



US Army Corps
of Engineers®
Walla Walla District

Report of the Secretary of the Army on Civil Works Activities for Fiscal Year 2002



Department of the Army Corps of Engineers
Extract Report of Walla Walla District

WALLA WALLA, WA, DISTRICT

This U.S. Army Corps of Engineers (Corps), Walla Walla District (District), consists of all Columbia River drainage and tributaries thereto between the head of the McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam,

except the Yakima River Basin above the Van Giesen Street Bridge (river mile 8.4) near Richland, WA. The primary tributary drainage area is the Snake River that includes more than 107,000 square miles in six states: Washington, Oregon, Idaho, Wyoming, and small portions of Nevada and Utah.

IMPROVEMENTS

Flood Control

1. Columbia River Basin, Local Flood Protection Projects.....	30-2
2. Inspection of Completed Flood Control Projects.....	30-2
3. Jackson Hole, WY.....	30-2
4. Lucky Peak Lake, ID.....	30-3
5. Mill Creek, Bennington Lake, WA.....	30-3
6. Scheduling Flood Control Reservoir Operations.....	30-4

Multipurpose Projects, Including Power

7. Columbia River Juvenile Fish Mitigation Program (Walla Walla Projects), OR, WA, and ID.....	30-4
8. Dworshak Dam and Reservoir, ID.....	30-5
9. Ice Harbor Lock and Dam, Lake Sacajawea, WA.....	30-6
10. Little Goose Lock and Dam, Lake Bryan, WA.....	30-65
11. Lower Granite Lock and Dam, Lower Granite Lake, WA.....	30-7
12. Lower Monumental Lock and Dam, Lake Herbert G. West, WA.....	30-87

13. Lower Snake River Fish and Wildlife Compensation Plan, WA, OR, and ID.....	30-9
14. McNary Lock and Dam, Lake Wallula, OR and WA.....	30-9
15. Snake River Downstream from Johnson Bar Landing, OR, WA, and ID.....	30-10
16. Miscellaneous Work Under Special Authorization.....	30-10

General Investigations

17. Surveys.....	30-11
18. Collection and Study of Basic Data.....	30-12
19. Preconstruction, Engineering, and Design.....	30-12

Tables

Table 30-A	Cost and Financial Statement.....	30-13
Table 30-B	Authorizing Legislation.....	30-15
Table 30-C	Principal Data Concerning Navigation Lock, Spillway Dam, Powerplant, and Impoundment.....	30-17
Table 30-D	Snake River Downstream from Johnson Bar Landing, OR, WA, and ID.....	30-22

Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

Location. Improvements included in this project are along the Columbia River and its tributaries.

Existing project. The Flood Control Act of 1950 approved a general comprehensive plan for the Columbia River Basin for flood control and other purposes based on plans in H. Doc. 531, 81st Congress, 2nd Session, and authorized \$75 million to be appropriated for partial accomplishment of certain projects. From that authorization, an amount (not to exceed \$15 million) was allotted for construction of local flood protection works throughout the Columbia River Basin, subject to conditions that all work undertaken pursuant to authorization would be economically justified prior to construction, and local cooperation specified in the Flood Control Act of 1936, as amended, should be required (see [table 30-B](#), for projects in the District).

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies.

Operations during the fiscal year (FY). No projects were deauthorized.

2. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal law requires local interests to maintain and operate completed local protection projects in accordance with regulations prescribed by the Secretary of the Army. Inspections were made to determine the extent of compliance and to advise local interests, as necessary, of measures required to correct deficiencies.

The FY costs were \$45,004. Total costs through September 30, 2002, were \$3,019,563.

3. JACKSON HOLE, WY

Location. This project is located on the banks of the Snake River, Teton County, west of Jackson, WY.

Existing project. On the Snake River, approximately 23.5 miles of Federally-constructed

levees consist of the following: (1) On the right bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge for a total of 13.5 miles; (2) On the left bank: a series of Federally-constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles upstream. It resumes 1.5 miles immediately upstream of the same bridge and continues to 3.5 miles below the bridge for a total of 10 miles. In addition, a series of Federal and non-Federal constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

On the Gros Ventre River, approximately 2 miles of riprap protected levees on the left bank from 1.5 miles west of Cattlemen's Bridge and extending to 0.5 miles east of the same bridge. On the right bank, a series of levees extending from 0.5 miles west of Cattlemen's Bridge to approximately 0.3 miles east of the same bridge.

The Project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The PL 104-303 modified the original PL 81-516 to ensure the operation, maintenance, modifications, and additions to the project become Federal responsibility.

Local cooperation. Non-Federal sponsors pay the initial \$35,000 in cash or materials of any such costs expended in any 1 year, plus inflation as of the date of enactment of the Water Resources Development Act of 1986.

Since 1978, \$62,728,000 (adjusted to October 2002 price index) in potential flood damages has been prevented by the levees.

Operations during FY. Teton County, under their Local Cooperative Agreement, worked with the Corps performing levee maintenance. The FY costs were \$1,064,412.

4. LUCKY PEAK LAKE, ID

Location. This project is located on the Boise River in southwestern Idaho about 10 miles southeast of the city of Boise, ID.

Existing project. The project includes a rolled earthfill dam about 250 feet above the streambed and 1,700 feet long at the crest, with a lake providing a total storage at upper operating lake level of 306,000 acre-feet. The project provides for flood control, irrigation, and recreation.

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, \$547,859,000 (adjusted to October 2002 price index) in potential flood damages have been prevented by the project.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in the Water Resource Development Act of 1976. In FY 78, an *Interim Feasibility Report on Modification of Lucky Peak Dam and Lake* (power facilities) was submitted to the Board of Engineers for Rivers and Harbors and approved. States, agencies, and the Chief of Engineers commented on the report to the Secretary of the Army. The report was forwarded to the Office of Management and Budget in February 1982.

