local cooperation.** Draft WRDA 2007 implementation guidance indicates a change in the cost sharing ratio from 75/25% to 65/35% and a requirement to recoup feasibility costs. Local interests are required to provide all lands, easements, and rights-of-way; relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary; pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities. The local sponsor for the project is the city of Milton. The West Virginia Conservation Agency has agreed to provide funding to meet the non-federal cost share. The sponsor supports the recommended flood protection project.

**Operations during the fiscal year**. During FY 2008, $328,481 was expended in the various activities related to this project. WRDA 2007

authorizes the construction of the recommended plan at a total cost of $57.1 million. Corrective language was provided to allow for construction and selection of the 250-year level of protection levee. The decision document will be submitted to HQUSACE for approval. Subsequent activities are premised on this approval. The district is addressing policy review comments.

## 22. MASSILLON, OH

**Location.** The project is located in Stark County, on the Tuscarawas River, approximately 200 miles above the mouth of the Muskingum River.

**Existing project.** The existing project consists of channel improvement to the Tuscarawas River, combined with the construction of drainage facilities, levees and pump stations. For further details see the 1962 Annual Report. Construction was initiated in July 1940 and completed in October 1951. The total cost of the project was $8,139,406.

**Local cooperation.** None required. See the 1962 Annual Report for details of local contribution of work beyond the scope of the project. To date, the system has prevented an estimated $5,711,000 in flood damages.

**Operations during the fiscal year.** Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include performing a levee certification per FEMA requirements.

## 23. MUSKINGUM RIVER LAKES, OH

**Location.** The Muskingum River and its tributaries lie in Southeast Ohio and drain approximately 8,000 square miles. The headwaters rise about 25 miles south of Lake Erie and flow into the Ohio River at Marietta, OH, 172 miles below Pittsburgh, PA. The reservoirs are located in Ashland, Carroll, Coshocton, Muskingum, Guernsey, Harrison, and Tuscarawas Counties.

**Existing project.** The existing project consists of 14 reservoirs and appurtenant works in the Muskingum River Basin. The existing project was originally authorized by the Public Works Administration in February 1934. Construction of the system was completed in November 1938. The system was initially operated and maintained by the Muskingum Watershed Conservancy District of Ohio, the sponsoring agency, from July 1938 to August 1939 when operation and maintenance became the responsibility of the Corps of Engineers in accordance with the provisions of the 1939 Flood Control Act. For further project details, see the 1962 Annual Report. See also Appendix A. The total cost of the project was $41,247,815, which includes expenditures under the recreation at completed projects program.

A significant Major Rehabilitation program was approved in December 1977 in order to assure the integrity of the existing 14 structures under the originally designed maximum pool conditions. Underseepage and abutment seepage problems are being corrected through the installation of downstream blankets, toe drains and/or relief wells and grouting. An interior seepage blanket and toe drain was installed at Magnolia Levee, which protects the town of Magnolia during flood events, and is a part of the Bolivar Dam project. Construction was completed in FY 2005 and the project was closed out in FY 2007.

A related but separate program entitled Dam Safety Assurance has been initiated. Under current hydrologic design standards, deficiencies either exist or have been addressed in the spillways at the 16 projects in the Muskingum system. Corrective measures, including widening present spillways, constructing new spillways and installing parapet walls on top of the dams, have been completed at 8 of the 16 projects. Eight remaining projects with deficiencies need corrective measures. In some cases, new seismic criteria will require dams to be evaluated for seismic deficiencies and corrective measures will be taken if deficiencies are found. Dam Safety Assurance activities are 100% complete at Beach City Lake. For details, see the Annual Report for FY 2008.

A Dam Safety Assurance Program Evaluation Report for Dover Dam was approved by LRD on 18 July 2007. A Major Rehabilitation Report for Bolivar Dam was approved by LRD on 12 June 2009. Muskingum Dam Safety Major Rehabilitation Reports have been initiated for Mohawk Dam, Beach City Dam and Zoar Levee and Diversion Dam.

A study of the operation of the existing projects, including an optimization study and analysis of water

resource needs in the basin, was completed in July 2006 titled the Muskingum Systems Operations Study. For details, see the Annual Report for FY 2008.

**Local cooperation.** All requirements for local cooperation have been met. For further details see the 1942 Annual Report.

**Operations during the fiscal year.** The projects were operated for flood control as required and necessary repairs were made to the structures and appurtenances. The system prevented an estimated $370,000 in flood damages during the fiscal year. To date, the system has prevented an estimated $3,917,511,000 in flood damages.

Maintenance activities accomplished in FY 2009 include continuing Interim Risk Reduction Measures at Dover, Bolivar, Beach City, and Mohawk Dams; completing the plans and specifications for the service bridges at Atwood and Piedmont Dams; replacing the catwalk in the intake structure at Mohicanville Dam; improving the access road for pumping operations at Somerdale Levee; and completing bank stabilization efforts at Beach City and Mohawk Dams. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include installing an emergency generator and additional pump at Zoar Levee; repairing erosion and protecting against future erosion at Beach City Dam; Rehabilitating the intake structures a Senecaville; rehabilitating the pump stations at Brewster and Magnolia Levees; replacing trash racks at Charles Mill, Senecaville, Pleasant Hill, Tappan, Piedmont, and Clendening Dams; replacing playground equipment at Clendening and Bolivar Dams; replacing the pedestrian bridge at Charles Mill Lake; paving public use areas at Atwood, Beach City, and Charles Mill Dams; preparing a Levee Certification for Magnolia Levee per FEMA requirements; replacing the roof on the intake structure at Charles Mill Dam; and hiring additional staff.

## 24. NEWARK, OH

**Location.** The project is located in Licking County, OH at the junction of the North and South Forks of the Licking River, approximately 29 miles above the confluence with the Muskingum River at Zanesville, OH.

**Existing project.** For details of the existing project see the 1981 Annual Report. Construction of the existing project was initiated in July 1940 and completed in November 1941. As a result of the 1968 Flood Control Act the existing project was modified to include improvement of the interior drainage facilities, construction of Log Pond Run diversion channel and modification of the North Fork Channel. Construction of the Log Pond Run diversion channel was awarded in September 1980 and completed in December 1981. The total cost of the project was $11,151,232.

**Local cooperation.** For details of required and completed local cooperation see the 1981 Annual Report.

**Operations during the fiscal year.** Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition. To date, the project has prevented an estimated $3,299,000 in flood damages.

## 25. NORTH BRANCH OF KOKOSING RIVER LAKE, OH

**Location.** The dam site is located in Knox County, OH, on the North Branch of Kokosing River, approximately nine miles above the confluence of the Kokosing and North Branch Rivers, and two miles northwest of Fredericktown, OH. The reservoir is located in Knox County, OH.

**Existing project.** The existing project consists of a rolled-earth dam 70 feet in height and 1,400 feet in length with an uncontrolled spillway adjacent to the right abutment, and an uncontrolled, reinforced concrete outlet work located in the right abutment of the dam. The reservoir provides for a total storage of 14,885 acre-feet and controls a drainage area of approximately 45 square miles. A total of 56 tracts of land were acquired for the project. Construction of the dam was completed in May 1972. See also Appendix A. The total cost of the project was $6,665,985, which includes expenditures under the recreation at completed projects program.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances.

Maintenance activities accomplished in FY 2009 include assessing the condition of the relief well system. Activities accomplished with American

Recovery and Reinvestment Act (ARRA) funds include replacing sidewalks, sealing the asphalt parking area, constructing a viewing area and pouring a concrete pad for a kiosk, and hiring additional staff.

## 26. NORTH FORK OF POUND RIVER LAKE, VA

**Location.** The dam site is located in Wise County, VA, on the North Fork of Pound River, approximately one mile upstream from the confluence of the North and South Forks which form the Pound River and approximately three miles upstream from Pound, VA. The reservoir is located in Wise County, VA.

**Existing project.** The existing project consists of a rockfill dam, 122 feet in height and 600 feet in length, an uncontrolled spillway in a saddle upstream from the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides a total storage of 11,300 acre-feet and controls a drainage area of approximately 17 square miles. Construction of the dam was completed in January 1966. See also Appendix A. A total of 127 tracts of land were acquired for the project. The total cost for the project was $6,186,901, which includes expenditures for recreation under the completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The Town of Pound, VA reimburses the Government $5,000 for the cost of providing the water annually.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated as required for flood control and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $59,000. To date, the project has prevented an estimated $15,540,000 in flood damages.

Maintenance activities accomplished in FY 2009 include evaluating the spillway elevation corrections and replacing the HVAC system. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include hiring additional staff.

## 27. OHIO RIVER BASIN (HUNTINGTON DISTRICT)

**Location.** The scope covered by this project includes the entire Ohio River Basin, which incorporates portions of 15 states, 4 Corps Districts and a population of approximately 27 million.

**Existing project.** The existing project is a Reconnaissance Phase of planning that is addressing diverse water resource issues within the basin. The project is watershed planning, using a systems approach. Recommendations contained in the Reconnaissance Report consist of: solutions within Corps missions; solutions within other Federal agency responsibilities; solutions through cooperative partnerships with non-Federal entities; and, solutions that are outside Federal responsibilities.

**Operations during the fiscal year.** During Fiscal year 2009, work continued towards completion of the Reconnaissance Report, which is scheduled for the 1st quarter of Fiscal Year 2010. Input was solicted from Federal, State, NGO and local government entities and the publick to identity the most pressing water resource issues within the Ohio River Basin. This was accomplished in requests by letter, e-mail, speaking engagements, telephone and a website (www.orboutreach.com). From this input, over 240 issues were identified, which supported the formulation of over 100 alternative plans to address the issues. Twenty preliminary recommendations were developed and presented in the draft Reconnaissance Report and the draft report was submitted to higher authority for review, comment and approval.

## 28. PAINT CREEK LAKE, OH

**Location.** The dam site is located in Ross County, OH, on Paint Creek, a tributary of the Scioto River, approximately 37 miles above the mouth of Paint Creek and 100 miles above the mouth of the Scioto River and approximately four miles east of New Parkersburg, OH. The reservoir is located in Ross and Highland Counties, OH.

**Existing project.** The existing project consists of a rock and random earth fill dam, 118 feet in height and 700 feet in length, a gate controlled spillway located near the right abutment, an outlet tunnel located in the right abutment with a control structure at the upstream end, and a random rockfill dike located at the right abutment of the spillway. The reservoir provides for a total storage of 145,000

acre-feet and controls a drainage area of approximately 576 square miles. Construction of the dam was completed in July 1973. See also Appendix A. A total of 257 tracts of land were acquired for the project. The total cost for the project was $26,969,962, which includes expenditures under the recreation at completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The Highland County Water Authority reimburses the Government 0.764% of annual operation and maintenance for the project towards principal and interest of the construction cost and $8,000 for the cost of providing the water annually.

