



US Army Corps
of Engineers®
Walla Walla District

Report of the Secretary of the Army on Civil Works Activities for Fiscal Year 2000



Department of the U.S. 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.

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Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

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

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

The FY costs were \$19,647. Total costs in September 30, 2000, were \$2,944,387.

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, \$60,622,000 (adjusted to October 2000 price index) in potential flood damaged habr 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 \$1,133,473.

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 (for details, see page 2,000 of the 1962 Annual Report).

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, \$472,293,000 (adjusted to October 2000 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 751,000.

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 \$1,099,314.

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 (for details, see page 2,005 of the 1962 Annual Report). Since 1942, \$46,655,000 (adjusted to October 2000 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 174,500.

Local cooperation. Fully complied with (for details, see page 2,006 of the 1962 Annual Report).

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 \$866,919.

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 \$332,000.

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 is conducting 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 estimated cost of the study is \$25.5 million. Expenditures to date are \$24.8 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. At Ice Harbor Lock and Dam, work was completed on phase II of the spillway deflector contract and on the completion contract. A contract was awarded for McNary Lock and Dam juvenile fish collection channel bulkheads. At Little Goose Lock and Dam, a contract was awarded for the trash boom, and a mechanical and biological test was completed on the new extended-length submersible bar screens (ESBS) perforated plate design. At Little Goose and Lower Granite Locks and Dams, handrail work was completed, and fishway orifice backflush automation was completed at Lower Granite Lock and Dam.

Several Columbia River fish mitigation studies continued, including the Turbine Model Study at McNary Lock and Dam, and the System Gas Abatement Study. In addition, field studies and physical modeling work were initiated on several projects related to design of additional or modified flow deflectors.

For the fourth consecutive year, a prototype surface collection test was conducted at Lower Granite Lock and Dam.

The technical analysis continued for the Lower Snake River Juvenile Salmon Migration Feasibility Study. The public involvement aspects of the study were expanded to meet the intense regional interest. This involvement included a number of public information meetings, focus meetings, workshops, newsletters, newspaper inserts, traveling displays, and pamphlets. Coordination efforts continued with a number of established regional recovery groups, as well as tribal consultation efforts. Work continued in many other areas, including cultural resources, National Environmental Policy Act, Coordination Act Report, wildlife, and water quality.

The FY costs were \$30,656,582. Total project costs are \$339,370,105.

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, extending 59 miles into rugged and relatively inaccessible timberland, provided cost-effective transportation for moving marketable logs. The reservoir is 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 kilowatts (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 200,000 kW fourth 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 FY 90, and Unit 4 was deauthorized in FY 95. Principal project data are set forth in table 30-J.

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 2000 price index) in potential flood damages. Power generation through September 2000 was 46.54 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 147,200.

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, 1.99 billion kW hours of electrical power were generated by the three generating units. The FY costs were \$9,535,939.

Brood Year (BY) 1999 Steelhead: Approximately 2.15 million BY 1999 steelhead smolts were released from Dworshak National Fish Hatchery (DNFH) in April 1999. The fish averaged 201 millimeters (mm) in total length, just over the target of 200 mm. A total of 370,919 pounds of steelhead were released in 2000, compared with 318,000 pounds in 1999 and 353,000 pounds in 1998.

The BY 2000 Steelhead: A total of 2,882 adult steelhead returned to DNFH in the fall of 1999 and spring of 2000 compared with 5,419 the previous BY. A total of 2.7 million eggs went into DNFH's production program. The DNFH provided 957,000 eyed eggs to Clearwater Hatchery, 1.66 million green eggs to Magic Valley Hatchery, and 20,000 for school projects.

The BY 1998 Chinook Salmon: The DNFH released 1,017,873 BY 1998 spring chinook salmon, weighing 42,395 pounds, as part of the Lower Snake River Compensation Plan. This was just under the compensation plan goal of 1,050,000 smolts.

The BY 1999 Chinook Salmon: There were 957 spring chinook salmon that returned to DNFH and Kooskia National Fish Hatchery (NFH) in 1999. Of this number, 752 were jacks, which left 215 adults for spawning. These fish produced 338,000 eyed eggs. Approximately 295,000 fingerlings were on station at the end of FY 2000.

The BY 2000 Chinook Salmon: Adult returns totaled 3,202 fish to DNFH in 2000. Another 1,851 adults returned to Kooskia NFH. A total of 1.78 million eyed eggs are being reared from these adult returns.

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 about 2,822 feet long and about 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-J.

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 2000 was 83.13 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 459,700.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.21 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 4,559,900 tons during calendar year 1999. The FY costs were \$9,123,794.

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 about 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-J.

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 2000 was 76.39 billion kW hours.

Lake Bryan provides seven day-use sites, five campgrounds, five boat launching areas, and two swimming areas. Total FY visitation was 197,800 for Lake Bryan.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 3.21 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 3,109,100 tons during calendar year 1999. The FY costs were \$6,476,682.

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 about 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 about 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is about 3,200 feet long and about 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-J.

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 2000 was 67.57 billion kW hours. Approximately \$16,746,000 (adjusted to October 2000 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 1,061,700.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 3.14 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 2,264,100 tons during calendar year 1999. The FY costs were \$9,121,087.

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 1960's as a research program on how to bypass juvenile salmon and steelhead around dams and reservoirs of the Corps' Snake 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 ESBS's installed at Lower Granite, Little Goose, and McNary Locks and Dams in 1996 and 1997.