A license to construct and operate power facilities at the project was issued by the Federal Energy Regulatory Commission (FERC) (Project #2832) to the Boise Project Board of Control on June 10, 1980, and modified on October 9, 1980, and in 1982. Construction of the auxiliary outlet facility began in May 1984 and was completed in August 1986. Construction of modifications to the existing outlet tunnel and powerhouse excavation began in August 1986 and was completed January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was August 18, 1988. A Federally-authorized second outlet was deauthorized in FY 90.

Recreation facilities at Lucky Peak Lake consist of 20 picnic/day-use areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 751,153.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance, which included the dam structures and recreation areas, continued. The FY costs were \$1,592,648.

5. MILL CREEK, BENNINGTON LAKE, WA

Location. This project is located in and upstream from Walla Walla, WA, on Mill Creek, a tributary of the Walla Walla River.

Existing project. The project includes an off-stream earthfill storage dam, about 125 feet above the streambed and 3,200 feet long at the crest, two concrete-lined outlet channels, an earthfill diversion dam, and diversion structures. The project provides for flood control and recreation. Authorizing legislation to provide a channel through the city of Walla Walla was added to the project in 1941. Recreation was added to the project purposes through the Federal Water Project Recreation Act of 1965.

Construction of the dam and appurtenant works was completed in 1942. Paving of the channel through the city of Walla Walla was completed in 1966. Since 1942, \$48,310,000 (adjusted to October 2002 price index) in potential flood damages have been prevented by the combined storage and channel operation.

Rehabilitation of the existing project was initiated in FY 78 and completed in FY 79. The plan of rehabilitation included action to correct the seepage and internal erosion that has occurred during each subsequent filling of the reservoir. A cutoff wall was constructed but did not alleviate the seepage problem, thus requiring limited flood control use of the project. The seepage and internal erosion create a high vulnerability for dam failure.

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 150,240.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas. Initiated right

abutment test grouting contract. The FY costs were \$2,041,853.

6. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects was accomplished under several authorities. Regulation was accomplished as authorized under Section 7, Flood Control Act of 1944, and coordinated with the Bureau of Reclamation for Palisades, Little Wood, and Anderson Ranch Reservoirs, ID; and Bully Creek, Warm Springs, Agency Valley, and Mason Reservoirs, OR.

Flood control operations at Jackson Lake, WY, Arrowrock Reservoir and Lake Lowell, ID, were in accordance with formal agreements with the Bureau of Reclamation. Flood control regulation was accomplished under informal agreements for the Owyhee Reservoir, OR; and American Falls, Magic, Mackay, Cascade, and Deadwood Reservoirs, ID. Brownlee and Oxbow Reservoirs, OR, and Hells Canyon Reservoir, OR and ID, provided flood control regulation in accordance with provisions of the Federal Power Commission license to Idaho Power Company. The FY costs were \$328,419.

Multipurpose Projects, Including Power

7. COLUMBIA RIVER JUVENILE FISH MITIGATION PROGRAM (WALLA WALLA PROJECTS), OR, WA, AND ID

Location. This project is located at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams on the lower Snake River in the State of Washington and McNary Lock and Dam on the Columbia River in the states of Oregon and Washington.

Existing project. The eight Corps hydroelectric projects on the Columbia and lower Snake Rivers have been identified as a major contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead. Without adequate bypass facilities to guide these juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Indian fisheries. The Corps has recognized the need to reduce juvenile fish mortality and has undertaken

bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill as an additional bypass route over the spillways has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed, and the President signed, the FY 89 Energy and Water Development Appropriation Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River fish mitigation projects. Completion of bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. The mitigation study will determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams. The mitigation study project was added to the President's FY 91 budget.

The plan of improvement includes the following facilities: (1) Ice Harbor Lock and Dam: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental Lock and Dam: hold/load and collection bypass facility, screens, passive integrated transponder tag (PIT-Tag) facility, barge load facility modifications, barges, gate raise modifications, gantry crane, fish ladder temperature control, and surface bypass; (3) Little Goose Lock and Dam: screens, gantry crane modification, collection bypass facility, outfall pipe, fish ladder temperature control, fallout fences, gate raise, deck screen modifications, PIT-Tag facility, and surface bypass; (4) Lower Granite Lock and Dam: juvenile fish facility, gantry crane, gate raise, outfall pipe, fish barges, screens, additional moorage facility, fish slot closures, juvenile fish facility improvements, barge exit modifications, deck screen modifications, fish ladder temperature control, surface bypass, PIT-Tag facility, and fallout fences; and (5) McNary Lock and Dam: gantry crane, screens, hold/load facility, gate raise modifications, tilted weirs fish ladder, maintenance facility, fish ladder exits, hold/load facility, adult/juvenile collection channel stoplogs, juvenile fish facility, surface bypass, and gantry crane modifications.

In response to the 1995 Biological Opinion issued by the National Marine Fisheries Service, the District conducted a feasibility study (Lower Snake River Juvenile Salmon Migration Feasibility Study) to evaluate salmon migration problems on the lower Snake River. The objective of the study is to

improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focuses on how these dams can be changed to improve survival and recovery prospects for Snake River salmon stocks under the Endangered Species Act. The total completed cost of the study was \$30.3 million.

The District is currently managing a surface bypass and collection technology development effort that focuses on improving juvenile fish passage for endangered and threatened salmon migration past all Corps hydroelectric projects on the Columbia and lower Snake Rivers. It is an aggressive, nontraditional approach to prototype development that involves fast-track design, construction, testing, and evaluation.

The fully-funded Federal project cost is estimated at \$682,700,000 for Walla Walla projects.

Local cooperation. None required.

Operations during FY. The following improvements and studies were accomplished during FY 02:

Continued construction on the Ice Harbor Lock and Dam Fish Ladder Emergency Auxiliary Water Supply contract. Purpose is to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

- Completed construction of additional end bay deflectors at McNary Lock and Dam.
- Completed first year prototype test of Removable Spillway Weir (RSW) at Lower Granite Lock and Dam.
- Completed second year of Juvenile Salmon Spillway Survival Study at Ice Harbor Lock and Dam.
- Completed the Lower Snake River Juvenile Salmon Migration Feasibility Study. Record of Decision signed on September 9, 2002.
- Installation of Adult Pit-Tag detection facilities at McNary Lock and Dam was completed.
- Installation of a Full Flow Juvenile Pit-Tag Detection facility was completed at McNary Lock and Dam.