**Local cooperation.** For details of required local cooperation see the 1981 Annual Report.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $49,000. To date, the project has prevented an estimated $118,556,000 in flood damages.

Maintenance activities accomplished in FY 2009 include installing a standby generator at Greenfield pump station, replacing the intake structure roof, and installing secondary containment in the intake structure. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include paving access roads and parking areas, constructing an accessible walkway to the fishing pier and the downstream restroom, constructing a restroom at the spillway area, replacing the sewage lift station, renovating two restrooms, and hiring additional staff.

## 29. PAINTSVILLE LAKE, KY

**Location.** The dam site is located in Johnson County, KY, on Paint Creek, a tributary of the Levisa Fork of the Big Sandy River, approximately eight miles above the mouth of Paint Creek, and four miles west of Paintsville, KY. The reservoir is located in Johnson and Morgan Counties, KY.

**Existing project.** The existing project consists of a rock fill dam 153 feet in height and 1,600 feet in length, an uncontrolled spillway located southwest of the right abutment of the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 73,500 acre-feet and controls a drainage area of approximately 93 square miles. Construction of the dam was completed in September 1980. See also Appendix A. A total of 635 tracts of land were acquired for the project. The total cost of the project was $60,194,986. The local sponsor has reimbursed the Government $377,000 for the cost sharing portion of recreation development.

**Local cooperation.** None required.

**Operations during the fiscal year.** The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $356,000. To date, the project has an estimated $20,096,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include constructing a lighted walkway across the dam and hiring additional staff.

## 30. R. D. BAILEY LAKE, WV

**Existing project.** The dam site is located in Wyoming County, WV, on the Guyandotte River approximately 108 miles above the confluence with the Ohio River and one mile east of Justice, WV. The reservoir is located in Mingo and Wyoming Counties, WV.

**Existing project.** The existing project consists of a rolled rock fill dam with a concrete face, 310 feet in height and 1,397 feet in length, an uncontrolled spillway located in a saddle in the right abutment of the dam, and an outlet tunnel in the left abutment with a control structure located at the upstream end. The reservoir provides for a total storage of 203,700 acre-feet and controls a drainage area of approximately 540 square miles. Construction of the dam was completed in December 1979. See also Appendix A. A total of 2,109 tracts of land were acquired for the project. The total cost of the project was $261,251,678.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $44,886,000. To date, the project

has prevented flood damages estimated to be $235,463,000.

Maintenance activities accomplished in FY 2009 include constructing a water plant at Big Branch, upgrading the security measures, and repairing the Huff Creek bridge. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include upgrading the campground electrical service, updating the Master Plan, replacing playground equipment, and hiring additional staff.

## 31. ROSEVILLE, OH

**Location.** The project is located in Muskingum and Perry Counties, OH on Moxahala Creek, approximately six miles from the confluence with Jonathan Creek, a tributary of the Muskingum River.

**Existing project.** The existing project consists of 7,291 feet of channel improvement; 6,400 feet of levee and railroad embankment enlargements; and the necessary appurtenances for interior drainage. The total cost of the project was $910,785. Construction was completed in October 1960.

**Local cooperation.** All requirements for local cooperation have been completed. See also the 1962 Annual Report. Total costs of local requirements were $62,000.

**Operations during the fiscal year.** Routine inspections of the improved portion of the project were conducted to determine that the project was maintained in satisfactory condition. During the fiscal year the project prevented flood damages estimated to be $15,000. To date, the project has prevented an estimated $1,377,000 in flood damages.

## 32. SUMMERSVILLE LAKE, WV

**Location.** The dam site is located at Ruckers Bend in Nicholas County, WV on the Gauley River approximately 35 miles above the confluence of the Gauley and New River at Gauley Bridge, WV. The reservoir is located in Nicholas County, WV.

**Existing project.** The existing project consists of a rock fill dam 390 feet in height and 2,280 feet in length, an outlet tunnel in the right abutment with a control structure located at the upstream end, an uncontrolled spillway located west of the right abutment and two earth fill dikes. The reservoir provides for a total storage of 413,400 acre-feet and controls a drainage area of 803 square miles. See also Appendix A. Construction of the dam was completed in March 1966. A total of 9,346 acres of land were acquired for the project. The total cost of the project was $48,375,884, which includes expenditures under the recreation at completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The City of Summersville, WV reimburses the Government $4,100 towards the principal and interest of the construction cost and $1,700 for the cost of providing the water annually.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structures and appurtenances. During the fiscal year the project prevented flood damages estimated to be $41,000. To date, the project has prevented an estimated $632,563,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include replacing restrooms at the Battle Run Recreation areas, replacing playground equipment in the Battle Run campground, and hiring additional staff.

## 33. SUTTON LAKE, WV

**Location.** The dam site is located on the Elk River in Braxton County approximately one mile above Sutton, WV, and 101 miles above the mouth of the Elk River. The reservoir is located in Braxton and Webster Counties, WV.

**Existing project.** The existing project consists of a concrete gravity dam 210 feet in height and 1,178 feet in length, a gated spillway in the channel section of the dam comprised of six tainter gates supported by piers, and an outlet works comprised of five gate sluices through the spillway section. The reservoir provides for storage of 265,300 acre-feet and controls a drainage area of 537 square miles. See also Appendix A. Construction of the dam was completed in June 1960. The total cost of the project was $37,029,585.

**Local cooperation.** None required. See the 1981 Annual Report for contributed funds.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $48,000. To date, the project has prevented an estimated $375,856,000 in flood damages.

Maintenance activities accomplished in FY 2009 include replacing the Bee Run sewage treatment plant. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include rehabilitating the foundation drains, replacing playground equipment, initiating a dam safety evaluation, and hiring additional staff.

## 34. TOM JENKINS DAM, OH

**Location.** The dam site is located in Athens County, OH on the East Branch of Sunday Creek, a tributary of the Hocking River, approximately three miles north of Glouster, OH, and 57 miles above the mouth of the Hocking River. The reservoir is located in Athens County, OH.

**Existing project.** The existing project consists of a rolled-earth dam, 84 feet in height and 944 feet in length, a controlled works discharging through a tunnel in the left abutment, and an uncontrolled spillway in the ridge running south from the dam site. The reservoir, known as Burr Oak Lake, provides for a total storage of 26,900 acre-feet and controls a drainage area of approximately 33 square miles. See also Appendix A. Construction of the project was completed in February 1950. A total of 100 acres of land were acquired for the project. The total costs of the project were $2,086,503, which includes expenditure under the recreation at completed projects program. The non-Federal sponsor is required to reimburse the Government for cost allocated to water supply. The Ohio Department of Natural Resources reimburses the Government $1,500 for the cost of providing the water annually.

**Local cooperation.** All requirements of local cooperation have been met. See also the 1962 Annual Report. Contributed funds in the amount of $575,000 have been received from the State of Ohio.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date, the project has prevented an estimated $26,860,000 in flood damages.

Maintenance activities accomplished in FY 2009 include replacing fencing and railing along the spillway, installing fall protection and painting in the intake structure, replacing the security system, and replacing the limit switches. Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include hiring additional staff.

## 35. WEST COLUMBUS, OH

**Location.** The project is located on the right bank of the Scioto River in the western part of the City of Columbus, OH, across the river from the downtown area in Franklin County. It is generally bounded by the Scioto River on the north, Interstate 71 on the east, and Frank Road on the south. The area being protected, approximately 2,800 acres, is completely urban with a mix of residential, industrial and commercial development.

**Existing project.** The project consists of a 7.2-mile system including levee, floodwall and high ground. It protects 6,170 structures and 2,800 acres of lands. Fourteen gate closures, interior drainage facilities, construction of two new pump stations and reworking four existing pump stations are included. The project has been operable for flood control since October 2002. The total estimated cost of the project is $150,000,000 of which $37,500,000 is non-Federal. The fiscal closeout of the project has been delayed because the Ryan Company that constructed the Reliable Power component failed to submit the document to closeout this construction contract.

**Local cooperation.** Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary; pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control; and bear all costs of operation, maintenance, and replacement of flood control facilities.

**Operations during the fiscal year.** During FY 2009, $10,000 was expended in the various activities related to this project. The District continues to work with the Ryan Company to resolve issues and documentation pertaining to the close out of the

Reliable Power construction contract. Funds to initiate construction were appropriated in FY 1993.

## 36. YATESVILLE LAKE, KY

**Location.** The dam site is located in Lawrence County, KY on Blaine Creek, a tributary of the Big Sandy River, approximately five miles west of Louisa, KY, and 18 miles above the mouth of Blaine Creek. The reservoir is located in Lawrence County, KY.

**Existing project.** The existing project consists of an earth and rock fill dam, 104 feet in height and 760 feet in length, and an uncontrolled spillway located one-half mile southeast of the right abutment of the dam. The outlet work consists of a 13-foot diameter tunnel through the left dam abutment. The reservoir provides for a total storage of 86,951 acre-feet and controls a drainage area of approximately 208 square miles. See also Appendix A. A total of 778 tracts of land were acquired for the project. Construction of the dam was completed in May 1995. The total cost of the project was $99,453,537.

**Local cooperation.** None required.

**Operations during the fiscal year.** The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be $4,000. To date the project has prevented an estimated $23,629,000 in flood damages.

Activities accomplished with American Recovery and Reinvestment Act (ARRA) funds include updating the Master Plan, repairing the sluice gate hydraulic cylinders, and hiring additional staff.

## 37. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

The Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will operate and maintain certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for the administration of these regulations within their respective districts. The Huntington District is responsible for inspecting projects within the district's geographic boundaries in Kentucky, Ohio, and West Virginia. During the fiscal year, maintenance inspections were made of those completed units transferred to local interests for operation and maintenance. Local interests were advised, as necessary, of measures required to maintain the projects in accordance with the standards prescribed by regulations. Total costs for fiscal year 2009 were $435,752; total costs through 2009 were $3,975,014. The flood control works inspected and the dates of inspection are tabulated in Table H.

As the U.S. Army Corps of Engineers transitions to a more robust inspection methodology, establishes the Levee Safety Program, continues compiling the National Levee (GIS) Database, and strengthens our communication and involvement with the Federal Emergency Management Agency with respect to their floodplain mapping mission, directives to the District Engineers as to priorities and use of their Inspection of Completed Works funds have been promulgated. Transition to the levee safety program and its more risk-sensitive inspection approach required the supplanting of field inspections in 2009. This was done with the recognition that more robust periodic inspections of the complete Huntington District local protection project inventory were on the horizon and pre-inspection activities were initiated near the end of the fiscal year.

Therefore, Inspection of Completed Works program efforts were focused on:

General coordination and management requirements for the Levee Safety Program, including maintaining and updating information for the National Levee Database.

