WALLA WALLA, WA, DISTRICT

The U.S. Army Corps of Engineers (Corps), Walla Walla District (District) consists of all Corps activities in the Columbia River drainage and tributaries thereto between the head of McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam (McNary), except the Yakima River Basin above Van Giesen Street Bridge (river mile 8.4) near Richland, WA. The primary tributary drainage area is the Snake River, which 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

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

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

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

Operations during fiscal year (FY). No projects were de-authorized.

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 advise local interests, as necessary, of measures required to correct deficiencies. (See table 30-J, Inspection of Completed Flood Control Projects.)

The FY costs were $401,178. Total costs through September 30, 2010, were $4,281,130.

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, there are approximately 23.5 miles of Federally constructed levees consisting of the following: (1) On the right bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge, for a total of 13.5 miles; and (2) On the left bank: a series of Federally-constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles upstream. The project resumes 1.5 miles immediately upstream of the same bridge and continues to 3.5 miles below the bridge, for a total of 10 miles. In addition, a series of Federally and non-Federally constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

The project also includes riprap-protected levees on the left and right banks of the Gros Ventre River. The left bank levee begins 1.5 miles west of Cattlemen's Bridge and extends 0.5 mile east of the same bridge. The right bank levee begins 0.5 mile west of Cattlemen's Bridge and extends 0.3 mile east of the same bridge.

The project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The Water Resources Development Act (WRDA) of 1986, PL 99-662, authorized the Secretary of the Army to assume responsibility for operation and maintenance of the "Federal Levees" and additions and modifications thereto. It states, "the project for Jackson Hole . . . is modified to provide that the operation and maintenance of the project. . . shall be the responsibility of the Secretary: Provided, that the . . . sponsors shall pay the initial $35,000 in cash or materials . . . plus inflation . . ."

The WRDA 1996 (PL 104-303) amended PL 99-662 by including in-kind services and adding ". . . the Secretary may enter into agreements with the non-Federal sponsor permitting the non-Federal sponsor to perform operation and maintenance for the project on a cost-reimbursable basis."

Since 1978, $355,991,000 (cumulative nominal $) in potential flood damages has been prevented by the levees.

Operations during FY. Teton County, under their Local Cooperative Agreement, worked with the Corps assessing levee maintenance requirements and developing project work plans. A 5-year supply contract for the purchase of revetment rock was completed, and 5,800 tons of rock were delivered to the project's main stockpile site; a contract for the cleaning and inspection of project culverts was completed; and a construction contract was

completed to repair significant damages from the spring flooding. During June, a joint flood fighting effort was coordinated with Teton County to perform emergency repairs to select levees during the high water. The FY costs were $1,243,029. (See table 30-A, Cost and Financial Statement.)

The WRDA 2000 (PL 106-541) authorized the Upper Snake River Restoration Project. Congress added new start funding in FY 03 and FY 04. The project is located in and along a 22-mile stretch of the upper Snake River near Jackson, WY, in Teton County. It is partially in and adjacent to Grand Teton National Park, the National Elk Refuge, and in close proximity to Yellowstone National Park.

The project restores fish and wildlife habitat that was lost as a result of construction, operation, and maintenance of levees constructed by Federal and non-Federal interests. Restoration measures include eco-fences, channel capacity excavation, spur dikes, anchored rootwads, rock grade control, secondary channels, off-channel, and channel stabilization pools. The project has a 14-year phased construction schedule and includes continuing construction, adaptive management, and monitoring to provide implementation flexibility. The rock grade structure, a separable element of site 9 completed in FY 05, continues to perform as designed by protecting the island habitat during the spring 2010 runoff conditions. Inspection of the completed construction at site 9 found that the previously damaged eco-fences were severely damaged during the spring runoff in 2010, leaving about two-thirds of the site 9 area at risk of further river erosion should the channel continue to move toward the left bank. The sponsor was notified of the inspection results, but does not have funding in the current budget. Several landowners in site 10 are interested in a grade control structure to protect a mature cottonwood site from further erosion and may be willing to provide the sponsor's cost share for a project in site 10.

There were no FY10 construction costs. (See table 30-A, Cost and Financial Statement.) Total project costs are $59,505.

4. LITTLE WOOD RIVER, ID

Location. This project is located in the City of Gooding, ID, along approximately one mile of the Little Wood River canal, which runs east to west directly through the city. (See table 30-B for Authorizing Legislation of projects in the District.)

Existing project. This project was originally constructed under the emergency conservation work program established under the Act of March 31, 1933. Subsequently, the project was reauthorized under Section 3057, WRDA 2007, and directs "...the Secretary to rehabilitate the Gooding Channel project for the purposes of flood control and ecosystem restoration if the Secretary determines that such rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest and that the rehabilitation and ecosystem restoration is feasible..."

Local Cooperation. Provided by the City of Gooding, ID.

Operations during FY. Initiated decision document, which includes required feasibility study and environmental compliance. Also developed feasibility cost sharing agreement expected to be executed in FY 11.

The FY10 construction costs were $9,765. Total project costs are $9,765. (See table 30-A, Cost and Financial Statement.)

5. LUCKY PEAK LAKE, ID

Location. Approximately 10 miles southeast of the city of Boise, Idaho on the Boise River. (See table 30-B for Authorizing Legislation of projects in the District.)