Several mitigation studies continued throughout FY 02, including the Turbine Survival Study, the Cylindrical Dewatering Evaluation, and the Fish Ladder Transition Pool Evaluation. Many multi-year research studies were also conducted including Multiple Bypass Evaluation, Delayed Mortality Evaluation, Temperature Impacts on Adults, and Estuary PIT-Tag Recovery.

The FY costs were \$30,947,013. Total project costs are \$438,061,000.

8. DWORSHAK DAM AND RESERVOIR, ID

Location. The dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, near Orofino, ID, and about 35 miles east of Lewiston, ID.

Existing project. The project includes a dam, powerplant, public parks, and appurtenant facilities. The project provides for flood control, navigation, hydroelectric power generation, recreation, and area redevelopment. The reservoir has a normal operating range between the elevations of 1,600 and 1,445 mean sea level (msl). The reservoir has a gross storage capacity of 3,468,000 acre-feet (2 million acre-feet of which are effective for both local and regional flood control and for at-site and downstream power generation). In addition, the reservoir, which extends 59 miles into rugged and relatively inaccessible timberland, provided cost-effective transportation for moving marketable logs. The reservoir provides habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and about 717 feet above the streambed. Fish passage is not feasible due to the height of the dam. A hatchery has been built below the dam to assure continuance of anadromous fish runs. The powerhouse has two 90,000-kilowatt (kW) and one 220,000-kW generating units in operation for a capacity of 400,000 kW. Provisions had been made for three additional 220,000-kW generating units for an ultimate installed capacity of 1,060,000 kW.

A reconnaissance report justifying the feasibility and cost benefits for the addition of a fourth 200,000-kW generating unit was completed in FY 78. However, environmental and economic studies on additional generating units have been curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were deauthorized in FY 90, and Unit 4 was deauthorized in FY 95. Principal project data are set forth in [table 30-C](#).

Construction of the project began in July 1966. It was placed in operation in 1972 and was completed in 1986. Since the project became operational in June 1972, it has prevented about \$2,836,000 (adjusted to October 2002 price index) in potential flood damages. Power generation through September 2002 was 49.76 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boats launches, and 2 swim areas. Total visitation to Dworshak Reservoir for the FY was 119,393.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat browse continued on project lands to provide winter browse for elk and deer. Completed paving contract at recreation areas. During the FY, 2.07 billion kW hours of electrical power were generated by the three generating units. The FY costs were \$11,080,909.

9. ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA

Location. This dam is located on the Snake River, 9.7 miles above the river mouth at the head of Lake Wallula (McNary Reservoir) and 12 miles east of Pasco, WA.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, recreation areas, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 440 and 435 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental Lock and Dam. The dam structure is approximately 2,822 feet long and approximately 130 feet above the streambed. The fish passage facilities include two fish ladders. The powerhouse has three 90,000-kW units and three 111,000-kW generating units in operation for a capacity of 603,000 kW.

The spillway dam is 590 feet long, and the overflow crest at elevation 391 msl is surmounted by 10 tainter gates, 50 feet wide and 52.9 feet high, that provide the capacity to pass a design flood of 850,000 cubic feet per second (cfs). The deck is at elevation 453 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type

with clear plan dimensions of 86 by 675 feet and a 16-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 41.6 miles long is provided from the mouth of the Snake River to the dam and from the dam to Lower Monumental Lock and Dam. Principal data are set forth in [table 30-C](#).

Construction of the original project began in December 1955. It was placed in operation in 1961 and completed in 1971. Construction of the additional generating units was started in 1971 and completed in 1981. Power generation through September 2002 was 86.24 billion kW hours.

Recreation areas on Lake Sacajawea include 11 picnic/day-use sites, 4 camping areas, 7 areas with boat launching, and 4 swimming areas. Total visitation on Lake Sacajawea for the FY was 358,782.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.4 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 3,951,700 tons during calendar year 2002. The FY costs were \$10,585,643.

10. LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA

Location. The dam is 70.3 miles above the mouth of the Snake River and at the head of Lake Herbert G. West (Lower Monumental Reservoir), about 40 miles northerly of Walla Walla, WA, and 50 miles westerly of Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 638 and 633 msl. Lake Bryan extends upstream about 37.2 miles and provides slack water to Lower Granite Lock and Dam. The dam structure is 2,655 feet long and approximately 165 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores and a fish channel through the spillway, which connects to the powerhouse fish

collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 581 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 668 feet and a 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 37.2 miles long is provided from the dam to Lower Granite Lock and Dam. Relocations along the lake included 32 miles of Camas Prairie Railroad, 6.8 miles of county roads, 2.2 miles of state highways, and the Central Ferry Bridge. Principal project data are set forth in [table 30-C](#).

Construction of the original project began in 1963. It was placed in operation in 1970 and completed in 1976. Construction of additional generating units started in 1974 and was completed in 1984. Power generation through September 2002 was 80.07 billion kW hours.

Lake Bryan provides seven day-use sites, five campgrounds, five boat launching areas, and two swimming areas. Total FY visitation was 198,343 for Lake Bryan.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.01 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,811,300 tons during calendar year 2002. The FY costs were \$8,254,150.

11. LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA

Location. This dam is at river mile 107.5 on the Snake River at the head of Lake Bryan (Little Goose Reservoir) and about 33 miles downstream from Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and includes approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water

navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738 and 733 msl in Lewiston, ID, and Clarkston, WA. The Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, which provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is single-lift type with clear plan dimensions of 86 by 674 feet and 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 39.3 miles long is provided from the dam to the confluence of the Snake and Clearwater Rivers. Principal data are set forth in [table 30-C](#).