Responding to requests for design data necessary to support local sponsor requirements under 44 CFR 65.10 and the Federal Emergency Management Agency's floodplain mapping program.

Using the Levee Screening Tool to screen active and inactive federally authorized levee systems.

Undertaking Levee Safety Program coordination efforts with public sponsors or stakeholders.

Discussing upcoming Periodic Inspections and sponsor requirements and expectations during the

execution of the concentrated and comprehensive effort.

Assisting with development of Interim Risk Reduction Measures Plans.

Assisting with education and training in levee safety responsibilities and use of the Levee Inspection Tool.

Technical review and approval of sponsor proposed alterations, improvements, excavations or construction which are in accordance with Corps policy and guidance for such proposals.

Updating project Operation & Maintenance manuals.

## 38. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency bank protection activities pursuant to Section 14 of the 1946 Flood Control Act (PL 79-526), are tabulated as follows:

| Location | FY 2009 Cost |
|---|---|
| Sec 14, Coordination Account | $6,813 |
| Kanawha River, Charleston, WV Magic Island | 33,093 |
| 7th St W. Ohio River Huntington, WV | 126,657 |
| Tuscarawas Co., Johnson County Rd, OH | 3,981 |
| Staunton Ave. Ohio River Huntington, WV | 30,545 |
| Walker Lane, Washington, WV | 28,303 |
| Kenova, WV | 9,205 |

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act (PL 80-858), are tabulated as follows:

| Location | FY 2009 Cost |
|---|---|
| Sec 205, Coordination Account | $25,588 |
| Mercer County, WV | 9,891 |
| Magazine Branch, Elk River, WV | 2,258 |
| Zimber Ditch, Stark Co, OH | 0 |
| WV Statewide FWS | 49,385 |
| Duck Creek, OH | 27,956 |

Flood Control activities pursuant to Section 208 of the 1954 Flood Control Act (PL 83-780) are tabulated as follows:

| Location | FY 2009 Cost |
|---|---|
| Dickenson Co., VA | $6,761 |

Activities pursuant to Section 1135 of WRDA 1986 (PL 99-662) for Project Modifications to Improve the Environment are tabulated as follows:

| Location | FY 2009 Cost |
|---|---|
| Sec 1135, Coordination Account | $15,833 |
| Wills Creek, Mason Mine 280, OH | 7,515 |
| Sec 1135, Tappan Lake, OH | 23,121 |

Activities pursuant to Section 206 of WRDA 1996 (PL 104-303) for Aquatic Ecosystem Restoration are tabulated as follows:

| Location | FY 2009 Cost |
|---|---|
| Sec 206, Coordination Account | $16,116 |
| 5th Avenue Dam Removal, Columbus, OH | 92,115 |
| Watauga, NC | 4,114 |

### ENVIRONMENTAL INFRASTRUCTURE

## 39. CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

**Location:** The project area consists of 18 counties in Central West Virginia and includes portions of Huntington, Pittsburgh, and Baltimore Districts. The program purpose is to provide design and construction assistance for environmental infrastructure and resource protection and development, including projects for wastewater treatment, water supply, and surface water resource protection and development. Only those projects which are publicly owned may participate in the program.

**Existing projects**: In 2009 there were 14 projects in the program: East Bank Water Storage Tank, Derrick's Creek Water, Morgan County Courthouse, Putnam Water, Town of Harman, North Putnam Wastewater Upgrade, Upper Fishers Branch Water, Flatwoods Wastewater, Silverton Wastewater Collection System, Town of Clay Water Expansion, Lakin Wastewater Treatment Project, Putnam Wastewater Project, Rosedale Water Extension Project, Poca Wastewater Collection System Upgrade. Work is authorized by Sec 571 of the Water Resources Development Act of 1999 (PL 106-53).

**Local Cooperation.** The program requires reimbursable Project Partnership Agreements to be executed with local sponsors that stipulate cost

sharing provisions of 75% Federal and 25% non-Federal participation.

**Operating during the fiscal year:** During the year, $983,314 was expended in Huntington District in the various activities related to this program. PPAs were executed for the Town of Clay Water Expansion Project.

## 40. OHIO AND NORTH DAKOTA ENVIRONMENTAL INFRASTRUCTURE

**Location:** The program provides environmental infrastructure assistance to communities throughout the State of Ohio and North Dakota. The State of Ohio includes portions of Huntington, Louisville, Pittsburgh, and Buffalo Districts. The program includes project design and construction assistance for wastewater treatment and related facilities, combined sewer overflows, water supply and storage and related facilities, mine drainage, environmental restoration, and surface water resource protection and development. Reimbursable projects are allowed.

**Existing project:** In 2009 within Huntington District there were 22 projects underway in Ohio: Fayette County, Village of Bloomingburg; Morgan County, Bishopville; Morgan County, Village of McConnelsville; Buckeye Lake; Rushsylvania; City of Louisville Gallia County; Hanover; Marysville New Albany; Culpepper; Orville; Arbaugh/Hope; Perry Township; Timberlake; Williamsburg; City of Hillsboro; Marlboro; Richmond Dale; Summit Road, City of Baberton; Willowcrest, Ohio (City of Beaver Creek); and Upper Hocking. Work is authorized by Sec 594 of the Water Resources Development Act of 1999 (PL 106-53), as amended by Sec 130 of the FY 2006 Energy and Water Appropriations Act and Sec 3128 WRDA of 2007 (PL 110-114).

**Local cooperation:** The program requires reimbursable Project Partnership Agreements to be executed with local sponsors that stipulate cost sharing provisions of 75% Federal and 25% non-Federal participation.

**Operating during the fiscal year:** During the year, $3,083,740 was expended in Huntington District in the various activities related to this program. During FY 2009 PPAs were executed for: Culpepper, Minford, Richmond Dale, Upper Hocking, and Hillsboro.

## 41. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE

**Location:** The project area consists of a 29 county region in southern and eastern Kentucky, which includes portions of the Huntington, Nashville, and Louisville Districts. The program provides for design and construction assistance of environmental infrastructure projects. The focus of the program is on wastewater treatment and collection systems. Reimbursable projects are allowed.

**Existing project:** Within Huntington District, three projects were underway in 2009 in southern and eastern Kentucky. These were Tug Valley Sewer, Henry Clay Area, and Mt Carmel Schools. In addition four new projects were selected with work to begin in FY 2010. Work is authorized by Sec 531 of the Water Resources Development Act of 1996 (PL 104-303); as amended by Sec 532 of Water Resources Development Act of 1999.

**Local cooperation:** The program requires reimbursable Project Partnership Agreements (PPAs) to be executed with local sponsors that stipulate cost sharing provisions of 75% federal and 25% non-federal.

**Operating during the fiscal year:** During the year, $555,079.55 was expended in Huntington District in the various activities related to this program.

## 42. SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

**Location.** The project area consists of 17 counties in southern West Virginia (all within Huntington District). The program provides for design and construction assistance of environmental infrastructure, largely water supply and wastewater treatment facilities, in that region.

**Existing projects.** In 2008, the program included the following nine projects: Boone Wastewater Treatment Plant and Extension Project, Kilsyth Wastewater Treatment Plan and Extension Project, Marsh Fork Treatment Plant & Collection System, Hinton Wastewater Collection System, and Anchor Road Water Extension, Cowen Wastewater Upgrade, Mercer/Summers Phase IVA Water Extension, Griffithsville Water Extension, and Turtle

Creek Water Extension. Work is authorized under Section 340 of the Water Resources Development Act of 1992 (PL 102-580) as amended by FY 2006 Energy and Water Appropriation Act.

**Local Cooperation:** The program requires reimbursable Project Partnership Agreements to be executed with local sponsors that stipulate cost sharing provisions of 75% Federal and 25% non-Federal participation.

**Operating during the fiscal year:** During the year, $1,498,747 was expended in this program. PPAs were executed for Mercer/Summers Phase IVA Water Extension, Griffithsville Water Extension, and Turtle Creek Water Extension.

## EMERGENCY RESPONSE ACTIVITIES – FLOOD CONTROL AND COASTAL EMERGENCIES

## 43. DISASTERS

The District's Emergency Operations Center was only activated twice in FY 2009 for flood and hurricane related disasters without any work for FEMA No non FEMA work.

## 44. OPERATIONAL PROGRAM AREAS

FY 2009 costs were $508,123, with $436,450 for disaster preparedness and $71,672 for emergency operations.

## 45. EMERGENCY WORK IN SUPPORT OF OTHER FEDERAL AGENCIES

The following was performed for FEMA, under the Stafford Act/Federal Response Plan:

| Disaster | FY 2009 Cost |
|---|---|
| Hurricane Ike | $20,577 |
| May West Virginia Floods | $5,099,927 |

### GENERAL INVESTIGATIONS

## 46. SURVEYS

Fiscal year 2009 costs were $1,289,192 itemized as follows:

| Project and Location | FY 2009 Cost |
|---|---|
| **Reconnaissance and Feasibility Studies** | |
| South Charleston, WV Port | $0 |
| South Charleston, WV Port (contributed) | 29,565 |
| Belpre, OH Riverfront Park | 5,620 |
| Belpre, OH Riverfront Park (contributed) | 3,924 |
| Duck Creek, OH | 0 |
| WV Comprehensive | 0 |
| New River, Claytor Lake, VA | 88,684 |
| New River, Claytor Lake, VA (contributed) | 0 |
| Muskingum Basin, Dillon Lake, OH | 65 |
| Muskingum Basin, Dillon Lake, OH (contributed) | 0 |
| Little Kanawha River, WV | 99 |
| Wells, L&D Little Kanawha, WV | 51,305 |
| Cherry River Basin, WV | 23,489 |
| Upper Guyandotte River, WV | 217,775 |
| Hocking River Basin Environ Restor, OH | 123 |
| Ohio River Basin Comprehensive | 739,347 |
| **Miscellaneous Activities** | |
| Special Investigations | $52,353 |
| FERC Licensing Activities | 11,198 |
| American Heritage Rivers Navigation | 24,998 |
| Interagency Water Resource Development | 39,134 |
| North American Waterfowl Management | 2,165 |

## 47. PRECONSTRUCTION ENGINEERING AND DESIGN

Fiscal year 2009 costs were $486,355 itemized as follows:

**Greenup Locks and Dam, KY and OH**

The project was authorized for construction by Section 101(b)(15) of WRDA 2000 at $175,500,000. The Greenup plan of improvement includes a 600-foot extension of the existing 600-foot auxiliary lock to provide an overall length of 1200 feet, extension of the downstream guide wall, filling and emptying system improvements, installation of a miter gate quick change-out system (MGQCS) for faster repairs to the lock miter gates and environmental mitigation measures. Plans and specifications are complete for the mooring cells and a new miter gate. Work completed during FY 2009 included: design of the lock extension.

| Project and Location | FY 2009 Cost |
|---|---|
| Greenup L&D KY and OH | $486,355 |

**Parkersburg Riverfront Park, WV**

The project was authorized for construction by the Water Resources Development Act (WRDA) of 1999, Section 557(1), Public Law 106-53, as amended by the WRDA 2007, Section 3172, Public

Law 110-114 at a total cost of $12,000,000, with an estimated Federal cost of $6,000,000 and an estimated non-Federal cost of $6,000,000.