The 2000 juvenile fish transport season was marked by below average flows after four either average or very high flow years. Juvenile fish collection at Lower Granite Lock and Dam was 8,300,546 compared with 5,879,114 in 1999 and 6,977,250 in 1998. A total of 342,507 fish were bypassed back to the river in 2000 and 7,650,648 were transported. At Little Goose Lock and Dam, a total of 2,818,520 juvenile salmon and steelhead were collected in 2000 compared to 7,004,421 in 1999. No fish were bypassed back to the river in 2000 compared to 182,295 in 1998. The larger number of fish bypassed in 1998 was due to collection numbers exceeding barging capacity on 2 days in late May. A total of 2,809,463 juvenile fish were transported from Little Goose Lock and Dam in 2000. At Lower Monumental Lock and Dam, 1,587,203 juvenile salmon and steelhead were collected compared to 4,068,558 in 1999. A total of 47,171 fish were bypassed from Lower Monumental Lock and Dam in 2000 compared to 407,965 in 1999. At McNary Lock and Dam, all fish collected were bypassed until late June in keeping with fishery agency requirements. A total of 11,045,785 juvenile salmon and steelhead were collected in 2000 compared to 7,841,978 in 1999. Approximately 2,400,354 of the fish collected were bypassed back to the river to meet fishery agency requirements. A grand total of 23,752,054 juvenile salmon and steelhead were collected at all projects in 2000 compared to 24,794,071 in 1999. A total of 20,880,896 fish (88 percent of those collected) were transported in 2000. Of the fish transported,

19,983,988 were transported by barge (96 percent) and 896,908 were trucked (4 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 about 28.7 miles and provides slack water to Little Goose Lock and Dam. The dam structure is about 3,791 feet long and about 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-J.

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 2000 was 90.68 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 151,576.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 3.54 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 7,109,500 tons during calendar year 1999. The FY costs were \$7,775,230.

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 DNFH Expansion: Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, Tucannon, Wallowa, and Clearwater Hatcheries (including their respective satellite facilities) are all in operation. Transfer actions have been completed except for Irrigon, Clearwater, and Captain John Rapids Acclimation Facilities. Transfer for these remaining facilities is scheduled to be complete by the end of FY 00. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100 percent complete. Habitat development continues at many of these sites. Development of fall chinook salmon acclimation facilities and Lookingglass Hatchery water treatment has progressed, in accordance with Senate Conference Report (103-672, page 7). The compensation plan is scheduled for completion in FY 02.

Estimated Federal cost for the project is \$232,000,000.

Local cooperation. None required.

Operations during FY. Different alternatives for water treatment at Lookingglass Hatchery have been coordinated with U.S. Fish and Wildlife Service, Oregon Fish and Wildlife, and Confederated Tribes of the Umatilla Indian Reservation. An amendment to the design memorandum will be completed based on the recommended alternative.

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 about 64 miles and provides slack water to Ice Harbor Lock and Dam. The dam structure is 7,365 feet long and about 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-J.

Construction began in May 1947. It was placed in operation in 1953 and was completed in 1982. Power generation through September 2000 was 289.81 billion kW hours.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 6.61 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 8,461,600 tons during calendar year 1999. The FY costs were \$16,002,925.

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 4,237,800.

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 about 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 K.

Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams are in full operation (see individual reports for details). For further details, see the following Annual Reports: page 2,246 for 1903; page 1,986 for 1906; page 1,991 for 1915; and page 1,981 for 1962.

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. No costs were incurred this FY.

16. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

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

The FY costs were \$203,750 with five continuing flood control activities: (1) Section 205 coordination (\$16,808); (2) Negro Creek, Sprague, WA (\$29,543); (3) Lawyers Creek, Kamiah, ID (\$10,971); (4) Coppei Creek, WA (\$84,953); (5) Mill Creek, WA (\$43,290). One new flood control activity: Weiser River, ID (\$18,184).

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 \$46,702 for continuation of four feasibility studies: (1) Section 14 Coordination (\$7,385); (2) Big Wood River, Deer Creek, Bridge, ID (\$31,099); (3) Willow Creek, Whitman County, WA (\$6,177); and (4) Payette River, Payette, ID (\$2,041).

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 \$1,973 for Section 208 Coordination.

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

The FY costs were \$1,732,163 for continuation of three studies, and initial appraisal and coordination funds including: (1) Initial Appraisals, General (\$15,911); (2) Coordination Account (\$3,150); (3) Walla Walla River, OR and WA (\$1,492,922); (4) Grande Ronde River, OR (\$117,556); and (5) Milton-Freewater, OR (\$102,624).

General Investigations

17. SURVEYS

Jackson Hole River and Wetland Restoration and Flood Control, WY. The Water Resources Development Act of 1986 authorized the Corps to operate and maintain a system of Federal and non-Federal levees along the Snake River in the vicinity of Jackson Hole, WY. A draft reconnaissance study with the potential for improving the system with levee raises, extensions, or relocations was completed in FY 90. The final reconnaissance study was combined with the Jackson Hole Restoration Study. The Jackson Hole River and Wetland Restoration and Flood Control Reconnaissance Study was initiated to restore fish and wildlife habitat in the 500-year floodplain of the leveed reach of the Snake and Gros Ventre Rivers at Jackson, WY. The study evaluated losses resulting from levee construction over the past 30 years and

determined restoration measures for these losses. The report was approved in FY 94. A 4-year feasibility study was initiated in FY 96. The feasibility study was completed in July 2000.