Construction of the original project started in July 1965. It was placed in operation in 1975 and completed in 1984. Construction of additional generating units was started in 1974 and completed in 1979. Power generation through September 2002 was 71.33 billion kW hours. Approximately \$16,761,000 (adjusted to October 2002 price index) in potential flood damages have been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/picnic sites, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. Total recreation visitation to Lower Granite Lake for the FY was 1,174,615.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.04 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 1,820,000 tons during calendar year 2002. The FY costs were \$14,108,362.

Juvenile Fish Transportation Program. As the first collector dam on the Snake River, Lower Granite Lock and Dam is a primary component of the Juvenile Fish Transportation Program. Transport began in the late 1960s as a research program on how to bypass juvenile salmon and steelhead around dams and reservoirs of the Corps' Snake River and Columbia River dams. Transport became an operational program in 1981 with collection and transport from Lower Granite, Little Goose, and McNary Locks and Dams. Transport was expanded in 1993 to include Lower Monumental Lock and Dam. Development and improvement of collection and bypass systems continues with a new collection system completed at McNary Lock and Dam in 1994, a new bypass system completed at Ice Harbor Lock and Dam in 1996, and extended submerged bar screens (ESBSs) installed at Lower Granite, Little Goose, and McNary Locks and Dams in 1996 and 1997.

The 2002 juvenile fish transport season was marked by slightly below average river flows after the near record drought year of 2001. Normal river operations resumed in 2002 with most projects spilling for juvenile fish per the National Marine Fisheries Service biological opinion. In addition, a new RSW was tested at Lower Granite Lock and Dam. Operation of the test RSW in 2002 resulted in increased project passage via the spillway. Juvenile fish collection at Lower Granite Lock and Dam was 4,001,025 in 2002 compared with 8,341,703 in 2001 and 8,300,546 in 2000. A total of 104,274 fish were bypassed back to the river in 2002 and 3,882,178 were transported. At Little Goose Lock and Dam, a total of 3,890,617 juvenile salmon and steelhead were collected in 2002 compared to 1,805,691 collected in 2001. No fish were bypassed back to the river in 2002 compared to 8,836 fish in 2001. A total of 3,884,291 juvenile fish were transported from Little Goose Lock and Dam in 2002. At Lower Monumental Lock and Dam, 4,376,912 juvenile salmon and steelhead were collected compared to 976,861 in 2001. A total of 134,159 fish were bypassed from Lower Monumental Lock and Dam in 2002 compared to 25,756 in 2001. Voluntary spill for juvenile fish passage was not provided at Lower Monumental Lock and Dam during 2002 because of safety concerns regarding erosion of the spillway stilling basin. At McNary Lock and Dam, normal operations are to bypass fish in the spring until approximately mid-June when collection and transport of summer migrants begin. Some marked fish were transported during the spring of 2002 for

research purposes. A total of 9,106,355 juvenile salmon and steelhead were collected in 2002 compared to 13,936,928 in 2001. Approximately 6,959,524 of the fish collected were bypassed back to the river to meet fishery agency requirements. A total of 2,101,439 juvenile fish were transported from McNary Lock and Dam in 2002. A grand total of 21,374,909 juvenile salmon and steelhead were collected at all projects in 2002 compared to 25,061,183 in 2001. A total of 14,097,220 fish were transported in 2002, 66 percent of those collected. Of the fish transported, 13,678,515 were transported by barge (97 percent) and 418,705 were trucked (3 percent).

12. LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA

Location. This dam is on the Snake River at the head of Lake Sacajawea (Ice Harbor Reservoir), about 45 miles northeast of Pasco, WA, and 41.6 miles above the river mouth.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 540 and 537 msl. Lake Herbert G. West extends upstream approximately 28.7 miles and provides slack water to Little Goose Lock and Dam. The dam structure is approximately 3,791 feet long and approximately 135 feet above the streambed. The fish passage facilities include two fish ladders, one at each end of the dam. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 572 feet long, and the overflow crest at elevation 483 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide capacity to pass a design flood of 850,000 cfs. The deck is at elevation 553 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 666 feet and a 15-foot minimum depth of the sills. A navigation channel 250 feet wide, 14 feet deep, and 28.1 miles long is provided from the dam to Little Goose Lock and Dam. Relocations along the lake included railroads and highways. Principal data are set forth in [table 30-C](#).

Construction of the original project started in June 1961. It was placed in operation in 1969 and

completed in 1976. Construction of the additional generating units started in 1975 and was completed in 1981. Power generation through September 2002 was 94.90 billion kW hours.

Lake West offers seven day-use areas, five areas offering camping, five boat launch areas, and one designated swimming beach. Total visitation on Lake West for the FY was 162,396.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.5 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 3,951,700 tons during calendar year 2002. The FY costs were \$10,722,283.

13. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID

Location. This project is at various locations within the Columbia and Snake River drainages in the states of Idaho, Oregon, and Washington.

Existing project. The project consists of a series of fish hatcheries, wildlife development areas, and purchase of off-site project lands for fishing and hunting access. The project will compensate for loss of wildlife habitat and anadromous and resident fishery inundated as a result of construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams).

The real estate design memorandum and feature design memorandums on all hatcheries and satellites, the off-project wildlife lands, and the site selection report have all been approved. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion, Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions have been completed except for Big Canyon and Captain John Rapids Acclimation Facilities. Transfer for these remaining facilities is scheduled to be complete by the end of

FY 04. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100-percent complete. Habitat development continues at many of these sites. A plan for woody riparian habitat development is being initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in the creation of new riparian habitat areas. The compensation project is scheduled for completion in FY 07.

Estimated Federal cost for the project is \$261,000,000.

Local Cooperation. None required.

14. McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA

Location. This dam is on the Columbia River, 292 miles above the mouth, near Umatilla, OR, and 3 miles above the mouth of the Umatilla River.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, appurtenant facilities, and a system of levees and pumping plants. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 340 and 335 msl. Lake Wallula extends upstream approximately 64 miles and provides slack water to Ice Harbor Lock and Dam. The dam structure is 7,365 feet long and approximately 183 feet above the streambed. Fish passage facilities include two fish ladders. The powerhouse has fourteen 70,000-kW generating units in operation for a capacity of 980,000 kW. The spillway dam is 1,310 feet long, and the overflow crest is at elevation 291 msl and is surmounted by 22 vertical lift gates, 50 feet wide and 51 feet high, which provide the capacity to pass a design flood of 2.2 million cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 683 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 32 miles long) is provided from the dam to the mouth of the Snake River. Relocations along the lake included railroad bridges over the Columbia and Snake Rivers in order to eliminate hazards to navigation. Principal project data are set forth in [table 30-C](#).

Construction began in May 1947. It was placed in operation in 1953 and was completed in 1982.

Power generation through September 2002 was 302.21 billion kW hours.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 5.70 billion kW hours of electrical power were generated by the 14 generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 8,102,400 tons during calendar year 2002. The FY costs were \$17,668,731.

Recreation areas on Lake Wallula include 19 sites offering day use or picnicking, 5 campgrounds, 14 boat launching ramps, and 9 swimming areas. The Pacific Salmon Visitor Information Center at McNary Lock and Dam, staffed by park rangers, provides a regional overview of Corps efforts in salmon recovery issues. Total visitation on Lake Wallula for the FY was 4,366,624.

15. SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

Location. This project is on the Snake River, downstream from Johnson Bar Landing, river mile 230. The Snake River, which is the largest tributary of the Columbia River, rises in Yellowstone National Park in western Wyoming, flows generally in a westerly direction for approximately 1,000 miles, and empties into the Columbia River, near Pasco, WA, 324 miles from the Pacific Ocean.

Existing project. The River and Harbor Act of 1945 authorized construction of dams, as necessary, for power, incidental irrigation, and open channel improvements for purposes of providing slack water navigation and irrigation between the mouth of the Snake River and Lewiston, ID. That authorization modified previous authorizations only for the portion of improvement below Lewiston, ID. Acts of June 13, 1902, and August 30, 1935, as they pertain to open river improvement from Lewiston, ID, to Johnson Bar Landing, remain part of the existing project.

Improvements included in existing projects are Ice Harbor Lock and Dam, Lake Sacajawea; Little Goose Lock and Dam, Lake Bryan; Lower Granite Lock and Dam; Lower Monumental Lock and Dam, Lake Herbert G. West; and open-river improvement,

Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual report, and cost and financial data for the entire project are shown on [tables 30-A](#) and [D](#).

Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams are in full operation.

Local cooperation. None required.

Terminal facilities. On the Snake River from the mouth to Johnson Bar Landing, there are 18 privately-owned barge terminals in use for shipping grain, petroleum products, fertilizers, wood products, cement, and other general cargo. There are also 5 marinas and 28 small-boat launching ramps, all open to the public. The facilities serve slack water navigation to river mile 140, the site of Lewiston, ID. That slack water reaches the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite Lock and Dam was filled in February 1975.

Operations during FY. See individual reports for [Ice Harbor](#), [Lower Monumental](#), [Little Goose](#), and [Lower Granite](#) Locks and Dams. On the Snake River from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted and survey markers were maintained.

16. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended:

The FY costs were \$441,570 with five continuing flood control activities: (1) Section 205 coordination (\$42,935); (2) City of Sprague, Sprague, WA (\$125); (3) Coppei Creek, WA (\$20,375); (4) Mill Creek, WA (\$292,847); (5) Boise River Eckart Road to Warm Springs, ID (\$29,138). Four new flood control activities: Snake River Flooding at Jensen Grove Lake, ID (\$17,600); City of Waitsburg Downtown Flood Control, WA (\$14,650); Boise River at Eagle Island, ID (\$17,400); and Payette River at Payette, ID (\$6,500).

Emergency flood control activities-repair, flood fighting, and rescue work (PL 99, 84th Congress, and antecedent legislation):

There were no Federal costs this FY.

Emergency bank protection (Section 14, Flood Control Act of 1946, PL 526, 79th Congress):

The FY costs were \$90,481 for continuation of three flood control studies: (1) Section 14 Coordination (\$7,000); (2) Henry's Fork, ID (\$63,305); and (3) North Fork Payette River, ID (\$20,176).

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress):

The FY costs were \$6,000 for Section 208 Coordination.

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended):

The FY costs were \$361,122 for continuation of six environmental restoration projects and coordination funds including: (1) Coordination Account (\$38,991); (2) Walla Walla River, OR and WA (\$31,721); (3) Grande Ronde River, OR (\$24,942); (4) Milton-Freewater, OR (\$22,007); (5) Pasco Shoreline Restoration, WA (\$69,008); and (6) City of Richland Ecosystem Restoration (\$159,948). Three new projects: (1) Portneuf River at Pocatello, ID (\$5,400); (2) Boise River at Eagle Island, ID (\$3,355); and (3) Bennington Lake Diversion Dam, WA (\$5,750).

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended):

The FY costs were \$503,511 for continuation of three aquatic ecosystem restoration projects, coordination account, and preliminary restoration plan funds including: (1) Coordination Account (\$17,866); (2) Preliminary Restoration Plan (\$9,596); (3) Ladd Marsh, OR (\$87,311); (4) Salmon River, ID (\$221,600); and (5) Portneuf River, Lava Hot Springs, ID (\$43,198). Three new projects include (1) Paradise Creek, Moscow, ID (\$19,800); (2) Perrine Coulee, ID (\$9,700); and (3) Indian Creek Ecosystem Restoration, Caldwell, ID (\$94,440).

General Investigations

17. SURVEYS

Boise River. A reconnaissance study was completed for the Lower Boise River and tributaries in FY 01. The study determined that there is Federal interest in alternatives for flood control and environmental restoration with the Lower Boise River Basin (\$28,121).