The project is an expansion and upgrade of an existing recreation facility cost-shared between the Corps and the City of Parkersburg, WV in the early 1980's. The current recreation facility is the primary river terminal for regular ferry service between West Virginia and the Blennerhassett Island Historic WV State Park. Visitor usage of the Parkersburg Riverfront Park for recreation at the site and access to the river is very high and increases annually. Visitor use demands are exceeding the planned uses of the site in the 1980's. A Limited Revaluation Report (LRR) of the 1998 Feasibility Study was completed in May 2004. PED Agreement was signed in August 2004 and PED is complete. See Chapter 19 – Ohio River for additional information.

## 48. COORDINATION WITH OTHER AGENCIES

Fiscal year 2009 costs were $144,514 itemized as follows:

| Project | FY 2009 Cost |
|---|---|
| Coop. with Other Water Agencies | $4,025 |
| Planning Assistance to States – Negotiations | 25,505 |
| PAS-KY Pike Co, KY Support | 59,603 |
| PAS-WV Harveytown, WV | 9,294 |
| PAS-WV Conservation Agency, WV | 32,684 |
| PAS-Harris Riverfront, WV | 13,403 |

## 49. COLLECTION AND STUDY OF BASIC DATA

Fiscal Year 2009 costs were $562,980 itemized as follows:

| Project | FY 2009 Cost |
|---|---|
| National Flood Proofing Committee | $16,964 |
| Flood Plain Management Services | 61,695 |
| Technical Services | 15,624 |
| Quick Responses | 1,732 |
| SS-OH-Whitehall (Mason Run) FPMS, OH | 376,246 |
| Spring Valley, Krouts Creek, WV | 26,109 |
| Planning Support Program | 64,610 |

**Table 25-A** **Cost and Financial Statement**

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 2 | Kanawha River, WV | New Work | | | | | | |
| | (existing project) | Approp | | | | | 27,853,699 | 1 |
| | | Cost | | | | | 27,853,699 | 1 |
| | | Maint | | | | | | |
| | | Approp | 11,078,000 | 7,567,444 | 10,958,519 | 8,332,860 | 230,835,216 | 2 |
| | | Cost | 9,143,95 | 9,597,866 | 8,456,772 | 10,011,302 | 248,278,673 | 2 |
| | | Rehab | | | | | | |
| | | Approp | | | | | 130,984 | 3 |
| | | Cost | | | | | 130,984 | 3 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,972,279 | | |
| | | Cost | 0 | 0 | 0 | 465,639 | | |
| 4 | Portsmouth Harbor, OH | Maint | | | | | | |
| | | Approp | 0 | 0 | 0 | 0 | 400,912 | |
| | | Cost | 0 | 0 | 0 | 0 | 400,912 | |
| 4 | Big Sandy Harbor, KY | Maint | | | | | | |
| | | Approp | 803,000 | 1,374,831 | 1,095,861 | 1,137,780 | 19,831,888 | |
| | | Cost | 799,476 | 1,376,565 | 881,927 | 1,352,562 | 19,616,553 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 35,000 | | |
| | | Cost | 0 | 0 | 0 | 35,000 | | |
| 4 | Elk River Harbor, WV | Maint | | | | | | |
| | | Approp | 0 | 0 | 0 | 0 | 2,992,655 | |
| | | Cost | 0 | 2,788 | 0 | 0 | 2,990,147 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 400,000 | | |
| | | Cost | 0 | 0 | 0 | 11,401 | | |
| 2 | Charleston Riverfront | New Work | | | | | | |
| | Park, WV | Approp | 0 | 0 | 0 | 0 | 4,370,121 | |
| | | Cost | 0 | 0 | 0 | 0 | 4,370,121 | |
| 2 | Winfield L&D | New Work | | | | | | |
| | | Approp | 216,000 | 5,298,000 | 0 | 12,000 | 234,069,656 | 4 |
| | | Cost | 319,817 | 279,231 | 1,947,656 | 4,051 | 231,194,264 | 5 |
| 2 | Marmet L&D | New Work | | | | | | |
| | | Approp | 72,764,000 | 65,300,000 | 29,520,910 | 4,500,000 | 386,973,882 | 6 |
| | | Cost | 72,132,242 | 60,433,446 | 28,782,577 | 2,976,813 | 380,451,887 | 7 |
| 2 | London L&D | New Work | | | | | | |
| | | Approp | 0 | 0 | 0 | 0 | 23,501,742 | 8 |
| | | Cost | 0 | 0 | 0 | 0 | 23,394,786 | 9 |
| 6 | Alum Creek Lake, OH | New Work | | | | | | |
| | | Approp | | | | | 56,267,422 | |
| | | Cost | | | | | 56,267,422 | |
| | | Maint | | | | | | |

**Table 25-A** **Cost and Financial Statement**

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| | | Approp | 887,879 | 1,096,831 | 1,147,500 | 1,220,580 | 20,786,206 | 10 |
| | | Cost | 999,815 | 1,053,718 | 1,021,591 | 1,190,938 | 20,613,456 | 10 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,870,000 | | |
| | | Cost | 0 | 0 | 0 | 805,783 | | |
| 7 | Beech Fork Lake | New Work | | | | | | |
| | | Approp | | | | | 41,987,500 | |
| | | Cost | | | | | 41,987,500 | |
| | | Maint | | | | | | |
| | | Approp | 922,000 | 878,793 | 1,215,500 | 2,401,000 | 25,679,077 | |
| | | Cost | 921,551 | 858,335 | 1,146,899 | 1,940,848 | 25,490,361 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 644,050 | | |
| | | Cost | 0 | 0 | 0 | 78,830 | | |
| 8 | Bluestone Lake | New Work | | | | | | |
| | | Approp | | | | | 29,458,652 | 11 |
| | | Cost | | | | | 29,458,652 | 11 |
| | | Maint | | | | | | |
| | | Approp | 1,779,000 | 1,039,197 | 2,529,000 | 1,372,000 | 61,851,858 | 12 |
| | | Cost | 1,702,815 | 1,131,755 | 1,281,566 | 1,215,662 | 59,602,925 | 12 |
| | | Dam Safety | | | | | | |
| | | Approp | 8,129,219 | 14,770,000 | 11,808,000 | 12,000,000 | 79,222,679 | |
| | | Cost | 5,170,836 | 7,278,663 | 15,646,714 | 15,327,152 | 70,236,987 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | O&M | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,083,000 | | |
| | | Cost | 0 | 0 | 0 | 60,909 | | |
| | | CG | | | | | | |
| | | Approp | 0 | 0 | 0 | 40,566,701 | | |
| | | Cost | 0 | 0 | 0 | 2,803,110 | | |
| 9 | Burnsville Lake | New Work | | | | | | |
| | | Approp | | | | | 57,166,839 | |
| | | Cost | | | | | 57,166,839 | |
| | | Maint | | | | | | |
| | | Approp | 1,440,000 | 1,634,927 | 1,832,000 | 1,797,380 | 38,265,252 | 13 |
| | | Cost | 1,427,587 | 1,928,993 | 1,648,504 | 1,899,811 | 38,348,515 | 13 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,831,800 | | |
| | | Cost | 0 | 0 | 0 | 500,398 | | |
| 39 | Central WV | New Work | | | | | | |
| | Environmental | Approp | 535,000 | 2,952,000 | 451,000 | 1,215,000 | 4,746,000 | |
| | Infrastructure | Cost | 113,386 | 308,061 | 1,130,377 | 983,915 | 2,013,829 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 3,565,000 | | |
| | | Cost | 0 | 0 | 0 | 31,667 | | |
| 10 | Deer Creek Lake | New Work | | | | | | |

**Table 25-A** **Cost and Financial Statement**

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| | | Approp | | | | | 20,406,545 | 14 |
| | | Cost | | | | | 20,406,545 | 14 |
| | | Maint | | | | | | |
| | | Approp | 703,600 | 824,609 | 1,426,500 | 1,257,539 | 21,502,234 | 15 |
| | | Cost | 694,252 | 819,621 | 959,548 | 1,166,636 | 21,032,478 | 15 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 592,950 | | |
| | | Cost | 0 | 0 | 0 | 384,741 | | |
| 11 | Delaware Lake | New Work | | | | | | |
| | | Approp | | | | | 7,631,821 | |
| | | Cost | | | | | 7,631,821 | |
| | | Maint | | | | | | |
| | | Approp | 866,000 | 1,048,000 | 2,324,000 | 1,314,180 | 27,564,501 | 16 |
| | | Cost | 892,941 | 973,158 | 1,119,844 | 2,345,043 | 26,215,465 | 16 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,925,349 | | |
| | | Cost | 0 | 0 | 0 | 785,800 | | |
| 12 | Dewey Lake | New Work | | | | | | |
| | | Approp | | | | | 7,845,547 | 17 |
| | | Cost | | | | | 7,845,547 | 17 |
| | | Maint | | | | | | |
| | | Approp | 1,064,000 | 1,010,286 | 1,339,000 | 1,601,180 | 39,175,519 | 18 |
| | | Cost | 1,057,734 | 1,005,652 | 1,349,915 | 1,384,378 | 39,171,937 | 18 |
| | | Dam Safety | | | | | | |
| | | Approp | 781 | 0 | 0 | 0 | 19,573,631 | |
| | | Cost | 781 | 0 | 0 | 0 | 20,573,447 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 448,000 | | |
| | | Cost | 0 | 0 | 0 | 77,712 | | |
| 13 | Dillon Lake | New Work | | | | | | |
| | | Approp | | | | | 30,218,135 | 19 |
| | | Cost | | | | | 30,218,135 | 19 |
| | | Maint | | | | | | |
| | | Approp | 2,246,854 | 863,860 | 4,588,365 | 1,432,020 | 25,063,796 | 20 |
| | | Cost | 890,053 | 2,255,617 | 1,800,623 | 3,981,552 | 22,253,818 | 20 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 350,911 | | |
| | | Cost | 0 | 0 | 0 | 44,943 | | |
| 14 | East Lynn Lake | New Work | | | | | | |
| | | Approp | | | | | 85,872,963 | |
| | | Cost | | | | | 85,872,963 | |
| | | Maint | | | | | | |
| | | Approp | 1,582,000 | 1,435,663 | 1,923,000 | 1,801,060 | 41,914,745 | 21 |
| | | Cost | 1,480,203 | 1,517,618 | 1,905,445 | 1,757,143 | 41,867,295 | 21 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,711,100 | | |
| | | Cost | 0 | 0 | 0 | 233,276 | | |