Existing project. Lucky Peak Dam is a rolled earthfill dam, 250 feet above the streambed and 1,700 feet long at the crest. The lake behind the dam is 12 miles long with 45 miles of shoreline and provides a total storage at an upper operating lake level of 306,000 acre-feet. The project provides flood control, irrigation, recreation, and fish and wildlife benefits.

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, $1,619,019,000 (cumulative nominal $) in potential flood damages has been prevented by the project.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in the WRDA 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. It was modified on October 9, 1980, and again 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 in January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was initiated on August 18, 1988. A Federally authorized second outlet was de-authorized in FY 90.

Recreation facilities at Lucky Peak Lake consist of 20 day-use/picnic areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 929,099.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance of the dam structures and recreation areas continued. A 5-year routine inspection of dam facilities was conducted with no significant adverse findings. The FY costs were $1,990,005. (See table 30-A, Cost and Financial Statement.)

American Recovery and Reinvestment Act (ARRA): The following improvements were accomplished in FY10:

- Completed project to scan, modernize, and store critical real estate documents.

- Purchased through a local vendor and installed a secure storage building in a high traffic recreation area.

The ARRA FY10 costs were $90,636. Total project costs are $158,449. (See table 30-A, Cost and Financial Statement.)

6. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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, $63,662,000 (cumulative nominal $) in potential flood damages has been prevented by the combined storage and channel operation.

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

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 275,762.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas. The FY costs were $2,709,921. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY10:

- Completed construction contract for road paving repairs.

- Completed Dam Safety Inspection architectural engineer (AE) contract.

- Completed Dam Safety Interim Risk Reduction Measures (IRRM) Plan contract.

The ARRA FY10 costs were $157,472. Total project costs are $160,013. (See table 30-A, Cost and Financial Statement.)

Interim Risk Reduction Measures. On May 31, 2007, the Corps released Engineer Circular (EC) 1110-2-6064, IRRM for Dam Safety. This circular includes a Dam Safety Action Classification (DSAC) rating table and the guidance to develop, prepare, and implement IRRMs to reduce the unacceptable risk of

Corps dams. IRRMs are short-term efforts to reduce dam safety risks while long-term solutions are pursued. The Corps has been developing long-term alternatives and solutions for implementation from 2012 to 2014.

In May 2008, a Dam Safety Screening for Portfolio Risk Assessment was performed for the Mill Creek Project. On August 18, 2008, Mill Creek Storage Dam received a DSAC rating of I, signifying that the risk to public safety is unacceptable when Bennington Lake is more than 17 percent full for an extended period of time. These findings create an urgent and compelling requirement for IRRMs and system modifications. In October 2009, the dam status was upgraded to a DSAC II "Urgent" (i.e., unsafe or potentially unsafe) after additional data gathering and analysis showed the risk of dam failure under normal operations was not as high as originally estimated. The need for modification, however, is still pressing.

An IRRM Plan was developed in FY 09 and further studies were undertaken. Throughout this process, the District is pursuing permanent solutions to determine required repairs/modifications to reduce the risk to the Walla Walla community.

IRRM Operations during FY: The following improvements were accomplished during FY10:

- Installed lighting to assist with emergency operations at night.
- Awarded contract for a comprehensive dam seepage and stability analysis.
- Verified dam and project elevations.
- Issue Evaluation Study conducted for Mill Creek Storage Dam.

The FY10 construction costs were $680,112. (See table 30-A, Cost and Financial Statement.) Total project costs are $1,315,535.

7. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects is accomplished as authorized under Section 7, Flood Control Act of 1944, and coordinated with the Bureau of Reclamation for Jackson, Palisades, Ririe, Little Wood, Arrowrock, Anderson Ranch, and Malheur River Basin.

Flood control operations at Jackson Lake, Palisades, Ririe, Little Wood, Boise River Reservoirs, and the Malheur River Reservoirs are in accordance with formal agreements with the Bureau of Reclamation. Flood control regulation for Brownlee Reservoir was accomplished under flood control regulation provisions in the Federal Power Commission license to Idaho Power Company.

The FY costs associated with flood control operation of non-Corps and Corps-owned projects was $372,959.

8. TRIBAL PARTNERSHIP PROGRAM

Location. The Shoshone Bannock Tribes of Fort Hall Reservation and the study area are located just northwest of Pocatello, ID, in the southeastern corner of Idaho.

Existing project. Section 203 of the WRDA 2000, Tribal Partnership Program, authorized the Corps to undertake a reconnaissance phase study to determine if there is a Federal (Corps) interest in participating in a cost-shared feasibility phase study with the Shoshone Bannock Tribes of Fort Hall. This study would focus on improving and preserving natural and cultural resources located in the watershed associated with the Fort Hall Bottoms reach of the Snake River (Snake River Bottoms). The Snake River Bottoms is considered the largest reach of intact, forested floodplain in the western United States and is home to sensitive threatened and endangered species. The area also possesses significant cultural resources and meaning for the Tribes. The study would develop a watershed plan that assesses current resource conditions and identifies goals and strategies for environmental restoration, water quality improvement, reducing user conflicts, stabilizing streambanks, preserving species listed under the Endangered Species Act and protecting cultural resources.

Local cooperation. Preparation of the 905(b) reconnaissance report is 100 percent Federally funded. The Shoshone Bannock Tribes of Fort Hall have been participating in the development of this study.

Operations during FY. The September 2009 draft 905(b) reconnaissance report was updated per review comments. The FY construction costs were $2,335. Total costs through September 30, 2010, were $104,343. (See table 30-A, Cost and Financial Statement.)

9. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended: The FY costs were $42,661 for one project and coordination account: (1) Coppei Creek, $27,566; and coordination account, $15,095.

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, 70th Congress): The FY costs were $5,533 for Section 14 Coordination.

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress): There were no Federal costs this FY.

Multiple-Purpose Projects, Including Power

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

Location. This project is located at Ice Harbor Lock and Dam (Ice Harbor), Lower Monumental Lock and Dam (Lower Monumental), Little Goose Lock and Dam (Little Goose), and Lower Granite Lock and Dam (Lower Granite) on the lower Snake River in the state of Washington, and McNary on the Columbia River in the states of Oregon and Washington. (See table 30-B for Authorizing Legislation of projects in the District.)

Existing project. The eight Corps hydro-electric 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 Tribal 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. A mitigation study to determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams was added to the President's FY 91 budget.

The plan of improvement includes the following facilities: (1) Ice Harbor: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental: 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, outfall relocation, and surface bypass; (3) Little Goose: 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: 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: gantry crane, screens, hold/load facility, gate raise modifications, maintenance facility, fish ladder exits, adult/juvenile collection channel stoplogs, juvenile fish facility, surface bypass, and gantry crane modifications.

In response to the 1995 Endangered Species Act, Section 7, Consultation Biological Opinion (BiOp), issued by the National Marine Fisheries Service (NMFS), 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 was to improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focused on how these dams could be changed to improve survival and recovery prospects for Snake River salmon stocks under the Endangered Species Act. More recently the 2008 NMFS BiOp for the

Federal Columbia River Power System (FCRPS), the 2008 Columbia River Fish Accords, the 2009 Adaptive Management Implementation Plan, and the 2010 NMFS Supplemental FCRPS BiOp address additional mitigation measures required at these projects. Using an adaptive management policy as additional biological data is collected, the configuration changes identified within these studies, opinions, and agreements continue to be implemented.

As of spring 2009, permanent or interim surface bypass technology was installed at all of the District's Snake River dams and at McNary. These structures are focused on improving juvenile fish surface passage for endangered and threatened salmon migrating past all Corps hydroelectric projects. These structures were deployed using an aggressive, nontraditional approach to development that involved fast-track design, construction, testing, and evaluation. Based on post-construction biological evaluations conducted to date, these structures have proven to be successful in reducing passage delay and increasing dam passage survival.

The fully funded Federal project cost is estimated at $955,000,000 for District projects.

Local cooperation. None required.

Operations during FY. The following studies and improvements were accomplished during FY10:

- Initiated design on juvenile bypass outfall relocations for both the McNary and Lower Monumental projects. Relocated outfalls are expected to increase juvenile dam survival by improving egress and reducing piscivorous fish and avian predation at the outfall site.

- Completed construction on modifications to the McNary south shore adult fish ladder that will improve conditions for adult lamprey passage. Post construction evaluation of these improvements verified that lamprey passage was improved and that the modifications were not detrimental to adult salmon migration. Additionally, hydraulic modeling was continued to develop an improved fish ladder entrance that will provide easier entrance conditions for lamprey, without impacting adult salmon criteria.

- Completed design of a prototype spillway PIT-Tag monitoring system and deflector chute modification at Ice Harbor. If proved successful, a spillway PIT-Tag monitoring system has the potential to provide valuable information on previously undetected juvenile migrants to shed light on key uncertainties in salmon life history.

- Completed construction on the juvenile bypass dewatering structure modifications and juvenile outfall relocation at Little Goose. The dewatering structure modification eliminated excessive vibrational forces that were causing stress in dewatering structure members, and the outfall relocation improved juvenile fish survival.

- Continued preliminary design for improvements to the Lower Granite juvenile bypass/holding and loading facilities. The existing facilities were the first to be constructed on the Snake River and have many features that currently do not meet criteria for juvenile salmon passage. Design efforts focused on developing a prototype collection channel overflow weir system to replace existing orifices. This system is anticipated to reduce stress, delay, and injury to migrating juveniles and reduce stress and injury to downstream migrating steelhead kelts.

- Continued turbine passage studies that investigate the effects of rapid pressure changes on fish survival and increased injury rates. Information from these studies is being used to develop biological criteria for the design of a new turbine runner for Ice Harbor Unit 2.

- Continued the system-wide spillway evaluation study to determine impacts of increased spill frequency and duration on Columbia and lower Snake River dams. These impacts are a result of voluntary spill operations that aid juvenile fish passage. The study continued to focus on the reliability and risk of failure of spillway appurtenances due to increased spill operations.

- Continued studies evaluating impacts of avian predation on salmon smolt from the Columbia and Snake Rivers. This included monitoring the Caspian tern colony on Crescent Island, determining stock-specific predation rates on juvenile salmonids,

surveying and monitoring for new or existing tern and cormorant colonies in the mid-Columbia River, and PIT-Tag recovery from avian islands. Research provided an estimate of relative magnitude of impacts among multiple avian predators in the mid-Columbia River.

- Continued research on estuarine detection of juvenile salmon using paired PIT detection trawls. This research estimated salmon hydrosystem survival as one factor for determining annual performance of the hydrosystem.

- Continued research to evaluate Pacific adult lamprey passage success through the adult fish ladders at McNary and Ice Harbor.

- Continued a study to estimate the survival of fall Chinook salmon in the Columbia and Snake River system. This research will assist in developing system-wide operations that will maximize survival of fall Chinook salmon throughout the fish passage season.