Goose Creek. A reconnaissance study was initiated in FY 01 to determine the feasibility of undertaking flood damage reduction, water conservation, ground water recharge, ecosystem restoration, and related activities along the Goose Creek watershed near Oakley, Idaho (\$11,316).

Payette and Snake Rivers. A reconnaissance study was initiated in FY 01 to determine the feasibility of undertaking a flood control project along the Payette and Snake Rivers in the vicinity of Payette, Idaho (\$8,322).

The Lake Wallula Navigation Channel Dredging Study considers the commercial navigation needs of the Port of Walla Walla (Port). This study addresses and determines the Federal interest under the authority of Section 509(a) of the 1996 Water Resources Development Act (WRDA96), amended by Section 507, Maintenance of Navigation Channels (WRDA99), and was directed by the Assistant Secretary of the Army for Civil Works [ASA (CW)]. The results will make a determination whether such maintenance is economically justified and environmentally acceptable and that the channel was constructed in accordance with applicable permits and appropriate engineering and design standards. The study was initiated in March 2001 and was completed in December 2002 (\$34,241).

The total FY 02 costs for surveys were \$655,265, including special studies [Walla Walla River Watershed (\$275,278)]; Miscellaneous Activities [Special Investigations, FERC Licensing Activities, North American Waterfowl Management Plan, and Interagency Water Resource Development (\$142,600)]; Coordination with other Federal Agencies (\$13,000); and Planning Assistance to States (\$142,387).

18. COLLECTION AND STUDY OF BASIC DATA

During the FY, flood hazard data for a number of locations in the District were collected and analyzed. Flood information was provided to several Federal agencies; to the states of Idaho, Oregon, and Washington; to various cities and counties in those states; and to some private organizations.

Total cost of collection and study of basic data during the FY was \$152,971, which included: Flood Plain Management Services (\$29,727); Technical Services (\$53,293); Quick Responses (\$5,921); and Special Studies (\$64,030).

19. PRECONSTRUCTION, ENGINEERING, AND DESIGN

Upper Snake River Jackson Hole, WY. This feasibility study was authorized under WRDA 2000. The project recommended the Progressive NER plan at a cost of \$66,500,000, to construct 12 sites located along a 22-mile stretch of the upper Snake River, which includes continuing construction, monitoring, and adaptive management. The pre-construction, engineering, and design phase will produce construction plans and specifications at Site 9 to enhance and restore fish and wildlife habitat. The Site 9 project design will apply project restoration features including eco-fences, channel capacity excavation, spur dikes, rock grade control, and bed stabilization (\$101,011).

WALLA WALLA, WA, DISTRICT

TABLE 30-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 99 (\$)	FY 00 (\$)	FY 01 (\$)	FY 02 (\$)	Total Cost to Sep 30, 2002 (\$)
3.	Jackson Hole, WY	New Work					
		Approp.	-	-	-	-	2,525,070
		Cost	-	-	-	-	2,525,070
		Maint.					
		Approp.	827,918	1,140,507	1,871,951	968,488	10,504,125
		Cost	842,552	1,133,473	1,783,387	1,064,412	11,229,366
	(Contributed funds)	Maint.					
		Contrib.	48,906	-	-	-	378,798
		Cost	48,906	-	-	-	378,798
4.	Lucky Peak Lake, ID	New Work					
		Approp.	-	-	-	-	19,652,081
		Cost	-	-	-	-	19,652,081
		Maint.					
		Approp.	1,039,123	1,419,675	1,451,180	1,619,997	27,962,526
		Cost	1,076,698	1,099,314	1,768,708	1,592,648	27,922,194
5.	Mill Creek, WA	New Work					
		Approp.	-	-	-	-	2,258,495
		Cost	-	-	-	-	2,258,495
		Maint.					
		Approp.	1,613,387	836,064	1,377,275	2,036,402	21,376,458
		Cost	1,546,048	866,919	1,435,619	2,041,853	21,376,421
		Rehab					
		Approp.	-	-	-	-	17,714,102
		Cost	-	-	-	-	17,714,102
7.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work					
		Approp.	34,851,000	25,696,999	41,040,000	29,210,362	438,319,000
		Cost	28,949,699	30,656,582	41,882,547	30,947,014	438,061,000
8.	Dworshak Dam and Reservoir, ID	New Work					
		Approp.	-	-	-	-	327,482,196
		Cost	-	-	-	-	327,482,196
		Maint.					
		Approp.	9,652,318	9,524,659	9,769,017	11,122,654	181,046,353
		Cost	9,752,198	9,535,939	9,781,613	11,080,909	180,896,246
9.	Ice Harbor Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	210,249,757
		Cost	-	-	-	-	210,249,757
		Maint.					
		Approp.	9,419,807	9,077,285	10,201,830	10,515,723	182,204,750
		Cost	9,452,036	9,123,794	10,017,804	10,585,642	182,035,336
10.	Little Goose Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	262,632,022
		Cost	-	-	-	-	262,632,022
		Maint.					
		Approp.	6,230,953	6,307,453	6,737,274	8,425,824	126,787,662
		Cost	6,199,714	6,476,682	6,724,597	8,254,150	126,550,757

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 02

TABLE 30-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 99 (\$)	FY 00 (\$)	FY 01 (\$)	FY 02 (\$)	Total Cost to Sep 30, 2002 (\$)
11.	Lower Granite Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	400,080,315
		Cost	-	-	-	-	400,080,315
		Maint.					
		Approp.	10,052,838	9,416,297	9,740,100	14,099,858	180,827,261
		Cost	10,294,807	9,121,087	9,993,910	14,108,361	180,679,391
12.	Lower Monumental Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	238,612,732
		Cost	-	-	-	-	238,612,732
		Maint.					
		Approp.	6,250,690	7,831,705	15,627,677	4,162,583	134,908,164
		Cost	6,157,881	7,775,230	8,470,468	10,722,283	134,083,112
13.	Lower Snake Fish and Wildlife Compensation ID, OR, and WA (Contributed funds)	New Work					
		Approp.	1,304,000	1,230,032	888,000	1,570,638	232,232,000
		Cost	1,620,153	1,061,330	1,054,271	1,572,257	232,215,000
		New Work					
		Contrib.	-	-	-	-	223,965
		Cost	-	-	-	-	223,965
14.	McNary Lock and Dam, Lake Wallula, OR and WA (Contributed funds)	New Work					
		Approp.	-	-	-	-	375,214,469
		Cost	-	-	-	-	375,214,469
		Maint.					
		Approp.	14,193,157	15,675,724	15,111,061	17,805,600	319,042,170
		Cost	14,908,297	16,002,925	14,980,047	17,668,731	318,337,393
		Maint.					
		Contrib.	-	-	-	-	43,707
		Cost	-	-	-	-	43,707