Lower Boise River and Tributaries, ID. A reconnaissance study was re-initiated for the lower Boise River and tributaries in June 1994. An interim reconnaissance report was completed in May 1995. The interim report included economically feasible alternatives for flood control and environmental restoration. Completion of the study is scheduled for March 2001 (\$13,913).

Walla Walla River Watershed Study, OR, and WA. A reconnaissance study was initiated on August 29, 1996. The study objectives are riparian and wetland restoration, fish and wildlife restoration and enhancement, flood damage reduction, water quality improvements, water supply, erosion control, low flow augmentation, and recreation (\$24,948).

Little Wood River Gooding, ID. A reconnaissance study was initiated and completed for the Little Wood River in FY 00. The study determined that there is a Federal interest in restoring and replacing the Lava Rock Little Wood River Containment System. A feasibility study will be initiated in April 2001. Alternatives will be studied to provide flood protection to the city of Gooding, ID (\$66,834).

The FY costs for surveys were \$557,607, including Special Studies: Jackson Hole Restoration, (\$188,803); Walla Walla River Watershed, \$24,949); and Tri-Cities Area Rivershore Enhancement (\$6,780). Miscellaneous Activities [Special Investigations, FERC Licensing Activities, North American Waterfowl Management Plan, Interagency Water Resource Development (\$109,903)]; Coordination with other Federal Agencies (\$19,231); and Planning Assistance to States (\$127,194). In addition, \$67,621 contributed funds were expended for the Jackson Hole Restoration. Floodplain management service (\$128,029).

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 \$156,842, which included: Flood Plain Management Services (\$19,985); Technical Services (\$39,533); Quick Responses (\$4,959); and Special Studies (\$92,365).

19. PRECONSTRUCTION, ENGINEERING, AND DESIGN

No preconstruction, engineering, and design studies were conducted during the FY.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

TABLE 30-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 97 (\$)	FY 98 (\$)	FY 99 (\$)	FY 00 (\$)	Total to Sep 30, 2000 (\$)
3.	Jackson Hole, WY	New Work					
		Approp.	-	-	-	-	2,525,070
		Cost	-	-	-	-	2,525,069
		Maint.					
		Approp.	1,047,000	671,761	827,918	1,140,507	7,663,686 ¹
		Cost	851,718	864,762	842,552	1,133,473	8,381,567 ¹
(Contributed funds)		Maint.					
		Contrib.	-	48,182	48,906	-	378,798
		Cost	47,822	48,182	48,906	-	412,909
4.	Lucky Peak Lake, ID	New Work					
		Approp.	-	-	-	-	19,652,081 ²
		Cost	-	-	-	-	19,648,981 ²
		Maint.					
		Approp.	806,417	943,300	1,039,123	1,419,675	24,891,349 ³
		Cost	846,762	907,880	1,076,698	1,099,314	24,560,838 ³
5.	Mill Creek, WA	New Work					
		Approp.	-	-	-	-	2,258,495 ⁴
		Cost	-	-	-	-	2,258,495 ⁴
		Maint.					
		Approp.	1,140,500	852,890	1,613,387	836,064	17,962,781
		Cost	818,871	1,281,659	1,546,048	866,919	17,898,949
		Rehab					
		Approp.	-	-	-	-	17,714,102
		Cost	-	-	-	-	17,714,102
7.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work					
		Approp.	42,149,000	37,281,000	34,851,000	25,696,999	341,164,999 ⁹
		Cost	39,338,812	39,581,675	28,949,699	30,656,582	339,370,105 ⁹
8.	Dworshak Dam and Reservoir, ID	New Work					
		Approp.	-	-	-	-	327,482,196 ⁵
		Cost	-	-	-	-	327,482,197 ⁵
		Maint.					
		Approp.	13,877,500	8,036,175	9,652,318	9,524,659	160,154,682 ⁶
		Cost	11,009,351	11,076,208	9,752,198	9,535,939	160,033,724 ⁶
9.	Ice Harbor Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	168,028,757 ⁷
		Cost	-	-	-	-	168,029,756 ⁷
		Maint.					
		Approp.	7,844,600	7,045,100	9,419,807	9,077,285	161,487,197 ⁸
		Cost	8,233,742	7,064,312	9,452,036	9,123,794	161,431,890 ⁸
10.	Little Goose Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	233,361,021 ⁹
		Cost	-	-	-	-	233,361,010 ⁹
		Maint.					
		Approp.	4,275,800	4,232,800	6,230,953	6,307,453	111,624,564 ¹⁰
		Cost	4,468,078	4,190,318	6,199,714	6,476,682	111,572,010 ¹⁰
11.	Lower Granite Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	374,836,315 ¹¹
		Cost	-	-	-	-	374,836,315 ¹¹
		Maint.					
		Approp.	8,960,400	9,365,300	10,052,838	9,416,297	156,967,303 ¹²
		Cost	8,990,729	9,219,308	10,294,807	9,121,087	156,557,120 ¹²
		Maint.					
		Contrib.	-	-	-	-	20,000
		Cost	-	-	-	-	20,000
12.	Lower Monumental Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	238,612,732 ¹³
		Cost	-	-	-	-	237,222,733 ¹³
		Maint.					
		Approp.	4,791,900	5,048,600	6,250,690	7,831,705	115,117,904 ¹⁴
		Cost	5,165,048	5,039,295	6,157,881	7,775,230	114,890,361 ¹⁴

**WALLA WALLA, WA, DISTRICT
COST AND FINANCIAL STATEMENT**

TABLE 30-A (Continued)