The FY construction costs were $17,184,695. Total project costs are $684,573,520. (See table 30-A, Cost and Financial Statement.)

11. DWORSHAK DAM AND RESERVOIR, ID

Location. This dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, about 5 miles west of Orofino, ID, and 35 miles east of Lewiston, ID. (See table 30-B for Authorizing Legislation of projects in the District.)

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 53.6 mile long 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 are effective for both local and regional flood control and for at-site and downstream power generation). The 30,935 acres of land and 17,090 acres of water provides habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and 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 were curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were de-authorized in FY 90, and Unit 4 was de-authorized in FY 95. Principal project data are set forth in table 30-C.

Construction of the project began in July 1966. It was placed in operation in 1972 and completed in 1986. Since the project became operational in June 1972, it has prevented about $2,836,000 (cumulative nominal $) in potential flood damages. Power generation through September 2010 was 65.65 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boat launches, and 2 swim areas. The Dworshak Information Center provides a regional overview of the Corps' efforts in the Clearwater River Basin. Total visitation to Dworshak Reservoir for the FY was 123,718.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat continued on project lands to provide winter browse for elk and deer. During the FY, 1.29 billion kW hours of electrical power were generated by the three generating units. The FY costs were $12,223,260. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished in FY10:

- Completed contract for Dent Acres area road paving repairs.

- Completed contract for Granddad area road paving repairs.

- Completed alternative study and value engineering study of Dworshak Fish Hatchery effluent system; completed design to 60 percent.

ARRA FY10 costs were $1,580,607. Total project costs are $1,726,643. (See table 30-A, Cost and Financial Statement.)

Interim Risk Reduction Measures. Dworshak Dam was classified as a DSAC II "Urgent" (i.e., unsafe or potentially unsafe) because seepage and leakage water is passing through the dam's foundation and/or joint drains. The District completed an IRRM Plan in 2008 that includes immediate, short-term, and ongoing initiatives to reduce public risk. These measures are designed to evaluate and reduce the probability and consequence of dam failure.

The Corps of Engineers is moving forward at Dworshak Dam with IRRMs and longer-term studies to reduce the probability of potential dam failure until long-term remediation is complete. Studies will identify and measure what is happening inside the dam and its foundation. Measurements and studies will help determine if structural or foundation problems exist, or if the known movements of the dam's 32 concrete segments (monoliths) are normal reactions to rapid changes in pool levels, daily and seasonal temperature changes, and long-term curing and concrete shrinkage inside the massive structure. To optimize public safety, the Corps is taking interim measures to reduce the potential of dam failure, loss of life, and economic and environmental impacts.

The Corps plans to complete studies and then prepare a comprehensive decision document to identify public risks and repairs to lower those risks. The Corps plans to evaluate study results and, if warranted, authorize a dam safety modification study, which may lead to the development of dam repair plans and specifications. The Corps Headquarters Senior Oversight Group will reevaluate the Dworshak DSAC rating in 2011 from information provided in the Issues Evaluation Study that was being drafted in FY10.

IRRM Operations during FY. The following improvements were accomplished during FY10:

- Progressed Issues Evaluation Study to 50 percent (i.e., quantify risk probabilities of failure modes and quantify risk to life and property) and Expert Panel Independent Technical Review to 85 percent complete.
- Awarded AE task order for IRRM Gate study.
- Awarded phase four instrumentation contract.
- Completed external stability analysis study.

The FY10 construction costs were $732,138. (See table 30-A, Cost and Financial Statement.) Total project costs are $1,377,383.

ARRA for IRRM: The following improvements were accomplished in FY10:

- Completed instrumentation study contract.
- Awarded and completed purchase of waterstop materials.
- Waterstop study AE task order 57 percent complete.
- Awarded contract for phase three purchase and installation of instrumentation.

The ARRA FY10 construction costs were $1,301,715. Total project costs are $1,315,355. (See table 30-A, Cost and Financial Statement.)

12. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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 437 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental. 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 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. 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 2010 was 99.36 billion kW hours.

Recreation areas on Lake Sacajawea include 11 day-use/picnic areas, 4 camping areas, 7 areas with boat launching, and 4 swimming areas. There are 32 miles of the Northwest Discovery Water Trail. The Ice Harbor Information Center provides a regional overview of the Corps' efforts in the Snake River Basin. Total visitation on Lake Sacajawea for the FY was 479,553.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.47 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 that amounted to 2,826,100 tons during calendar year 2010. The FY costs were $9,771,619. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY10.

- Charbonneau Park Potable Water System. A second contract was awarded to an 8(a) small business for the wetland for the new nitrate treatment facility. A utility contract was awarded for the electrical service connection. The ion exchange facility will remove nitrate contamination from the park's well water; thereby, bringing it into compliance with the Environmental Protection Agency (EPA) drinking water standards. The system began operation in October 2010 before shutting down for the end of the recreational season. The Washington State Department of Health accepted the engineer's notice of the completion and rescinded their 2008 State order of noncompliance.

- Completed contract for road paving repairs.

- Completed contract for electrical system upgrades at Fishhook and Charbonneau Parks.

The ARRA FY10 costs were $3,490,583. Total project costs are $3,708,492. (See table 30-A, Cost and Financial Statement.)

13. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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. 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. 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 began in 1974 and was completed in 1984. Power generation through September 2010 was 97.03 billion kW hours.