WALLA WALLA, WA, DISTRICT

TABLE 30-B

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
4.	Jul 24, 1946	LUCKY PEAK LAKE, ID Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976 Dec 22, 1944 as amended	Second outlet for streamflow maintenance. Deauthorized in 1990. Construction, operation, and maintenance of recreation facilities.	PL 94-587 Sec. 4, Flood Control Act of 1944
5.	Jul 28, 1938 as amended Aug 18, 1941	MILL CREEK, WALLA WALLA, WA Off-stream storage project upstream from Walla Walla. Channel improvement through Walla Walla; concrete-lined channel.	H. Doc. 578, 75th Cong., 3rd Session H. Doc. 719, 76th Cong. Sec 377, PL 77-228, Cong. 3rd Session
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec. 118 PL 102-580 102nd Cong.
7.	Jul 19, 1988	COLUMBIA RIVER FISH MITIGATION PROGRAM Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
8.	Jul 3, 1958	DWORSHAK DAM AND RESERVOIR, ID Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
	Aug 15, 1963 Oct 23, 1962	Redesignation of project as Dworshak Dam and Reservoir. Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were deauthorized in FY 1990. Unit 4 was deauthorized in FY 95.	PL 88-96 PL 87-874
9.	Mar 2, 1945	ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
10.	Mar 2, 1945	LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
11.	Mar 2, 1945	LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
12.	Mar 2, 1945	LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 02

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
13.	Oct 22, 1976 as amended	LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
14.	Mar 2, 1945	McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse. McNary Lock and Dam Second Powerhouse automatically deauthorized on Nov 16, 1991.	H.R. 6, PL 99-662 Sec. 1001, PL 99-362
15.	Jun 13, 1902	SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID Open-river navigation Riparia to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparia.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session

WALLA WALLA, WA, DISTRICT

**TABLE 30-C PRINCIPAL DATA CONCERNING NAVIGATION LOCK,
SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project			
Dworshak Dam and Reservoir, ID (see Section 8 of text)	SPILLWAY DAM		
	Type of Construction	Concrete Gravity	
	Completed	September 1974	
	Maximum Capacity	150,500 cfs ¹	
	Crest Elevation	1,545 ft ²	
	Control Gates:		
	Type	Tainter	
	Size, Width by Height	50 by 56.4 ft	
	Number	2	
	POWERPLANT		
	Length	428 ft	
	Generating Units:		
	Number Installed	3	
	Rating, Each	2 @ 90,000 kW ³ 1 @ 220,000 kW	
	Total Capacity Installed	400,000 kW	
	Space for Additional	3	
	Rating, Each	3 @ 220,000 kW	
	Total Potential Capacity	1,060,000 kW	
	Maximum Structural Height	717 ft	
	First Power-On-Line	March 1973	
	IMPOUNDMENT		
	Elevations:		
	Normal Operating Range	1,600 to 1,445 ft	
	Maximum	1,605 ft	
	Flood Control Storage	2,000,000 ac-ft	
	Lake Length	53.6 mi ⁴	
	Lake Water Surface Area at Elevation 1,600	17,090 ac ⁵	
	Length of Shoreline	175 mi	
	Ice Harbor Lock and Dam, WA (see Section 9 of Text)	NAVIGATION LOCK	
		Clear Width	86 ft
Clear Length		675 ft	
Lift:			
Minimum		97 ft	
Average		100 ft	
Maximum		105 ft	
Minimum Water Depth Over Sills		16 ft	
Open to Navigation		May 1962	
SPILLWAY DAM			
Type of Construction		Concrete Gravity	
Completed		January 1962	
Maximum Capacity		850,000 cfs	
Crest Elevation		391 ft	
Control Gates:			
Type	Tainter		
Size, Width by Height	50 by 52.9 ft		
Number	10		

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 02

**PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
TABLE 30-C (Continued) SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project	
	POWERPLANT
	Length 671 ft
	Generating Units:
	Number Installed 6
	Rating, Each 3 @ 90,000 kW
	3 @ 111,000 kW
	Total Capacity Installed 603,000 kW
	Maximum Structural Height 226 ft
	First Power-On-Line December 1961
	IMPOUNDMENT
	Elevations:
	Normal Operating Range 440 to 437 ft
	Maximum 446 ft
	Lake Length 31.9 mi
	Lake Water Surface Area at Elevation 440 8,375 ac
	Navigation Channel, Depth by Width 14 by 250 ft
	Length of Shoreline 80 mi
Little Goose Lock and Dam, WA (see Section 10 of text)	NAVIGATION LOCK
	Clear Width 86 ft
	Clear Length 668 ft
	Lift:
	Minimum 93 ft
	Average 98 ft
	Maximum 101 ft
	Minimum Water Depth Over Sills 15 ft
	Opened to Navigation May 1970
	SPILLWAY DAM
	Type of Construction Concrete Gravity
	Completed January 1970
	Maximum Capacity 850,000 cfs
	Crest Elevation 581 ft
	Control Gates:
	Type Tainter
	Size, Width by Height 50 by 60 ft
	Number 8
	POWERPLANT
	Length 656 ft
	Width 243 ft
	Generating Units:
	Number Installed 6
	Rating, Each 135,000 kW
	Total Capacity Installed 810,000 kW
	Maximum Structural Height 226 ft
	First Power-On-Line March 1970