See Section In Text	Project	Funding	FY 97 (\$)	FY 98 (\$)	FY 99 (\$)	FY 00 (\$)	Total to Sep 30, 2000 (\$)
13.	Lower Snake Fish and Wildlife Compensation, ID, OR, and WA	New Work					
		Approp.	4,238,000	2,907,000	1,304,000	1,230,032	229,959,273
		Cost	4,162,680	2,653,234	1,620,153	1,061,330	229,397,317
	(Contributed Funds)	New Work					
		Contrib.	-	-	-	-	223,965
		Cost	-	-	-	-	223,965
14.	McNary Lock and Dam, Lake Wallula, OR, and WA	New Work					
		Approp.	-	-	-	-	326,293,705 ¹⁵
		Cost	-	-	-	-	360,103,408 ¹⁵
	(Contributed Funds)	Maint.					
		Approp.	11,958,900	12,627,724	14,193,157	15,675,724	286,125,509 ¹⁶
		Cost	11,990,155	11,696,358	14,908,297	16,002,925	285,988,615 ¹⁶
		Maint.					
		Contrib.	-	-	-	-	43,707
		Cost	-	-	-	-	43,707
15.	Snake River Downstream from Johnson Bar Landing, OR, WA, and ID	New Work					
		Approp.	11,266,000	5,932,000	8,491,000	7,331,000	1,136,239,589 ¹⁷
		Cost	12,057,266	6,373,000	6,555,000	8,445,000	1,135,371,587 ¹⁷
		Maint.					
		Approp.	25,872,702	25,691,800	31,954,288	32,632,740	545,789,471 ¹⁸
		Cost	26,857,597	25,513,233	32,104,438	74,163,551	586,706,558 ¹⁸

- ¹ From the county, \$39,000 of the cost-sharing funds were received in FY 90, but were not expended until FY 91.
- ² Includes \$570,831 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.
- ³ Includes \$66,700 allotted and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
- ⁴ Excludes \$80,000 contributed funds, but includes \$96,340 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.
- ⁵ Includes \$2,046,100 regular project construction funds appropriated for and expended by Department of Interior in FYs 69 through 72 for hatchery operations. Includes \$655,000 appropriated and expended for additional unit.
- ⁶ Includes \$20,137,847 regular project operation and maintenance funds expended by Department of Interior starting FY 72 for hatchery operations. The FY's 72 through 78, funds of \$6,097,000 were charged to project as a cost, but not as an expenditure for accounting purposes. Includes \$48,182 appropriated and expended under Special Recreation Use Fees. After FY 92, special recreation use fees included with O&M. Includes \$1,310,750 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
- ⁷ Excludes \$82,500 contributed for artificial spawning channel. Includes \$36,748,021 appropriated and expended for additional Units 4 through 6. Includes \$914,256 appropriated and expended for Code 710, Recreation Facilities at Completed Projects. Includes \$789,000 appropriated and \$788,999 expended for Columbia River Fish Mitigation Program.
- ⁸ Includes \$48,919 appropriated and expended under Special Recreation Use Fees. After FY 92, special recreation fees included with O&M. Includes \$641,063 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$178,000 appropriated and expended - Bonneville Power Administration funds.
- ⁹ Includes \$60,941,807 appropriated and expended for additional Units 4 through 6. Includes \$12,006,000 appropriated and \$12,006,000 expended for Columbia River Fish Mitigation Program.
- ¹⁰ Includes \$621,063 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$31,000 appropriated and expended - Bonneville Power Administration funds.
- ¹¹ Includes \$46,212,534 appropriated and expended for additional Units 4 through 6. Excludes \$405,819 contributed funds on lock and dam project. Includes \$63,800 appropriated and expended for Code 710, Recreation Facilities at Completed Projects. Includes \$10,645,966 appropriated and \$7,056,001 expended for Columbia River Fish Mitigation Program.
- ¹² Includes \$338,163 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$32,000 appropriated and expended - Bonneville Power Administration funds.
- ¹³ Includes \$51,661,371 appropriated and expended for additional Units 4 through 6. Includes \$2,239,000 appropriated and \$2,239,000 expended for Columbia River Fish Mitigation Program.
- ¹⁴ Includes \$372,376 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$36,000 appropriated and expended - Bonneville Power Administration funds.
- ¹⁵ Includes \$1,976,586 appropriated and expended for Code 710, Recreation Facilities at Completed Projects. Includes \$3,778,000 appropriated and \$3,778,000 expended for Columbia River Fish Mitigation Program.
- ¹⁶ Includes \$28,851 appropriated and expended under special recreation use fees and \$1,035,860 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. After FY 92, Special Recreation Use Fees included with O&M. Excludes \$505,500 appropriated and \$301,258 expended - Bonneville Power Administration funds.
- ¹⁷ Includes \$400,150 for new work on previous projects (Pasco to Lewiston), and \$34,613 for new work appropriation used for maintenance prior to 1953. Excludes \$167,500 contributed funds for new work consisting of \$85,000 for new work on existing projects (Pasco to Riparia), plus \$82,500 for new work on existing artificial spawning channel.
- ¹⁸ Includes \$186,570 appropriated and expended for maintenance of previous projects (Pasco to Lewiston) and \$401,019 appropriated and \$390,527 expended open river Pasco to Lewiston and Lewiston to Johnson Bar Landing.
- ¹⁹ This does not include the appropriations and cost from the mitigation analysis under the Columbia River Fish Program, which will be allocated at the conclusion of the analysis.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