Lake Bryan provides seven day-use areas, five campgrounds, five boat-launching areas, and two

swimming areas. There are 39 miles of the Northwest Discovery Water Trail. Total FY visitation to Lake Bryan was 225,776.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.83 billion kW hours of electrical power was generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 2,253,300 tons during calendar year 2010. The FY costs were $6,071,825. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY10:

- Completed contract for road paving repairs.
- Contract to upgrade heating, ventilation, and air conditioning (HVAC) system in visitors center progressed to 90 percent complete.

The ARRA FY10 costs were $690,782. Total project costs are $800,138. (See table 30-A, Cost and Financial Statement.)

14. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and includes approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738 and 733 msl in Lewiston, ID, and Clarkston, WA. Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation, for a capacity of 810,000 kW.

The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, which provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 674 feet and a 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 2010 was 88.04 billion kW hours. Approximately $32,294,000 (cumulative nominal $) in potential flood damages has been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/picnic areas, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. There are 45 miles of the Northwest Discovery Water Trail. Total recreation visitation to Lower Granite Lake for the FY was 2,090,904.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.8 billion kW hours of electrical power was generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 1,191,900 tons during calendar year 2010. The FY costs were $12,826,227. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished in FY10:

- Completed contract for road paving repairs.
- Initiated and completed engineering and design and awarded a second contract for road paving repairs (construction scheduled in October 2010).
- Completed contract for a storage building in the north yard.

- Contract to upgrade HVAC system in visitors center progressed to 90 percent complete.

The ARRA FY10 costs were $2,590,419. Total project costs are $2,851,694. (See table 30-A, Cost and Financial Statement.)

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

In 2003, a new removable spillway weir (RSW) was tested at Lower Granite. A second RSW was tested at Ice Harbor in 2005 (fish are not collected here for transport), and a third RSW was tested at Lower Monumental during the 2008 fish passage season. During the 2007 season, two temporary spillway weirs (TSW) were tested in spillbays 20 and 22 at McNary. Testing continued at McNary during the 2008 season after the TSW in spillbay 22 was moved to spillbay 19. Further tests followed in 2009 with TSWs placed in spillbays 4 and 20 early in the season and spillbays 19 and 20 late in the season. In 2009, TSW operations started in spillbay 1 at Little Goose. A low crest TSW was utilized early in the season and a high crest TSW was utilized later in the season. Due to unusually low projected runoff in 2010, the high crest weir was placed in spillbay 1 at the start of the season. This weir was replaced with the low crest weir on May 13, which was replaced again by the high crest weir on May 25. The TSW was taken out of service for the year on August 5.

The 2010 juvenile fish transport season was marked by much lower than normal river flows in the Snake River and well below average river flows in the Columbia River. The three Snake River transport projects operated under regionally coordinated, court-approved operations, including daily spill from April 3 through August 31, with transportation of juvenile fish collected. Spill at McNary took place from April 10 through August 31. During the court ordered spill period, emphasis was placed on a mix of fish transportation and inriver migration.

The start of juvenile fish transport operations by barge was staggered and commenced April 22. This start date was set 10 days earlier than the 2009 start date, due to much lower than usual spring flows. This practice allows early season fish to migrate in-river. Truck operations began August 18 and continued until October 31 (similar to dates in 2009). Juvenile fish collection at Lower Granite in 2010 was 3,645,277 as compared with 6,593,661 in 2009 and 5,082,176 in 2008. A total of 247,129 fish were bypassed back to the river in 2010, and 3,394,601 were transported. At Little Goose, a total of 2,870,791 juvenile salmon and steelhead were collected in 2010, as compared with 5,182,190 collected in 2009 and 4,885,642 in 2008. A total of 140,719 fish were bypassed back to the river in 2010, and 2,723,402 fish were transported. At Lower Monumental, 1,065,007 juvenile salmon and steelhead were collected in 2010, as compared with 1,182,585 in 2009 and 2,097,408 in 2008. A total of 6,137 fish were bypassed from Lower Monumental in 2010, and 1,057,640 were transported.

At McNary, normal operations are to bypass fish in the spring until early to mid-July when collection and transport of summer migrants begin by barge. This held true in 2010 as collection for transport operations began as scheduled on July 16, as was the case in 2009. Truck operations began August 18 and ceased on October 1. A total of 4,331,732 juvenile salmon and steelhead were collected in 2010, as compared with 3,784,658 in 2009 and 2,395,116 in 2008. Approximately 3,874,439 of the fish collected were bypassed back to the river to meet fishery agency requirements in 2010. A total of 447,252 juvenile fish were transported from McNary in 2010, as compared with the 448,833 transported in 2009 and the 425,743 transported in 2008.

A grand total of 11,912,807 juvenile salmon and steelhead were collected at all projects in 2010, compared to 16,743,094 in 2009 and 14,460,342 in 2008. A total of 7,622,895 fish were transported in 2010, 64 percent of those collected, compared with 52 percent in 2009. Of the fish transported, 7,447,369 were transported by barge (97.7 percent) and 175,526 were trucked (2.3 percent).

15. 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. (See table 30-B

for Authorizing Legislation of projects in the District.)

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 (Lake West) extends upstream approximately 28.7 miles and provides slack water to Little Goose. 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. 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 began in 1975 and was completed in 1981. Power generation through September 2010 was 109.7 billion kW hours.