WALLA WALLA, WA, DISTRICT

**PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
TABLE 30-C (Continued) SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project		
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	638 to 633 ft
	Maximum	646.5 ft
	Lake Length	37.2 mi
	Lake Water Surface Area at Elevation 738	10,025 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	92 mi
Lower Granite Lock and Dam, WA (see Section 11 of text)	NAVIGATION LOCK	
	Clear Width	86 ft
	Clear Length	674 ft
	Lift:	
	Minimum	95 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1975
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	February 1975
	Maximum Capacity	850,000 cfs
	Crest Elevation	681 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	228 ft
	First Power-On-Line	April 1975
	IMPOUNDMENT	
	Elevations:	
	Normal Operation Range	738 to 733 ft
	Maximum	746.5 ft
	Lake Length	39.3 mi
	Lake Water Surface Area at Elevation 738	8,900 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	91 mi

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 02

**PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
TABLE 30-C (Continued) SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project	
Lower Monumental Lock and Dam, WA (see Section 12 of text)	NAVIGATION LOCK
	Clear Width 86 ft
	Clear Length 666 ft
	Lift:
	Minimum 97 ft
	Average 98 ft
	Maximum 103 ft
	Minimum Water Depth Over Sills 15 ft
	Opened to Navigation April 1969
	SPILLWAY DAM
	Type of Construction Concrete Gravity
	Completed March 1969
	Maximum Capacity 850,000 cfs
	Crest Elevation 483 ft
	Control Gates:
	Type Tainter
	Size, Width by Height 50 by 60 ft
	Number 8
	POWERPLANT
	Length 656 ft
	Width 243 ft
	Generating Units:
	Number Installed 6
	Rating, Each 135,000 kW
	Total Capacity Installed 810,000 kW
	Maximum Structural Height 242 ft
	First Power-On-Line May 1969
	IMPOUNDMENT
	Elevations:
	Normal Operating Range 540 to 537 ft
	Maximum 548 ft
	Lake Length 28.7 mi
	Lake Water Surface Area at Elevation 540 6,590 ac
Navigation Channel, Depth by Width 14 by 250 ft	
Length of Shoreline 78 mi	
McNary Lock and Dam, OR and WA (see Section 14 of text)	NAVIGATION LOCK
	Clear Width 86 ft
	Clear Length 683 ft
	Lift:
	Minimum 67 ft
	Average 75 ft
	Maximum 83 ft
	Minimum Water Depth Over Sills 15 ft
	Open to Navigation November 1953

WALLA WALLA, WA, DISTRICT

**PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
TABLE 30-C (Continued) SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project		
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	October 1953
	Maximum Capacity	2,200,000 cfs
	Crest Elevation	291 ft
	Control Gates:	
	Type	Vertical Lift
	Size, Width by Height	50 by 51 ft
	Number	22
	POWERPLANT	
	Length	1,348 ft
	Generating Units:	
	Number Installed	14
	Rating, Each	70,000 kW
	Total Capacity Installed	980,000 kW
	Maximum Structural Height	220 ft
	First Power-On-Line	November 1953
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	340 to 335 ft
	Maximum	356.5 ft
	Lake Length	64 mi
	Lake Water Surface Area at Elevation 340	38,800 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	242 mi

¹ cubic feet per second

² feet

³ kilowatt

⁴ miles

⁵ acres

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 02

**SNAKE RIVER DOWNSTREAM FROM
JOHNSON BAR LANDING, OR, WA, AND ID
(SEE SECTION 15 OF TEXT)**

TABLE 30-D

Project	Estimated Cost	New Work		Maintenance		Percent Completed	Constr. Started
	(Corps of Engineers Funds Only)	to September 30, 2002 Approp.	Cost	to September 30, 2002 Approp.	Cost		
Ice Harbor Lock and Dam							
Initial Project	\$354,622,816	\$172,587,480	\$172,587,480	\$182,204,750	\$182,035,336	100	FY 56
Code 710 Rec Facilities	914,256	914,256	914,256	0	0	100	FY 57
Power Units 4-6	36,748,021	36,748,021	36,748,021	0	0	100	FY 71
Fish Bypass Program	88,085,000	48,507,000	48,486,000	0	0	55	FY 91
Totals	480,370,093	258,756,757	258,735,757	182,204,750	182,035,336	92	
Little Goose Lock and Dam							
Initial Project	328,240,972	201,690,215	201,690,215	126,787,662	126,550,757	100	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	85,508,000	42,990,000	42,950,000	0	0	50	FY 89
Totals	474,690,779	305,622,022	305,582,022	126,787,662	126,550,757	91	
Lower Granite Lock and Dam							
Initial Project	534,483,372	353,803,981	353,803,981	180,827,261	180,679,391	100	FY 65
Code 710 Rec Facilities	63,800	63,800	63,800	0	0	100	FY 84
Power Units 4-6	46,212,534	46,212,534	46,212,534	0	0	100	FY 74
Fish Bypass Program	58,620,000	34,368,000	34,357,000	0	0	59	FY 88
Totals	639,379,706	434,448,315	434,437,315	180,827,261	180,679,391	96	
Lower Monumental Lock and Dam							
Initial Project	321,034,473	186,951,361	186,951,361	134,908,164	134,083,112	100	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	90,134,000	34,463,000	34,436,000	0	0	38	FY 90
Totals	462,829,844	273,075,732	273,048,732	134,908,164	134,083,112	88	
Open River Lewiston to Johnson Bar Landing	34,613	34,613	34,613	401,583	401,583		
Open River Pasco to Lewiston	0	0	0	4,350	4,350		
Totals Existing Project	2,057,305,035	1,271,937,439	1,271,838,439	625,133,770	623,754,529	92	
Previous Projects Pasco to Lewiston							
Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	\$2,057,705,185	\$1,272,337,589	\$1,272,238,589	\$625,320,340	\$623,941,099		