TABLE 30-B

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
1.	May 17, 1950	<p>COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS</p> <p>Blackfoot Area, Snake River, ID. Levee left bank. Blackfoot River, ID. Levees, channel improvement, and rectification works.</p> <p>Boise Valley, Boise River, ID. Channel improvement and enlargement, levees, and revetments in Ada County. Canyon County unit was deauthorized April 18, 1967. Ada County Unit was deauthorized in 1986.</p> <p>Camas Creek, ID. Channel deepening and rectification of a 20-mile reach of Camas Creek. Deauthorized in 1965.</p> <p>Gooding Area, Little Wood River, ID. Channel improvement.</p> <p>Grande Ronde Valley, OR. Levees and channel clearing, straightening, and realignment; would complement stream regulation by upstream storage projects. Deauthorized in 1986.</p> <p>Heise-Roberts Extension, Snake River, ID. Channel clearing and rectification, levees, and bank protection. Henrys Fork Unit deauthorized in 1986.</p> <p>Jackson Hole, Snake River, WY. Flood protection.</p> <p>Kendrick, Potlatch River, ID. Revetted levee.</p> <p>Little Wood River, ID. Flood protection in immediate area. Deauthorized in 1965.</p> <p>Malheur River, OR. Channel rectification, levees, and bank protection at Vale. Willow Creek unit was deauthorized on October 14, 1969.</p> <p>Mud Lake, ID, Idaho Falls Area. Flood protection. Deauthorized in 1990.</p> <p>Palouse River, WA. Flood protection for urban and rural areas at Garfield and near Malden. Deauthorized in 1986.</p> <p>Payette Valley, ID. Channel rectification, levees, and bank protection along 38 miles of Payette River below Black Canyon Dam. Payette Valley was deauthorized on October 3, 1978.</p> <p>Portneuf River and Marsh Creek, ID. Concrete-lined channel through Pocatello. Inkom-Marsh Creek unit was deauthorized on October 14, 1969.</p> <p>Shelley Area, Snake River, ID. Bank protection.</p> <p>South Fork Clearwater River, ID. Emergency construction of levees and revetments. Deauthorized in 1986.</p> <p>Teton River, ID. Flood protection. Deauthorized in 1986.</p> <p>Tomanovich-Salmon City, Salmon, ID. Channel improvement.</p> <p>Weiser River, Weiser Area, ID. Intermittent channel realignment and improvement, levees, and bank protection, lower river area. Project deauthorized in 1990.</p> <p>Whitebird Creek, ID. Flood protection. Deauthorized in 1986.</p>	H. Doc 531, 81st Congress, 2nd Session
Table 30-G	Oct 27, 1995	<p>CATHERINE CREEK LAKE, OR</p> <p>Flood control and multipurpose dam on Catherine Creek near Union, OR. Project deauthorized in 1990.</p>	H. Doc. 280, 89th Cong., 1st Session. Oct 27, 1965
Table 30-E	Sep 24, 1954	<p>CATHERINE CREEK, OR</p> <p>Organic debris removal along Catherine Creek.</p>	Sec 208, PL 83-780, Authorized by Chief Engineers. Sep 3, 1985

WALLA WALLA, WA, DISTRICT

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
Table 30-E	Jul 24, 1946	CLEAR AND BURNT RIVER, OR Construction of riprap bank protection at city of Huntington Waste Water Lagoon.	Sec 14, PL 79-526, Authorized by Chief of Engineers. Jul 10, 1985
Table 30-E	Dec 22, 1944	COLFAX, PALOUSE RIVER, WA Provides for flood control works in vicinity of and through Colfax, WA, by channel enlargement and modification, levees, floodwalls, revetments, and modification of railroad bridges.	Flood Control Act of 1944 H. Doc. 888, 77th Cong., 2nd Session
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.	H. Doc. 578, 75th Cong., 3rd Session
	Aug 18, 1941	Channel improvement through Walla Walla; concrete-lined Channel.	H. Doc. 719, 76th Cong.
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec 377, PL 77-228, Cong. 3rd Session Sec. 118 PL 102-580 102nd Cong.
Table 30-E	Sep 24, 1954 as amended	OWYHEE RIVER, OR Gravel, brush, and small tree removal from 12 miles of Owyhee River.	Sec. 208, PL 83-780 Authorized by Chief of Engineers. Feb 11, 1985
Table 30-E	Oct 27, 1965	ZINTEL CANYON DAM, WA Local protection reservoir to provide flood protection to portions of the city of Kennewick, WA.	PL 89-298, Sec. 201
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	(BRUCES EDDY) DWORSHAK DAM AND RESERVOIR, ID Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
	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.		ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA	
	Mar 2, 1945	Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
10.		LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA	
	Mar 2, 1945	Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
11.		LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA	
	Mar 2, 1945	Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
12.		LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA	
	Mar 2, 1945	Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285
13.		LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID	
	Oct 22, 1976 as amended	Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
14.		McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA	
	Mar 2, 1945	Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse. McNary Lock and Dam Second Powerhouse automatically deauthorized on Nov 16, 1991.	H.R. 6, PL 99-662 Sec. 1001, PL 99-362
Table F		LEWISTON-CLARKSTON BRIDGE, ID AND WA	
	Oct 22, 1976	Four-lane highway bridge and approaches.	PL 94-587
	Dec 29, 1981	Increase of authorized amount to \$23,200,000.	PL 97-140
	Jul 30, 1983	Approach roadway from bridge to Sixteenth Avenue in Clarkston, WA. Increase of authorized amount to \$24,000,000.	PL 98-63