Lake West offers seven day-use areas, five areas offering camping, five boat launch areas, and one designated swimming beach. There are 28 miles of the Northwest Discovery Trail. Total visitation on Lake West for the FY was 103,427.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.83 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 that amounted to 2,559,600 tons during calendar year 2010. The FY costs were $9,206,795. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY10:

- Awarded navigation lock gate replacement contract in the amount of $12.8 million.
- Completed fabrication of new gate.

The ARRA FY10 costs were $7,902,262. Total project costs are $7,968,658. (See table 30-A, Cost and Financial Statement.)

16. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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 and further habitat development. The project will compensate for loss of wildlife habitat and anadromous and resident fisheries due to impacts from the construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite).

The real estate design memorandum and feature design memorandums have been approved to include hatcheries, satellites, off-project wildlife lands, and site selection. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion and the Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions were completed in FY 04 for Big Canyon and Pittsburg Landing. Captain John Rapids was transferred in FY10. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100 percent complete. Habitat development continues at many of these sites. The WRDA 2007 amended the plan for woody riparian habitat to include aquatic restoration. Development has been initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in creation of new riparian and aquatic habitat areas. Construction was completed at Asotin Slough Habitat Management Unit in FY 09, and plans and specifications for Hells Gate Habitat Management Unit were completed in FY10. The compensation

project is contingent on appropriations and is currently scheduled for completion in FY 18.

Local Cooperation. None required.

Operations during FY. Estimated Federal cost for the project is $261,000,000. The FY construction costs were $1,516,701. Total project costs are $239,768,730. (See table 30-A, Cost and Financial Statement.)

17. 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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. 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 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 completed in 1982. Power generation through September 2010 was 348.95 billion kW hours.

Recreation areas on Lake Wallula include 19 day-use/picnic areas, 4 campgrounds, 14 boat launching ramps, and 9 swimming areas. There are 45 miles of the Northwest Discovery Water Trail. The Pacific Salmon Visitor Information Center at McNary, which is staffed by park rangers, provides a regional overview of Corps efforts in salmon recovery issues. Total visitation on Lake Wallula for the FY was 4,113,320.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 4.53 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 that amounted to 6,271,300 tons during calendar year 2010. The FY costs were $15,943,609. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY10:

- Completed rehabilitation and load testing for two navigation lock cranes.
- Completed installation of miscellaneous park amenities: picnic shelter, vault restrooms, drinking fountains, picnic tables, bleachers, etc.
- Completed contract for spillway gate rehabilitation repair.

The ARRA FY10 costs were $1,495,895. Total project costs are $1,615,643. (See table 30-A, Cost and Financial Statement.)

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

Location. This project is on the Snake River, downstream from Johnson Bar Landing, at 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. (See table 30-B for Authorizing Legislation of projects in the District.)

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, Lake Sacajawea; Little Goose, Lake Bryan; Lower Granite, Lower Granite Lake; Lower Monumental, Lake West; and open river improvement, Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual section, and cost and financial data for the entire project are shown on tables 30-A and 30-D.

Ice Harbor, Little Goose, Lower Granite, and Lower Monumental 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 has reached the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite was filled in February 1975.

Operations during FY. See individual sections for Ice Harbor, Little Goose, Lower Granite, and Lower Monumental. On the Snake River from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted, and survey markers were maintained.

19. RURAL IDAHO, ID, ENVIRONMENTAL INFRASTRUCTURE AND RESOURCE PROTECTION AND DEVELOPMENT PROGRAM

Location. Projects are at various locations within the state of Idaho.

Existing project. The primary objective of this program is to provide design and construction assistance to non-Federal interests for carrying out water-related environmental infrastructure and resource protection and development projects. Projects may include wastewater treatment and related facilities, water supply and related facilities, environmental restoration, and surface water resource protection and development. Projects are authorized under Section 595 of the WRDA 1999, PL 106-53, as amended.

Local cooperation. Local sponsors are responsible for 25 percent of costs associated with the projects.

Operations during FY. The following improvements were accomplished in FY10:

- For the Eastern Idaho Regional Wastewater Authority (EIRWWA), construction of the Oxbow Wastewater Treatment Plant with the City of Shelley, ID, was completed.
- Continued design of Eastern Interceptor Project with the City of Ammon, ID. This project is also tied to EIRWWA's Oxbow plant.
- Completed a value engineering study and design for Soda Springs, ID, wastewater treatment facility.
- Constructed element of storm water collection system for the City of Smelterville, ID.
- Completed design and initiated construction of Newdale, ID, drinking water system.
- Partnered with City of Filer, ID, for design reimbursement on their wastewater collection and treatment facility.
- Constructed collection line with South Fork Sewer District near Coeur d'Alene, ID. This element was funded by both FY10 and ARRA appropriations.
- Completed design of water and sewer line extensions for Albeni Falls (Oldtown) in partnership with west Bonner County, ID.
- Initiated design of wastewater collection for Benewah County, ID.

The FY10 construction costs were $2,430,864. (See table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplishments during FY10:

- Completed construction of one element of Eastern Interceptor Project with the City of Ammon, ID.

- Completed 90 percent of design and construction on wastewater treatment facility for City of Bliss, ID.

- Completed design and readied construction on wastewater treatment facility for City of Greenleaf, ID.

- Initiated design and construction on wastewater collection for City of Buhl, ID.

- Completed first phase and commenced second phase design on wastewater treatment facility for City of Lava Hot Springs, ID.

- Completed design of drinking water system for New Meadows, ID.

- Completed design of wastewater project with the Granite-Reeder Water and Sewer District in Nordman, ID.