## Table 25-A (Cont'd) Cost and Financial Statement

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 15 | Fishtrap Lake | New Work | | | | | | |
| | | Approp | | | | | 54,754,126 | 22 |
| | | Cost | | | | | 54,754,126 | 22 |
| | | Maint | | | | | | |
| | | Approp | 1,390,000 | 1,290,666 | 1,952,500 | 1,669,320 | 37,805,376 | 23 |
| | | Cost | 1,323,227 | 1,290,817 | 1,838,359 | 1,735,979 | 37,703,456 | 23 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,542,750 | | |
| | | Cost | 0 | 0 | 0 | 57,082 | | |
| 16 | Grayson Lake | New Work | | | | | | |
| | | Approp | | | | | 19,162,741 | 24 |
| | | Cost | | | | | 19,162,741 | 24 |
| | | Maint | | | | | | |
| | | Approp | 1,044,000 | 1,036,401 | 1,400,500 | 1,296,380 | 29,014,535 | |
| | | Cost | 1,034,759 | 1,045,882 | 1,220,840 | 1,323,856 | 28,790,614 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 722,550 | | |
| | | Cost | 0 | 0 | 0 | 103,853 | | |
| 17 | Greenbrier River, Marlinton | New Work | | | | | | |
| | | Approp | 1,980,000 | 750,000 | 1,476,000 | 1,500,000 | 12,828,086 | |
| | | Cost | 2,058,217 | 790,233 | 849,262 | 830,880 | 12,177,762 | |
| 18 | Island Creek at Logan | New Work | | | | | | |
| | | Approp | 281,000 | 20,000 | 197,000 | 250,000 | 2,408,192 | |
| | | Cost | 39,982 | 99,841 | 192,849 | 241,865 | 2,223,582 | |
| 19 | J. W. Flannagan | New Work | | | | | | |
| | | Approp | | | | | 20,444,383 | 25 |
| | | Cost | | | | | 20,444,383 | 25 |
| | | Maint | | | | | | |
| | | Approp | 1,212,000 | 1,199,926 | 1,718,000 | 1,711,120 | 36,902,191 | 26 |
| | | Cost | 1,228,055 | 1,198,567 | 1,543,536 | 1,771,145 | 36,720,138 | 26 |
| 20 | Levisa and Tug Forks | New Work | | | | | | |
| | | Approp | 30,800,000 | 8,660,000 | 26,070,000 | 20,420,000 | 619,617,246 | 27 |
| | | Cost | 25,002,378 | 24,853,009 | 14,888,112 | 18,533,907 | 599,371,549 | 27 |
| 21 | Lower Mud River, Milton | New Work | | | | | | |
| | | Approp | 1,198,000 | 250,000 | 1,033,000 | 1,000,000 | 6,468,970 | 48 |
| | | Cost | 8,008,944 | 452,891 | 328,481 | 241,926 | 12,741,977 | 48 |
| 22 | Massillon, Ohio | New Work | | | | | | |
| | | Approp | | | | | 8,139,406 | 28 |
| | | Cost | | | | | 8,139,406 | 28 |
| | | Maint | | | | | | |
| | | Approp | 23,000 | 4,563 | 22,000 | 22,000 | 497,510 | |
| | | Cost | 12,980 | 14,629 | 21,802 | 21,802 | 484,244 | |

## Table 25-A (Cont'd) Cost and Financial Statement

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost To Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 23 | Muskingum River | New Work | | | | | | |
| | Dams and Lakes | Approp | | | | | 41,247,815 | 29 |
| | | Cost | | | | | 41,247,815 | 29 |
| | | Maint | | | | | | |
| | | Approp | 6,128,000 | 8,358,374 | 12,297,000 | 7,634,980 | 198,346,586 | 30 |
| | | Cost | 6,279,100 | 7,412,364 | 8,322,760 | 7,913,357 | 192,384,991 | 30 |
| | | Maint | | | | | | |
| | | (Rehab) | | | | | | |
| | | Approp | | | | | 982,300 | |
| | | Cost | | | | | 982,300 | |
| | | Rehab | | | | | | |
| | | Approp | | | | | 22,172,945 | 31 |
| | | Cost | | | | | 22,172,945 | 31 |
| | | Dam Safety | | | | | | |
| | | Approp | 579,000 | 1,061,700 | 2,095,000 | 2,700,000 | 37,877,240 | |
| | | Cost | 504,377 | 1,674,123 | 455,268 | 3,884,303 | 37,510,233 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 3,287,000 | | |
| | | Cost | 0 | 0 | 0 | 663,170 | | |
| 24 | Newark Ohio | New Work | | | | | | |
| | (Previous Project) | Approp | | | | | 845,916 | |
| | | Cost | | | | | 845,916 | |
| | | Maint | | | | | | |
| | | Approp | | | | | 758,673 | |
| | | Cost | | | | | 758,673 | |
| | (Existing Project) | New Work | | | | | | |
| | | Approp | | | | | 11,151,232 | 32 |
| | | Cost | | | | | 11,151,232 | 32 |
| 25 | North Branch of | New Work | | | | | | |
| | Kokosing River | Approp | | | | | 6,665,985 | 33 |
| | | Cost | | | | | 6,665,985 | 33 |
| | | Maint | | | | | | |
| | | Approp | 112,000 | 151,373 | 251,000 | 530,000 | 6,619,733 | |
| | | Cost | 107,925 | 153,894 | 248,762 | 244,430 | 6,612,663 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 34,00 | | |
| | | Cost | 0 | 0 | 0 | 3,391 | | |
| 26 | North Fork of | New Work | | | | | | |
| | Pound River Lake | Approp | | | | | 6,186,901 | 34 |
| | | Cost | | | | | 6,186,901 | 34 |
| | | Maint | | | | | | |
| | | Approp | 306,000 | 400,715 | 389,000 | 596,820 | 12,114,092 | 35 |
| | | Cost | 323,721 | 398,938 | 380,907 | 509,930 | 12,191,306 | 35 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 54,000 | | |
| | | Cost | 0 | 0 | 0 | 5,677 | | |

## Table 25-A (Cont'd) Cost and Financial Statement

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 40 | Ohio Environmental | New Work | | | | | | |
| | Infrastructure Program | Approp | 3,921,700 | -2,870,754 | 6,596,000 | 6,500,000 | 20,862,595 | |
| | | Cost | 2,159,535 | 4,757,722 | 3,004,991 | 3,083,741 | 11,379,989 | |
| 27 | Ohio River Basin | New Work | | | | | | |
| | | Approp | 0 | 0 | 394,000 | 0 | 749,861 | 36 |
| | | Cost | 0 | 0 | 103,051 | 0 | 458,912 | 36 |
| 28 | Paint Creek Lake | New Work | | | | | | |
| | | Approp | | | | | 26,969,962 | 37 |
| | | Cost | | | | | 26,969,962 | 37 |
| | | Maint | | | | | | |
| | | Approp | 764,667 | 962,850 | 1,417,000 | 1,184,740 | 20,577,662 | 38 |
| | | Cost | 790,424 | 962,465 | 1,117,135 | 1,314,599 | 20,266,718 | 38 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 819,500 | | |
| | | Cost | 0 | 0 | 0 | 434,883 | | |
| 29 | Paintsville Lake | New Work | | | | | | |
| | | Approp | | | | | 60,194,986 | |
| | | Cost | | | | | 60,194,986 | |
| | | Maint | | | | | | |
| | | Approp | 897,000 | 701,734 | 1,141,000 | 867,300 | 22,105,331 | |
| | | Cost | 894,271 | 707,980 | 1,028,993 | 858,252 | 21,991,332 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,145,000 | | |
| | | Cost | 0 | 0 | 0 | 137,855 | | |
| 30 | R. D. Bailey Lake | New Work | | | | | | |
| | | Approp | | | | | 261,251,678 | 39 |
| | | Cost | | | | | 261,251,678 | 39 |
| | | Maint | | | | | | |
| | | Approp | 1,530,000 | 1,877,900 | 2,160,500 | 3,656,760 | 41,541,182 | 40 |
| | | Cost | 1,492,092 | 1,664,545 | 2,257,418 | 2,616,907 | 41,359,788 | 40 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,527,816 | | |
| | | Cost | 0 | 0 | 0 | 483,409 | | |
| 31 | Roseville, Ohio | New Work | | | | | | |
| | | Approp | | | | | 910,785 | |
| | | Cost | | | | | 910,785 | |
| | | Maint | | | | | | |
| | | Approp | 27,000 | 28,953 | 36,221 | 31,360 | 388,397 | |
| | | Cost | 26,510 | 29,442 | 35,972 | 31,468 | 387,657 | |
| 41 | Southern and Eastern | New Work | | | | | | |
| | Kentucky Env. | Approp | 348,600 | 204,000 | 1,020,000 | 2,000,000 | 8,560,150 | |
| | Infrastructure | Cost | 1,005,641 | 305,010 | 161,043 | 555,080 | 7,253,718 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 789,000 | | |
| | | Cost | 0 | 0 | 0 | 34,587 | | |