WALLA WALLA, WA, DISTRICT

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
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
		OTHER AUTHORIZED FLOOD CONTROL PROJECTS	
Table E	Aug 18, 1941	Dayton, Touchet River, WA. Flood protection.	H. Doc. 662, 76th Cong., 3rd Session
		Milton-Freewater, Walla Walla River, OR. Flood protection.	H. Doc. 719, 76th Cong., 3rd Session
	Nov 17, 1986	Malheur Lake, OR. Flood damage.	PL 99-662
Table E	Dec 22, 1944	Heise-Roberts Area, Snake River, ID. Channel improvement.	H. Doc. 452, 77th Cong., 1st Session
		Malheur Improvement District, Snake River, OR. Flood protection.	
Table E	Jul 11, 1956	Esquatzel Coulee, Connell, WA. Levees and protective work. Lower Dry Creek, Lowden, WA. Channel improvement. Mission and Lapwai Creeks, ID. Construction of levee.	PL 87-685
Table E	Oct 23, 1962	Bear Creek, Kendrick, ID. Channel improvement. Lapwai Creek Culdesac, ID. Construct left bank levee Lyman Creek near Rexburg, ID. Channelization Tucannon River, Camp Wooten, WA. Levee and channel work.	PL 87-874
	Oct 23, 1962	Ririe Lake, Willow Creek, ID. Storage for flood control.	PL 87-874
3. and Table E	May 17, 1950	Jackson Hole, WY. Flood control protection by channel improvement consisting of channel rectification, levees, and revetment along Snake River in vicinity of Wilson, WY.	PL 81-188
	Nov 17, 1986	Also operation, maintenance, modifications, and additions are Federal responsibility.	PL 99-662
	Nov 17, 1986	Little Wood River, ID. Flood protection.	PL 99-662
Table G	Oct 23, 1962	Blackfoot Reservoir, Blackfoot River, ID. Modification to increase spillway capacity. Authorized in Oct 1962 and deauthorized in 1986.	PL 87-874
	Nov 17, 1986	Grande Ronde Lake, OR. Flood control, irrigation, and water. Supply, anadromous fish, downstream, and resident trout fishery, recreation, and downstream power.	PL 99-662 PL 89-298
	Oct 27, 1965	Deauthorized in 1986.	PL 89-298
Table G	Nov 17, 1986 Nov 17, 1986	Cottonwood Creek Dam, ID. Protection to highly-developed urban and suburban areas against flash floods. Authorized Oct 1962, PL 89-298. Deauthorized in 1986.	PL 99-662
Table G	Dec 22, 1944	Pullman, Palouse River, WA. Flood protection. Authorized Dec 1944. Deauthorized in 1986.	H.D. 452, 77th Cong., 1st Session
Table G	Nov 7, 1966	Stuart Gulch Dam, ID. Protection to highly-developed urban and suburban areas against flash floods. Authorized Nov 7, 1966. Deauthorized in 1979.	PL 89-789, Section 201

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

TABLE 30-C		OTHER AUTHORIZED NAVIGATION PROJECTS		
Project	Status	For Last Full Report See Annual Report For:	Construction	Cost to Sep 30, 2000 Operation and Maintenance
Columbia River and Tributaries above Celilo Falls to Kennewick, WA	Completed	1968	\$1,851,195	-
1. Obviated by The Dalles, John Day, and McNary Projects.				

WALLA WALLA, WA, DISTRICT

OTHER AUTHORIZED
FLOOD CONTROL PROJECTS

TABLE 30-E

Project	Status	For Last Full Report See Annual Report For:	Construction (\$)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Asotin Creek, Asotin, ID ¹	Completed	1951	12,019	-
Bear Creek, Kendrick, ID ¹	Completed	1970	133,518	-
Big Wood River, ID ⁵	Completed	1985	784,930	-
Boise River, ID ⁵	Completed	1985	236,500	-
Catherine Creek, OR	Completed	1990	28,800	-
Clear and Burnt River, OR	Completed	1990	99,500	-
Colfax, Palouse River, WA	Completed	1990	5,810,240	-
Connell, WA ¹	Completed	1967	60,000	-
Cottonwood Creek Community Church, Culdesak, ID ²	Completed	1984	23,400	-
Dayton, Touchet River, WA	Completed	1966	380,617	-
Dry Creek, WA ¹	Completed	1961	384,426	-
Esquatzel Coulee, Connell, WA ¹	Completed	1967	293,092	-
Esquatzel Coulee, Mesa, WA ¹	Completed	1969	38,631	-
Gooding Area, ID ¹	Completed	1954	86,126	-
Graves Creek, ID ¹	Completed	1953	75,469	-
Heise-Roberts Area, Snake River, ID	Completed	1955	1,586,439	-
Jackson Hole, Snake River, WY	Completed	1978	2,504,245	-
Lapwai Creek, Culdesac, ID ¹	Completed	1972	176,833	-
Lava Hot Springs, Portneuf River, ID ¹	Completed	1973	113,296	-
Little Wood River, ID ⁶	Active	1993	353,534	-
Lower Dry Creek, Lowden, WA ¹	Completed	1972	17,600	-
Lyman Creek, ID ¹	Completed	1971	230,315	-
Malheur Lake Project, OR ⁷	Completed	1990	4,729,348	-
Malheur Improvement District, Snake River, OR	Completed	1957	138,608	-
Milton-Freewater, Walla Walla River, OR ³	Completed	1968	2,327,578	-
Mission and Lapwai Creeks, ID ¹	Completed	1965	54,538	-
Orofino Creek and Clearwater River, Orofino, ID ²	Inactive	1949	23,050	-
Owyhee River, OR	Completed	1990	69,316	-
Rapid Creek, ID ⁵	Completed	1985	19,500	-
Pataha Creek, Pomeroy, WA ²	Completed	1977	110,815	-
Pataha Creek at Pomeroy, WA ²	Completed	1993	308,511	-
Payette River, Emmett Sewage Lagoon, ID ²	Completed	1967	39,172	-
Riverside Area, Pasco, WA ¹	Completed	1972	28,839	-
Ririe Lake, ID	Completed	1983	39,677,448	-
Sewage Lagoon, Vale, OR ²	Completed	1985	75,000	-
Shobe Canyon, Heppner, OR ¹	Completed	1970	5,000	-
Snake River, Blackfoot, ID ¹	Completed	1980	131,700	-
Snake River, Heise Bridge Location, ID ²	Completed	1952	8,501	-
Snake River, Stevens, Blackfoot, ID ¹	Completed	1968	32,425	-
South Fork, Boise River, ID ⁵	Completed	1985	44,400	-
South Fork Clearwater River, Kooskia-Sites, ID	Completed	1973	61,055	-
Tomanovich-Salmon City, ID ¹	Completed	1955	128,635	-
Touchet River, Waitsburg, WA ¹	Completed	1973	72,140	-
Tucannon River, Wooten, WA ¹	Completed	1971	74,305	-
Umatilla River, OR ¹	Completed	1961	161,540	-
Wallowa River, Weaver Bridge, OR ²	Completed	1960	16,118	-
Weiser River, ID ⁵	Completed	1985	293,739	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