The ARRA FY10 costs were $5,060,251. Total project costs are $5,060,251. (See table 30-A, Cost and Financial Statement.)

20. ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended): The FY costs were $287,831 for continuation of four environmental restoration projects and coordination account, including: (1) Bennington Lake Diversion Dam, WA ($117,028) (applies to the Mill Creek Diversion Dam); (2) Walla Walla River, WA (ARRA only); (3) Two Rivers, WA ($16,599); (4) Boise River at Eagle Island, ID ($139,201); and coordination account ($15,003). There were two new continuing Section 1135 projects and no new starts.

Operations during FY. ARRA: The following improvement was accomplished during FY10:

- Completed design review, plans, and specifications for contract to be awarded in FY 11 for Walla Walla River.

The ARRA FY10 costs were $12,762. Total project costs are $32,412.

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended): The FY costs were $202,109 for continuation of five aquatic ecosystem restoration projects and coordination account, including: (1) Camp Creek, OR ($9,512); (2) Paradise Creek, ID ($7,926); (3) Salmon River, ID ($40,628); (4) Ladd Marsh, OR ($471); (5) Twin Falls, ID ($128,570); and coordination account ($15,003).

Operations during FY. ARRA: The following improvements were accomplished during FY10:

- Paradise Creek, ID. Awarded design/build contract for the restoration in November 2009; design was completed April 2010; construction began May 2010. Construction 75 percent complete by September 30, 2010.

- Camp Creek, OR. Awarded construction contract; 85 percent of work completed.

- Salmon River, ID. Terminated study at request of sponsor.

- Twin Falls, ID. Recommended study.

- Ladd Marsh, OR. Completed project.

The ARRA FY10 costs were $2,882,028. Total project costs are $2,899,546.

Project modification for regional sediment management (Section 204, PL 102-560, as amended): The FY costs were $73,452 for a new sediment management project: (1) Snake River, ID ($73,452).

Investigations

21. 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; the states of Idaho, Oregon, and Washington; various cities and counties in those states; and some private organizations.

Total cost of collection and study of basic data during the FY was $125,154, which included: Flood Plain Management Services ($15,086); Technical Services ($20,055); Quick Responses ($4,959); and Special Studies ($85,054).

22. PRECONSTRUCTION, ENGINEERING, AND DESIGN

None.

23. SURVEYS

The total FY10 costs for surveys were $454,501, including Boise River ($147,919); special studies (Walla Walla River Watershed [$195,072]); miscellaneous activities (special investigations, FERC licensing activities, North American Waterfowl Management Plan, and Interagency Water Resource Development [$65,303]); coordination with other Federal agencies ($4,270); and Planning Assistance to States ($41,936).

Operations during FY. **ARRA:** The following improvements were accomplished during FY10:

- Boise River. Completed the update to the Hydrologic Engineering Center River Analysis System model used to delineate the floodplain along the Boise River, from the Diversion Dam downstream to the head of Eagle Island, located in Ada County, ID.

The ARRA FY10 costs were $136,419. Total project costs are $150,000.

Other Activities

24. SHORELINE PROTECTION

Beach Erosion Control project activities pursuant to Section 103, PL 874, 87th Congress, as amended (preauthorization): The FY costs were $30,192 for Section 103 coordination.

25. CATASTROPHIC DISASTER PREPAREDNESS

PL 93-228

Continuity of Operations (510)	$19,824
National Preparedness Planning (520)	0
Emergency Operations Center Support (530)	0
Catastrophic Disaster Training and Exercise (560)	0
Total Catastrophic Disaster Preparedness Program	$19,824

26. FLOOD CONTROL AND COASTAL EMERGENCIES (FCCE)

Flood Control work under authorized emergency flood control activities, flood fighting.

PL 84-99

Disaster Preparedness (100)	$467,244
Emergency Operations (200)	0
Rehabilitation and Inspection Program (300)	7,942
Drought Assistance (400)	0
Advance Measures (500)	0
Hazard Mitigation (600)	77,629
Total FCCE	$552,815

27. GENERAL REGULATORY

Permit Evaluation (100)	$1,521,627
Enforcement (200)	120,073
Studies (300)	0
Environmental Impact Statement (500)	0
Administrative Appeals (600)	0
Compliance – Authorized Activities (800)	84,528
Total Regulatory	$1,726,228

Operations during FY. ARRA (Permit): The following improvements were accomplished during FY10:

- The District developed and issued a new Statewide Regional General Permit for minor activities in Section 10 waters of Idaho (RGPI). The RGPI authorizes construction of small structures such as piers, floating docks, marine launch rails, mooring piles, and boat lifts.

- The District developed and implemented tribal protocols with each of the thirteen tribes with cultural, religious, or natural resource interests in Idaho.

- In addition to implementing improvements in consultation procedures, the District provided training to tribal members on the Regulatory Program, including permitting and enforcement.

- Regulatory Program Managers were introduced to tribal counterparts, other tribal contacts were identified for each tribe, and an increased focus has been placed on developing strong tribal/Corps relationships.

ARRA (Studies): The District has completed new work on the cumulative impact study (CIS) for impacts from activities authorized by Regional General Permit 27 on Lake Pend Oreille, ID. The CIS focuses on the impacts of near shore structures (e.g., piers, docks, and piling) on bull trout, Kokanee, and other fish species. The following improvements were accomplished during FY10:

- Awarded a contract for literature search and recommendations on research needs and priorities.