## Table 25-A (Cont'd) Cost and Financial Statement

| See Section In Text | Project | Funding | FY 06 | FY 07 | FY 08 | FY 09 | Total Cost to Sep. 30, 2009 | |
|---|---|---|---|---|---|---|---|---|
| 42 | Southern West Virginia Env. Infrastructure | New Work | | | | | | |
| | | Approp | 2,257,000 | 3,074,000 | 468,000 | 789,000 | 19,213,446 | 41 |
| | | Cost | 4,063,700 | 213,733 | 1,880,291 | 1,498,748 | 17,281,495 | 41 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,000,000 | | |
| | | Cost | 0 | 0 | 0 | 0 | | |
| 32 | Summersville Lake | New Work | | | | | | |
| | | Approp | | | | | 48,375,884 | 42 |
| | | Cost | | | | | 48,375,884 | 42 |
| | | Maint | | | | | | |
| | | Approp | 1,476,000 | 1,646,324 | 1,791,000 | 1,859,060 | 48,152,901 | 43 |
| | | Cost | 1,446,114 | 1,690,481 | 1,691,996 | 1,759,778 | 47,979,339 | 43 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 1,308,050 | | |
| | | Cost | 0 | 0 | 0 | 112,994 | | |
| 33 | Sutton Lake | New Work | | | | | | |
| | | Approp | | | | | 37,029,585 | 44 |
| | | Cost | | | | | 37,029,585 | 44 |
| | | Maint | | | | | | |
| | | Approp | 1,859,688 | 1,595,397 | 2,088,500 | 2,010,960 | 56,013,888 | 45 |
| | | Cost | 2,407,126 | 1,634,340 | 1,858,250 | 1,955,426 | 55,769,160 | 45 |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 2,467,317 | | |
| | | Cost | 0 | 0 | 0 | 1,820,876 | | |
| 34 | Tom Jenkins Dam | New Work | | | | | | |
| | | Approp | | | | | 2,086,503 | 46 |
| | | Cost | | | | | 2,086,503 | 46 |
| | | Maint | | | | | | |
| | | Approp | 356,000 | 474,384 | 539,779 | 686,720 | 6,915,034 | |
| | | Cost | 327,531 | 504,684 | 477,100 | 695,237 | 10,852,611 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 43,500 | | |
| | | Cost | 0 | 0 | 0 | 15,730 | | |
| 35 | West Columbus | New Work | | | | | | |
| | | Approp | 0 | 0 | 0 | 0 | 98,114,818 | 47 |
| | | Cost | 645,953 | 73,075 | 853 | 0 | 98,164,035 | 47 |
| 36 | Yatesville Lake | New Work | | | | | | |
| | | Approp | | | | | 99,456,500 | |
| | | Cost | | | | | 99,453,537 | |
| | | Maint | | | | | | |
| | | Approp | 814,000 | 811,950 | 1,055,000 | 1,058,800 | 17,324,471 | |
| | | Cost | 803,040 | 799,517 | 1,062,137 | 995,956 | 17,305,219 | |
| | | New Work (American Recovery and Reinvestment Act) | | | | | | |
| | | Approp | 0 | 0 | 0 | 43,500 | | |
| | | Cost | 0 | 0 | 0 | 15,730 | | |

**Notes for Table 25-A**

[1]Includes $4,294,612 for new work for previous projects, $4,498,636 Emergency Relief funds, $9,004,800 Public Works funds and $686,317 Code 713 funds.

[2]Includes $3,883,513 for maintenance of previous projects and $546,090 Maintenance and Operation funds.

[3]Public Works Acceleration funds.

[4]Includes $117,136,828 Inland Waterways Trust funds.

[5]Includes $115,499,889 Inland Waterways Trust Fund.

[6]Includes $198,410,957 Inland Waterways Trust funds.

[7]Includes $194,997,538 Inland Waterways Trust funds.

[8]Includes $12,286,215 Inland Waterways Trust funds.

[9]Includes $12,286,215 Inland Waterways Trust funds.

[10]Includes $1,063 Maintenance and Operation funds.

[11]Includes $543,960 Emergency Relief funds, $9,698 Public Works Acceleration funds, $211,850 Code 711 funds and $75,000 Code 713 funds.

[12] Includes $2,795 Maintenance and Operation funds.

[13]Includes $748,281 Maintenance and Operation funds and $49,998 in FY08 War Supplemental Funds.

[14]Excludes $225,090 contributed funds. Includes $590,000 Code 711 funds.

[15]Includes $130,000 provided by the Productive Employment Act of 1983.

[16]Includes $240,000 provided by the Productive Employment Act of 1983.

[17]Includes $23,087 Public Works Acceleration funds, $1,089,940 Code 711 funds and $231,105 Code 713 funds.

[18]Includes $82,900 Special Recreation Use Fee Funds and$747,028 Maintenance and Operations Funds.

[19]Includes $100,000 provided from the Productive Employment Act of 1983.

[20]Includes $1,924 Maintenance and Operations funds.

[21]Includes $209,918 Special Recreation Use Fee Funds and $747,028 Maintenance and Operations Funds.

[22]Includes $362,649 Code 711 funds and $10,000 Code 712 funds.

[23]Includes $38,000 Special Recreation Use Fee Funds and $748,714 Maintenance and Operations Funds.

[24]Includes $406,919 Code 711 funds and $2,317 code 713 funds.

[25]Includes 422,983 Code 711 funds

[26]Includes $88,710 special recreation use funds.

[27]Includes Cost from Ohio River Division of $696,000. Excludes contributed funds.

[28]Includes contributed funds.

[29]Includes $27,190,000 National Industrial Recovery funds and $528,288 Code 711 funds.

[30]Includes $206,815 Maintenance and Operations funds and $5,600,002 in FY08 War Supplemental Funds.

[31]Includes $61,945 Public Works Acceleration funds.

[32]Excludes contributed funds.

[33]Includes $45,177 Code 711 funds.

[34]Includes $64,233 Code 711 funds.

[35]Includes $68,200 special recreation use fees.

[36]Includes $10,920 Emergency Relief funds.

[37]Includes $14,153 Code 711 funds.

[38]Includes $31,496 special recreation use fee funds.

[39]Includes $5,534 Consolidated Army funds.

[40]Includes $60,000 provided from the Productive Employment Act of 1983, and $85,233 Maintenance and Operations Funds.

[41]Excludes contributed funds.

[42]Includes $300,062 Code 711 funds.

[43]Includes $214,112 special recreation use fee funds, $300,000 provided from the Productive Appropriations Act of 1983, and $120,016 Maintenance and Operation Funds.

[44]Includes $1,837,337 Code 711 funds and $287,843 Accelerated Public Works funds. Excludes contributed funds.

[45]Includes $267,634 special recreation use fee funds, $215,000 provided from the Productive Employment Appropriations Act of 1983, and $144,562 Maintenance and Operations Funds.

[46]Includes $8,064 Code 711 funds and $30,000 Public Works Acceleration funds. Excludes contributed funds.

[47]Excludes contributed funds.

48Excludes contributed funds.