**OTHER AUTHORIZED
FLOOD CONTROL PROJECTS**

TABLE 30-E (Continued)

Project	Status	For Last Full Report See Annual Report For:	Construction (\$)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Willow Creek, ID ¹	Completed	1963	976	-
Willow Creek Lake, OR	Completed	1985	37,231,332	-
Yakima River, West Richland, WA ^{1,4}	Completed	1964	229,890	-
Zintel Canyon Dam, WA ⁸	Completed	1995	6,801,788	-

¹ Authorized by Chief of Engineers pursuant to Section 205, PL 80-858.

² Authorized by Chief of Engineers pursuant to Section 14, PL 79-526.

³ Exclusive of \$6,300 contributed funds.

⁴ Exclusive of \$9,000 contributed funds.

⁵ Authorized by Chief of Engineers pursuant to Section 208, PL 83-780.

⁶ Authorized by Chief of Engineers pursuant to PL 99-662. No funds authorized until Fiscal Year 1990.

⁷ Exclusive of \$853,712 contributed funds.

⁸ Authorized by Chief of Engineers pursuant to PL 89-298. Construction began in 1992.

**OTHER AUTHORIZED
MULTIPURPOSE PROJECTS, INCLUDING POWER**

TABLE 30-F

Project	For Last Full Report See Annual Report For:	Construction (\$)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Lewiston-Clarkston Bridge, ID and WA	1990	23,409,832	-

DEAUTHORIZED PROJECTS

TABLE 30-G

Project	For Last Full Report See Annual Report For:	Date Deauthorized	Federal Funds Expended (\$)	Contributed Funds Expended (\$)
Asotin Dam, Snake River, ID and WA	1964	1975	-	-
Blackfoot Reservoir, ID	1980	1986	267,626	-
Boise Valley, ID				
Ada County Unit	1963	1986	46,084	-
Canyon County Unit	1963	1967	10,600	-
Camas Creek, ID	1960	1965	9,080	-
Catherine Creek Lake, OR	1978	1990	1,552,000	-
Cottonwood Creek Dam, Boise, ID	1972	1986	195,686	-
Dworshak Unit 4	1993	1995	655,000	-
Dworshak Units 5 and 6, ID	1990	1990	-	-
Grande Ronde Lake, OR	1966	1986	-	-
Grande Ronde Valley, OR	1958	1986	169,195	-
Heise-Roberts Extension, ID				
Henrys Fork Unit	1968	1986	-	-
Little Wood River, ID	1960	1965	21,334	-
Lower Walla Walla River, WA	1953	1986	4,000	-
Lucky Peak 2nd Outlet, ID	1988	1990	-	-
Malheur River, OR				
Willow Creek Unit	1961	1969	13,000	-
McNary Second Powerhouse, OR and WA	1991	1991	5,671,000	-
Mill Creek, WA	1958	1977	3,537	-

WALLA WALLA, WA DISTRICT

TABLE 30-G (Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Date Deauthorized	Federal Funds Expended (\$)	Contributed Funds Expended (\$)
Mud Lake Area, ID	1957	1990	5,994	-
Palouse River, WA	1958	1986	2,000	-
Payette Valley, ID	1960	1978	23,178	-
Portneuf River, Inkom-Marsh Creek, ID	1969	1969	-	-
Pullman, Palouse River, WA	1964	1986	289,109	-
S. Fork Clearwater River, ID	1973	1986	3,899	-
Stuart Gulch Dam, Boise, ID	1974	1979	234,100	-
Teton River, ID	1955	1986	10,387	-
Touchet River, WA	1957	1977	11,198	-
Weiser River, Weiser Area, ID	1960	1990	112,757	-
Whitebird Creek, ID	1957	1986	1,896	-

COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS (SEE SECTION 1 OF TEXT)

TABLE 30-H

Project	Status	Estimated Federal Cost (\$)	Cost to Sep 30, 2000 (\$)
Blackfoot Area, Snake River, ID	Completed	-	209,403
Blackfoot River, ID	Completed	-	391,143
Heise-Roberts Extension, ID, Snake River Unit	Completed	-	3,402,958
Kendrick, Potlatch River, ID	Completed	-	85,873
Malheur River, OR, Vale Unit	Completed	-	333,581
Mud Lake, ID	Inactive	1,187,000	5,996
Portneuf River and Marsh Creek, ID, Pocatello Unit	Completed	-	6,456,032 ¹
Shelley Area, Snake River, ID	Completed	-	32,348
TOTAL			10,917,334

¹ Exclusive of \$36,800 contributed funds.