| Table 25-B | Authorizing Legislation | | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| 2 | | **KANAWHA RIVER LOCKS AND DAMS, WV** | |
| | 30-Aug-35 | Construction of three locks and dams on the Kanawha River and one on the Ohio | P.L. 74-409 (RHA ’35), 1st Sess. |
| | 15-Aug-85 | Engineering and Design and Land Acquisition for Winfield Locks and Dam | P.L. 99-88 (E&WDAA ’85) 1st Sess. |
| | 12-Oct-96 | Construction of 110' x 800' replacement lock to replace 56' x 360' twin lock chambers at Marmet Locks and Dam | P.L. 104-303 (WRDA '96), 2nd Sess. |
| | 19-Nov-05 | Modified to increase the authorized cost of Marmet Locks & Dam to $358,000,000 | P.L. 109-103 (E&WDAA ’06) 2nd Sess. |
| 6 | | **ALUM CREEK LAKE, OH** | |
| | 23-Oct-62 | Construction of Flood Control Reservoir | P.L. 87-874 (FCA ‘ 62), 2nd Sess. |
| 7 | | **BEECH FORK LAKE, WV** | |
| | 23-Oct-62 | Construction of Flood Control Reservoir | P.L. 87-874 (FCA ’62), 2nd Sess. |
| 8 | | **BLUESTONE LAKE, WV** | |
| | 12-Sep-35 | Construction of Flood Control Reservoir | Exec. Order 7183-A |
| | 22-Jun-36 | Directs completion of project | P.L. 74-738 (FCA ’36), 2nd Sess. |
| | 28-Jun-38 | Approved provisions in executive order, authorized LERRRDs at cost to the federal government | P.L. 75-761 (FCA ’38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA ’44), 2nd Sess. |
| | 31-Oct-92 | Authorization for Drift & Debris Removal | P.L. 102-580 (WRDA '92), 2nd Sess. |
| | 12-Oct-96 | Allows of passage of biological materials through the dam | P.L. 104-303 (WRDA '96), 2nd Sess. |
| | 17-Aug-99 | Implement Plan G, as defined in the Evaluation report dated December 1996 | P.L. 106-53 (WRDA '99), 1st Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| | 11-Dec-00 | Authorized construction of hydroelectric facilities | P.L. 106-541 (WRDA '00), 2nd Sess. |
| | 7-Nov-05 | Transfers ownership and operation of the hydropower facilities to Tri-Cities Power Authority. Removes hydropower as a project purpose as long as TCA exercises its responsibilities. Requires coordination with Dam Safety Project. And other changes to the project | P.L. 109-103 (E&WDAA '06), 1st Sess. |
| | 8-Nov-07 | Section 4 of the Flood Control Act of 1938 is modified to direct the Secretary to implement Plan C/G, as defined in the Evaluation Report of the District Engineer dated December 1996 | P.L. 110-114 (WRDA '07), 1st Sess. |
| 9 | | **BURNSVILLE LAKE, WV** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 39 | | **CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE** | |
| | 17-Aug-99 | Design and Construction Assistance for Environmental Infrastructure | P.L. 106-53 (WRDA '99), 1st Sess. |
| | 8-Nov-07 | Amended to strike Nicholas and Gilmer in subsection (a) and strike $10,000,000 and insert $20,000,000 in subsection (h). Nonprofit entities may be included in the non-Federal interest with the consent of the affected local government. Not more than 10 percent of the amounts appropriated to carry out this section may be used by the Corps of Engineers district offices to administer projects under this section of Federal expense | P.L. 110-114 (WRDA '07), 1st Sess. |
| 10 | | **DEER CREEK LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| 11 | | **DELAWARE LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 12 | | **DEWEY LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534, (FCA '44), 2nd Sess. |
| | 8-Nov-07 | The Secretary shall conduct a study to determine the feasibility to add water supply as a project purpose | P.L. 110-114 (WRDA '07), 1st Sess. |
| 13 | | **DILLON LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 14 | | **EAST LYNN LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 15 | | **FISHTRAP LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 16 | | **GRAYSON LAKE, KY** | |
| | 14-Jul-60 | Construction of Flood Control Reservoir | P.L. 86-645 (FCA '60) 2nd Sess. |
| 17 | | **GREENBRIER RIVER, MARLINTON, WV** | |
| | 12-Oct-96 | Project for Flood Control | P.L. 104-303 (WRDA '96), 2nd Sess. |
| | 17-Aug-99 | Modified to increase authorized appropriation to $47,000,000 | P.L. 106-53 (WRDA '99), 1st Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| | 8-Nov-07 | Modified to increase authorized appropriation to $99,000,000 | P.L. 110-114 (WRDA '07), 1st Sess. |
| 46 | | **HOCKING RIVER BASIN, MONDAY CREEK, OH** | |
| | 8-Nov-07 | Project for Ecosystem Restoration; components on Federal land completed at 100 percent Federal expense | P.L. 110-114 (WRDA '07), 1st Sess. |
| 18 | | **ISLAND CREEK AT LOGAN, WV** | |
| | 17-Oct-86 | Project for Flood Control | P.L. 99-662 (WRDA '86), 2nd Sess. |
| 19 | | **JOHN W. FLANNAGAN DAM AND RESERVOIR, VA** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA ' 38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44) 2nd Sess. |
| 20 | | **LEVISA AND TUG FORKS OF THE BIG SANDY RIVER, AND UPPER CUMBERLAND RIVER, WV, VA, AND KY** | |
| | 1-Oct-80 | Construction of such Flood Control Measures as deemed necessary and advisable | P.L. 96-367 (E&WDAA '81), 2nd Sess. |
| | 12-Oct-96 | Modified to include Grundy, VA | P.L. 104-303 (WRDA '96), 2nd Sess. |
| | 17-Aug-99 | Modified authorize the Secretary to take all necessary measures to prevent futures losses that would occur as a result of a flood equal in magnitude to a 100-year frequency event in Martin, KY | P.L. 106-53 (WRDA '99), 1st Sess. |
| | 11-Dec-00 | Modified to direct the Secretary to determine the ability of Buchanan and Dickson Counties, VA to pay the non-Federal share of the cost of the project | P.L. 106-541 (WRDA '00), 2nd Sess. |
| | 8-Nov-07 | Modified to direct the Secretary to take measures to provide a 100-year level of flood protection for the city of Prestonsburg. Modified to direct the Secretary to take measures to provide protection throughout McDowell County, WV, from the reoccurrence of the greater of April 1977 flood; the July 2001 flood; the May 2002 flood, or the 100-year frequency event. | P.L. 110-114 (WRDA '07), 1st Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| 21 | | **LOWER MUD RIVER, MILTON, WV** | |
| | 12-Oct-96 | Conduct a limited re-evaluation of watershed plan and environmental impact statement prepared by the Natural Resources Conservation Service and may carry out the project. | PL 104-30 (WRDA '96), 2nd Sess. |
| | 11-Dec-00 | Directed to carry out flood damage reduction project | PL 106-54 (WRDA '00), 2nd Sess. |
| | 7-Nov-07 | Modified to authorize the Secretary to construct the project substantially in accordance with the draft report of the Corps of Engineers dated May 2004, at an estimated total cost of $57, 100,000, with an estimated Federal cost of $42,825,000 and non-Federal cost of $14,275,000. | P.L. 110-114 (WRDA '07), 1st Sess. |
| 22 | | **MASSILLON, OH** | |
| | 28-Jun-38 | Construction of Channel Improvement Project | P.L. 75-761 (FCA '38), 1st Sess. |
| 23 | | **MUSKINGUM RIVER LAKES, OH** | |
| | 20-Feb-34 | Construction of 14 Flood Control Reservoirs | Public Work Admin |
| | 28-Jun-38 | Reimbursement to the Muskingum Conservancy District a sum not to exceed actual expenditures for project construction. | P.L. 75-761 (FCA '38), 1st Sess.. |
| | 11-Aug-39 | Operations and Maintenance assigned to the Corps of Engineers | P.L. 76-396, 1st Sess |
| 24 | | **NEWARK, OH** | |
| | 28-Jun-38 | Construction of Channel Improvement Project | P.L. 75-761 (FCA '38), 1st Sess. |
| | 13-Aug-68 | Modification to existing project and additional channel improvement and drainage facilities. | P.L. 90-483 (FCA '68), 2nd Sess. |
| 25 | | **NORTH BRANCH OF KOKOSING RIVER LAKE, OH** | |
| | 23-Oct-62 | Construction of Flood Control Reservoir | P.L. 87-874 (FCA '62), 2nd Sess. |
| 26 | | **NORTH FORK OF POUND RIVER LAKE, VA** | |
| | 14-Jul-60 | Construction of Flood Control Reservoir | P.L. 86-645 (FCA '60) 2nd Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| 40 | | **OHIO ENVIRONMENTAL INFRASTRUCTURE** | |
| | 17-Aug-99 | Design and Construction Assistance for Environmental Infrastructure | P.L. 106-53 (WRDA '99), 1st Sess. |
| | 19-Nov-05 | Modified to increase authorized amount to $240,000,000 | P.L. 109-103 (E&WDAA '06), 2nd Sess. |
| | 8-Nov-07 | Amended in accordance with section 221 of the Flood Control Act of 1970, a non-Federal interest for any project may include a nonprofit entity, with the consent of the affected local government. | P.L. 110-114 (WRDA '07), 1st Sess. |
| | | **OHIO RIVER ENVIRONMENTAL MANAGEMENT** | |
| 27 | 8-Nov-07 | Authorized to be appropriated $2,500,000 to carry out this section. | P.L. 110-114 (WRDA '07), 1st Sess. |
| 28 | | **PAINT CREEK LAKE, OH** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 29 | | **PAINTSVILLE LAKE, KY** | |
| | 27-Oct-65 | Construction of Flood Control Reservoir | P.L. 89-298 (FCA '65), 1st Sess. |
| 47 | | **PARKERSBURG RIVERFRONT PARK, WV** | |
| | 08-Nov-07 | Act of November 8, 2007 authorized the carry out of ecosystem restoration, recreation, and flood control components of Parkersburg Riverfront Park at a total cost of $12,000,000 with an estimated Federal cost of $6,000,000 and an estimated non-Federal cost of $6,000,000. | P.L. 110-114 (WRDA '07), 1st Sess. |
| | 08-Nov-07 | Receded by Senate with an amendment: the managers direct the Corps to limit its work on recreation features to only those elements that relate to the traditional Corps mission areas that are being built as an element of the larger waterfront and riverfront. | P.L. 110-114 (WRDA '07), 1st Sess. |
| 30 | | **R. D. BAILEY LAKE, WV** | |
| | 23-Oct-62 | Construction of Flood Control Reservoir | P.L. 87-874 (FCA '62), 2nd Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| 31 | | **ROSEVILLE, OH** | |
| | 28-Jun-38 | Construction of Channel Improvement Project | P.L. 75-761 (FCA ’38), 1st Sess. |
| 41 | | **SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE** | |
| | 12-Oct-96 | Design and Construction Assistance for Environmental Infrastructure | P.L. 104-303 (WRDA'96), 2nd Sess. |
| | 17-Aug-99 | Modified to increase the authorized amount to $25,000,000 | P.L.106-53 (WRDA '99), 1st Sess. |
| | 20-Feb-03 | Modified to insert Bath and Rowan Counties and to increase the authorized amount to $40,000,000 | P.L. 108-7 (E&WDAA ’03), 1st Sess. |
| | 8-Nov-07 | Amended that not more than 10 percent of the amounts appropriated to carry out this section may be used by the Corps of Engineers district offices to administer projects under this section at Federal expense. | P.L. 110-114 (WRDA ‘07), 1st Sess. |
| 42 | | **SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE** | |
| | 31-Oct-92 | Design and Construction Assistance for Environmental Infrastructure | P.L. 102-580 (WRDA ‘92), 2nd Sess. |
| | 12-Oct-96 | Modified to increase the amount to be appropriated to $20,000,000 | P.L. 104-303 (WRDA ‘96), 2nd Sess. |
| | 17-Aug-99 | Modified to increase the amount to be appropriated to $40,000,000 | P.L. 106-53 (WRDA ‘99), 1st Sess. |
| | 11-Dec-00 | Modified to include environmental restoration | P.L. 106-541 (WRDA ’00), 2nd Sess. |
| | 8-Nov-07 | Amended that not more than 10 percent of the amounts appropriated to carry out this section may be used by the Corps of Engineers district offices to administer projects under this section of Federal expense. A non-Federal interest may include a nonprofit entity with the consent of the affected local government. | P.L. 110-114 (WRDA ‘07), 1st Sess. |
| 32 | | **SUMMERSVILLE LAKE, WV** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA ’38), 1st Sess. |

| Table 25-B (Cont'd) | Authorizing Legislation | | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 33 | | **SUTTON LAKE, WV** | |
| | 28-Jun-38 | Construction of Flood Control Reservoir | P.L. 75-761 (FCA '38), 1st Sess. |
| | 22-Dec-44 | Added Recreation | P.L. 78-534 (FCA '44), 2nd Sess. |
| 34 | | **TOM JENKINS DAM, OH** | |
| | 22-Dec-44 | Construction of Flood Control Reservoir | P.L. 78-534 (FCA '44), 2nd Sess. |
| 35 | | **WEST COLUMBUS, OH** | |
| | 17-Nov-88 | Construction of Local Protection Project | P.L. 100-676 (WRDA '88), 2nd Sess. |
| 36 | | **YATESVILLE LAKE, KY** | |
| | 27-Oct-65 | Construction of Flood Control Reservoir | P.L. 89-298 (FCA '65), 1st Sess. |
| 37 | | **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS** | |
| | 22-Jun-36 | Inspection of Local Maintenance of Federally Constructed Local Protection Projects | P. L. 74-738 (FCA '36), 2nd Sess. |
| | | **FLOOD DAMAGE REDUCTION, OHIO** | |
| | 8-Nov-07 | Act of November 8, 2007 recommended a study be done to determine the feasibility of carrying out projects for flood damage reduction in Cuyanhoga, Lake, Ashtabula, Geauga, Erie, Lucas, Sandusky, Huron, and Stark Counties, OH. | P.L. 110-114 (WRDA '07), 1st Sess. |
| | 8-Nov-07 | Act of November 8, 2007 recommended a study be done to determine the feasibility of carrying out projects for flood damage reduction on the Ohio River in Mahoning, Columbiana, Jefferson, Belmont, Noble, Monroe, Washington, Athens, Meigs, Gallia, Lawrence | P.L. 110-114 (WRDA '07), 1st Sess. |

| Table 25-B (Cont'd) | | Authorizing Legislation | |
|---|---|---|---|
| **See Section In Text** | **Date of Authorizing Act** | **Project and Work Authorized** | **Documents** |
| | | **ADDITIONAL ASSISTANCE FOR CRITICAL PROJECTS** | |
| | 8-Nov-07 | Amended Section 219 of the Water Resources Development Act of 1992: Burr Oak Regional Water District, Ohio - $4,000,000 for construction of a water line to extend from a well field near Chancey, OH, to a water treatment plant near Millfield, OH; Columbus, OH - $4,500,000 for wastewater infrastructure; Lawrence County, OH - $5,000,000 for Union Rome wastewater infrastructure; Meigs County, OH - $1,000,000 to extend the Tupper Plains Regional Water District water line to Meigs County, OH; Vinton County, OH - $1,000,000 to construct water lines in Vinton and Brown Townships, OH. | P.L. 110-114 (WRDA '07), 1st Sess. |

**Table 25-C** **Other Authorized Navigation Projects**

| Project | Status | For Last Full Report See Annual Report For | Cost to Sep 30, 2009 Construction | Operation and Maintenance | Contributed Funds Expended |
|---|---|---|---|---|---|
| Big Sandy River, WV and KY including Levisa and Tug Forks [1 and 2] | completed | 1952 | 1,586,236 | 15,698,111 | 131,473 |
| Elk River, WV[3] | completed | 1903 | 30,259 | | |
| Gauley River, WV[4] | completed | 1903 | 14,761 | | |
| Guyandotte River, WV[5] | completed | 1915 | 27,500 | | |
| Little Kanawha River, WV[6] | completed | 1960 | 470,536 | 1,023,854 | |
| Muskingum River, OH[7] | completed | 1955 | 301,912 | 6,171,897 | 6,041 |
| New River, WV and VA[5] | completed | 1899 | 109,691 | | |
| Scioto River at Portsmouth, OH [8] | completed | 1953 | 10,951 | 16,593 | |

[1]In addition, $140,068 expended from funds transferred from Department of Commerce, Under accelerated public works program, for repairs of eroded bank at Lock 3 on Big Sandy River, at Louisa, KY.