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS (SEE SECTION 2 OF TEXT)

TABLE 30-I

Project	Inspection Complete
Clearwater River, ID	August 2000
Columbia River, WA	September 2000
Lyman Creek, ID	August 2000
Palouse River, WA	September 2000
Portneuf River, ID	July 2000
Potlatch River, ID	June 2000
Salmon River, ID	August 2000
Snake River, ID	July 2000
Touchet River, WA	September 2000
Tucannon River, WA	September 2000
Walla Walla River, OR	September 2000
Walla Walla River, WA	November 2000

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

TABLE 30-J

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	

WALLA WALLA, WA, DISTRICT

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

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

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

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

Project

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

WALLA WALLA, WA, DISTRICT

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

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

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 00

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

Project

SPILLWAY DAM

Type of Construction	Concrete Gravity
Completed	October 1953
Maximum Capacity	2,200,000 cfs
Crest Elevation	291 ft
Control Gates:	
Type	Vertical Lift
Size, Width by Height	50 by 51 ft
Number	22

POWERPLANT

Length	1,348 ft
Generating Units:	
Number Installed	14
Rating, Each	70,000 kW
Total Capacity Installed	980,000 kW
Maximum Structural Height	220 ft
First Power-On-Line	November 1953

IMPOUNDMENT

Elevations:	
Normal Operating Range	340 to 335 ft
Maximum	356.5 ft
Lake Length	64 mi
Lake Water Surface Area at Elevation 340	38,800 ac
Navigation Channel, Depth by Width	14 by 250 ft
Length of Shoreline	242 mi

¹ cubic feet per second

² feet

³ kilowatt

⁴ miles

⁵ acres

WALLA WALLA, WA, DISTRICT

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

TABLE 30-K

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2000		Maintenance to September 30, 2000		Percent Completed	Constr. Started
		Approp.	Cost	Approp.	Cost		
Ice Harbor Lock and Dam							
Initial Project	\$129,578,480	\$129,578,480 ⁴	\$129,578,480 ⁴	\$161,487,197	\$161,431,890	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	<u>87,743,000³</u>	<u>40,429,000</u>	<u>40,388,000</u>	<u>0</u>	<u>0</u>	<u>46</u>	FY 91
Totals	254,983,757	207,669,757 ⁴	207,628,757 ⁴	161,487,197	161,431,890	81	
Little Goose Lock and Dam							
Initial Project	160,413,215	160,413,215 ⁵	160,413,215	111,624,564	111,572,010	100	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	<u>72,626,000³</u>	<u>38,525,000</u>	<u>38,145,000</u>	<u>0</u>	<u>0</u>	<u>53</u>	FY 89
Totals	293,981,022	259,880,022 ⁵	259,500,022 ⁵	111,624,564	111,572,010	88	
Lower Granite Lock and Dam							
Initial Project	321,503,981	321,503,981 ⁶	321,503,979 ⁶	156,967,303	156,557,120	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	<u>83,351,000³</u>	<u>31,427,000</u>	<u>31,411,000</u>	<u>0</u>	<u>0</u>	<u>38</u>	FY 88
Totals	451,131,315	399,207,315 ⁶	399,191,313 ⁶	156,967,303	156,557,120	88	
Lower Monumental Lock and Dam							
Initial Project	184,712,361	184,712,361 ⁷	184,712,361 ⁷	115,117,904	114,890,361	100	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	<u>97,480,000</u>	<u>32,674,000</u>	<u>32,243,000</u>	<u>0</u>	<u>0</u>	<u>33</u>	FY 90
Totals	333,853,732 ³	269,047,732	268,616,732	115,117,904	114,890,361	80	
Open River Lewiston to Johnson Bar Landing							
	34,613	34,613 ¹	34,613	401,583 ²	397,498		
Open River Pasco to Lewiston							
	<u>0</u>	<u>0</u>	<u>0</u>	<u>4,350</u>	<u>4,350</u>		
Totals Existing Project	1,333,984,439	1,135,839,439	1,134,971,437	545,602,901	544,853,229	85	
Previous Projects Pasco to Lewiston							
	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	\$1,334,384,589	\$1,136,239,589 ⁸	\$1,135,371,587 ³	\$545,789,471	\$545,039,799		

¹ New work appropriations used for maintenance prior to 1953.
² Includes \$2,064 appropriated and \$3,180 expended in FY 96 for project condition survey cost.
³ Does not include mitigation analysis.
⁴ Includes \$203,000 appropriated and \$201,931 expended for Columbia River Fish Mitigation Program.

⁵ Includes \$370,000 appropriated and \$358,589 expended for Columbia River Fish Mitigation Program.
⁶ Includes \$1,628,000 appropriated and \$1,626,084 expended for Columbia River Fish Mitigation Program.
⁷ Includes \$11,132,000 appropriated and \$10,949,493 expended for Columbia River Fish Mitigation Program.
⁸ Includes \$13,333,000 appropriated and \$13,136,097 expended for Columbia River Fish Mitigation Program.