[2]Operations and maintenance suspended June 30, 1952.

[3]Work closed September 1902. Property transferred to Kanawha River improvements.

[4]Work closed September 1902. Abandonment recommended in H. Doc 467, 69th Congress.

[5]Work suspended.

[6]Operation and maintenance suspended June 30, 1951.

[7]Collections from licensed non-Federal hydroelectric utilities for use of dams on Muskingum River for fiscal years 1923-1953 were $79,154.

[8]P.L. 954, August 31, 1954, authorized Secretary of Treasury to pay Portsmouth Sand and Gravel Co. $75,000 in full settlement of claims against government for damages resulting from change in Scioto River Channel.

**Table 25-E** **Other Authorized Flood Control Projects**

| Project | Status | For Last Full Report See Annual Report For | Cost to Sep 30, 2009 Construction | Operation and Maintenance | Contributed Funds Expended |
|---|---|---|---|---|---|
| Ashland, KY, LPP | Completed | 1954 | 3,718,839 | --- | --- |
| Athens, OH, LPP | Completed | 1979 | 5,313,700 | --- | --- |
| Augusta, KY | Inactive | --- | 11,577 | --- | --- |
| Catlettsburg, KY, LPP | Completed | 1963 | 3,854,361 | --- | --- |
| Ceredo-Kenova, WV, LPP | Completed | 1955 | 2,753,551 | --- | --- |
| Chillicothe, OH, LPP | Completed | 1986 | 20,373,314 | --- | --- |
| Coal River, WV | Inactive | 1979 | 472,229 | --- | --- |
| East Rainelle, WV, LPP | Completed | 1962 | 614,598 | --- | --- |
| Galax, VA, LPP | Completed | 1953 | 480,536 | --- | --- |
| Haysi, VA | Inactive | --- | 2,656 | --- | --- |
| Huntington, WV, LPP | Completed | 1956 | 7,172,840 | --- | --- |
| Ironton, OH, LPP | Completed | 1952 | 2,604,646 | --- | --- |
| Kehoe Lake, KY | Deferred | 1981 | 1,272,740 | --- | --- |
| Martin, KY | Active with no current year expenditures | 1983 | 212,048 | --- | --- |
| Maysville, KY, LPP | Completed | 1959 | 6,493,747 | --- | --- |
| Newark, OH (Interior Drainage) | Deferred | 1983 | --- | --- | --- |
| Oceana, WV | Deferred | 1981 | 611,000 | --- | --- |
| Parkersburg, WV, LPP | Completed | 1955 | 6,652,827 | --- | --- |
| Pt. Pleasant, WV, LPP | Completed | 1955 | 2,919,578 | --- | --- |
| Portsmouth - New Boston, OH, LPP | Completed | 1956 | 9,806,424 | --- | --- |
| Princeton, WV, LPP | Completed | 1962 | 808,750 | --- | --- |
| Russell, KY, LPP | Completed | 1953 | 552,493 | --- | --- |
| Vanceburg, KY | Inactive | --- | --- | | |
| Williamson, WV, LPP | Completed | 1964 | 1,056,166 | --- | --- |

**Table 25-G** **Deauthorized Projects**

| Projects | For Last Full Report See Annual Report For | Date | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|

All projects listed in this table have been deauthorized in accordance with Section 12 of the Water Resources Development Act of 1974, P. L. 251, 93rd Congress

**Local Protection Projects**

| | | | | |
|---|---|---|---|---|
| Aberdeen, OH | --- | May 1981 | 1,334 | --- |
| Athalia, OH | --- | Aug 1977 | --- | --- |
| Belpre, OH | --- | Nov 1977 | --- | --- |
| Brooklyn, WV | --- | Nov 1979 | --- | --- |
| Buena Vista, OH | --- | Aug 1977 | --- | --- |
| Chambersburg, OH | --- | Nov 1986 | --- | --- |
| Cheshire, OH | --- | Nov 1977 | --- | --- |
| Chilo, OH | --- | Aug 1977 | --- | --- |
| Clifton, WV | --- | Aug 1977 | 11,237 | --- |
| Coal Grove, OH | --- | Jan 1990 | 3,389 | --- |
| Columbus, OH | --- | Aug 1977 | --- | --- |
| Dover, KY | --- | Jan 1990 | --- | --- |
| Friendly, WV | --- | Aug 1977 | --- | --- |
| Fullerton, KY | --- | Jan 1990 | --- | --- |
| Gallipolis, OH | --- | Aug 1977 | --- | --- |
| Greenup, KY | --- | Jan 1990 | 4,962 | --- |
| Hanging Rock, OH | --- | Aug 1977 | --- | --- |
| Hartford, WV | --- | Aug 1977 | --- | --- |
| Henderson, WV | --- | Aug 1977 | --- | --- |
| Higginsport, OH | --- | Oct 1978 | --- | --- |
| Hockingport, OH | --- | Aug 1977 | --- | --- |
| Killbuck, OH | --- | Apr 2002 | --- | --- |
| Letart, WV | --- | Aug 1977 | --- | --- |
| Letart Falls, OH | --- | Aug 1977 | --- | --- |
| Lower Guyandotte, River Basin, WV | --- | Nov 1986 | 17,721 | --- |
| Manchester, OH | --- | May 1981 | --- | --- |
| Mansfield, OH | --- | Apr 2002 | --- | --- |
| Mapleshade, OH | --- | Oct 1978 | --- | --- |
| Marietta, OH | --- | Nov 1981 | --- | --- |
| Mason, WV | --- | Aug 1977 | --- | --- |
| Middleport, OH | --- | May 1981 | 9,783 | --- |
| Miller, OH | --- | Aug 1977 | --- | --- |
| Millwood, WV | --- | Aug 1977 | --- | --- |
| Nelsonville, OH | --- | Apr 2002 | --- | --- |
| New Martinsville, WV | --- | Nov 1979 | --- | --- |
| Newport, OH | --- | Aug 1977 | --- | --- |
| Normal, KY | --- | Jan 1990 | --- | --- |
| North Chillicothe, OH | --- | Apr 2002 | --- | --- |

**Table 25-G (Cont'd)** **Deauthorized Projects**

| Projects | For Last Full Report See Annual Report For | Date | Federal Funds Expended | Contributed Funds Expended |
|---|---|---|---|---|
| Portland, OH | --- | Aug 1977 | --- | --- |
| Proctorville, OH | --- | Nov 1986 | --- | --- |
| Racine, OH | --- | Aug 1977 | --- | --- |
| Ripley, OH | --- | Oct 1978 | 7,523 | --- |
| Riverview, WV | --- | Aug 1977 | --- | --- |
| St. Marys, WV | --- | Aug 1977 | --- | --- |
| Sardis, OH | --- | Aug 1977 | --- | --- |
| Sciotoville, OH | --- | Aug 1977 | --- | --- |
| Sistersville, WV | --- | Aug 1977 | --- | --- |
| South Point, OH | --- | Nov 1986 | --- | --- |
| South Portsmouth, KY | --- | Jan 1990 | --- | --- |
| Syracuse, OH | --- | Aug 1977 | --- | --- |
| Waverly, WV | --- | Aug 1977 | --- | --- |
| Williamstown, WV | --- | Nov 1979 | --- | --- |
| Zanesville, OH | --- | May 1981 | --- | --- |
| **Reservoirs and Lakes** | | | | |
| Big Bend, WV | --- | Aug 1977 | --- | --- |
| Big Darby, OH | 1969 | Nov 1979 | 3,349,568 | --- |
| Birch, WV | --- | Nov 1986 | --- | --- |
| Frazeysburg, OH | --- | May 1981 | 5,000 | --- |
| Kehoe Lake, KY | --- | Jul 1992 | 1,273,000 | --- |
| Leading Creek, WV | 1974 | Jan 1990 | 272,880 | --- |
| Logan, OH | --- | Oct 1985 | --- | --- |
| Millersburg, OH | --- | May 1981 | --- | --- |
| Mill Creek, OH | 1981 | Nov 1985 | 1,602,702 | --- |
| Moores Ferry, VA | --- | Nov 1986 | 22,879 | --- |
| Mud River, WV | --- | Nov 1979 | --- | --- |
| Panther Creek, WV | 1976 | Nov 1986 | --- | --- |
| Poca, WV | --- | May 1981 | --- | --- |
| Rocky Fork, OH | 1950 | Aug 1977 | 91,321 | --- |
| Salt Creek, OH | 1975 | Nov 1986 | 1,089,943 | --- |
| Utica, OH | 1975 | Jan 1990 | 757,550 | --- |
| West Fork, WV | 1974 | Jan 1990 | 663,192 | --- |
| White Oak Creek, OH | --- | Nov 1981 | --- | --- |
| **Other** | | | | |
| Charleston Bank Erosion, WV | --- | Nov 2007 | --- | --- |

Table 25-I Kanawha River Locks and Dams
(See Section 1 of Text)

| Lock and Dam | London | Marmet | Winfield |
|---|---|---|---|
| Distance from Nearest Town | at London, WV | at Belle, WV | at Eleanor, WV |
| Miles Above Mouth of River | 82.8 | 67.7 | 31.1 |
| Length of Reach (miles) | 7.5 | 20.1 | 36.6 |
| Width of Chamber (feet) | 110 | 56 | 56 |
| Greatest Length Available for Full Width (feet) | 360 | 360 | 800 |
| Lift (feet | 24 | 24 | 24 |
| Upper Normal Pool Elevation (feet, mean sea level) | 590 | 614 | 566 |
| Depth on Miter Sills | | | |
| Upper (feet) | 18 | 18 | 18 |
| Lower (feet) | 12 | 12 | 12 |
| Character of Foundation | | | |
| Lock | Concrete | Concrete | Concrete |
| Dam | Rock and Wood piles | Rock and Wood piles | Rock and Wood piles |
| Percent Complete | 100% | 100% | 100% |
| Year Opened to Navigation | 1933 | 1934 | 1937 |
| Actual Cost to Date | $23,394,786 | $292,152,972 | $228,967,377 |