- Based on results from the first contract, worked collaboratively with other agencies to write a scope of work for a second contract to collect field data and provide a technical report.

- Awarded second contract with most work to be completed in FY 11.

The ARRA FY10 costs were $259,075 including: (1) Permits ($181,828); and (2) Studies ($77,248). Total project costs are $328,631.

TABLE 30-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY07 ($)	FY08 ($)	FY09 ($)	FY10 ($)	Total Cost 30-Sep-10 ($)	
3.	Jackson Hole, WY	New Work						
		Approp.	-	445,000	-	-	3,716,070	
		Cost	-	34,560	24,945	-	3,330,575	
		Maint.						
		Approp.	850,000	307,000	1,046,940	824,670	16,245,770	1/
		Cost	585,089	765,429	617,102	1,243,029	15,737,986	2/
	(Contributed funds)	Maint.						
		Contrib.	-	-	-	-	378,798	
		Cost	-	-	-	-	378,798	
4.	Little Wood, ID	New Work						
		Approp.	-	-	-	100,000	100,000	
		Cost	-	-	-	9,765	9,765	
5.	Lucky Peak Lake, ID	New Work						
		Approp.	-	-	-	-	19,652,081	
		Cost	-	-	-	-	19,652,081	
		Maint.						
		Approp.	1,744,000	1,551,000	1,638,560	2,455,110	42,732,870	
		Cost	1,737,494	1,618,050	1,663,087	1,990,005	42,113,723	
		Maint. ARRA						
		Approp.	-	-	169,000	(10,551)	158,449	
		Cost	-	-	67,813	90,636	158,449	
	(Contributed funds)	Maint.						
		Contrib.	-	-	-	30,000	30,000	
		Cost	-	-	-	30,000	30,000	
6.	Mill Creek, WA	New Work						
		Approp.	-	100,000	1,280,000	1,000,000	4,638,495	
		Cost	-	45,746	589,677	680,112	3,574,284	
		Maint.						
		Approp.	1,198,000	1,424,000	2,716,760	3,503,488	34,284,058	3/
		Cost	1,200,339	1,327,221	1,432,852	2,709,921	32,019,608	4/
		Maint. ARRA						
		Approp.	-	-	90,000	71,441	161,441	
		Cost	-	-	2,541	157,472	160,013	
		Rehab						
		Approp.	-	-	-	-	17,714,102	
		Cost	-	-	-	-	17,714,102	
8.	Tribal Partnership Program	New Work						
		Approp.	-	-	-	-	133,000	
		Cost	22,524	11,137	2,346	2,335	104,343	
10.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work						
		Approp.	45,000,000	34,220,000	27,436,000	15,900,000	691,630,000	
		Cost	46,370,514	32,643,221	33,986,278	17,184,695	684,573,520	

TABLE 30-A Continued COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY07 ($)	FY08 ($)	FY09 ($)	FY10 ($)	Total Cost 30-Sep-10 ($)	
11.	Dworshak Dam and Reservoir, ID	New Work						
		Approp.	-	200,000	640,000	1,000,000	329,322,196	
		Cost	-	140,690	504,555	732,138	328,859,579	
		New Work ARRA						
		Approp.	-	-	2,000,000	1,548,708	3,548,708	
		Cost	-	-	13,640	1,301,715	1,315,355	
		Maint.						
		Approp.	9,950,147	13,735,876	10,272,950	10,318,041	263,863,962	5/
		Cost	10,301,229	11,529,632	11,405,241	12,223,260	262,373,380	6/
		Maint. ARRA						
		Approp.	-	-	2,375,000	204,951	2,579,951	
		Cost	-	-	146,036	1,580,607	1,726,643	
	(Contributed funds)	Maint.						
		Contrib.	-	-	-	9,798	9,798	
		Cost	-	-	-	-	-	
12.	Ice Harbor Lock and Dam, WA	New Work						
		Approp.	-	-	-	-	210,249,757	
		Cost	-	-	-	-	210,249,757	
		Maint.						
		Approp.	8,351,749	8,524,415	9,989,820	10,467,210	258,317,587	
		Cost	9,256,732	9,071,540	9,449,744	9,771,619	255,954,169	
		Maint. ARRA						
		Approp.	-	-	3,734,000	14,500	3,748,500	
		Cost	-	-	217,909	3,490,583	3,708,492	
13.	Little Goose Lock and Dam, WA	New Work						
		Approp.	-	-	-	-	262,632,022	
		Cost	-	-	-	-	262,632,022	
		Maint.						
		Approp.	8,022,390	5,804,387	7,762,180	6,480,924	182,169,259	
		Cost	7,136,670	7,597,822	7,376,034	6,071,825	180,605,141	
		Maint. ARRA						
		Approp.	-	-	1,507,000	(684,500)	822,500	
		Cost	-	-	109,356	690,782	800,138	
14.	Lower Granite Lock and Dam, WA	New Work						
		Approp.	-	-	-	-	400,080,315	
		Cost	-	-	-	-	400,080,315	
		Maint.						
		Approp.	9,898,152	11,579,668	13,718,640	15,856,119	276,778,416	
		Cost	8,736,258	11,390,555	12,639,863	12,826,227	269,611,251	
		Maint. ARRA						
		Approp.	-	-	3,336,000	(390,441)	2,945,559	
		Cost	-	-	261,275	2,590,419	2,851,694	

TABLE 30-A Continued **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY07 ($)	FY08 ($)	FY09 ($)	FY10 ($)	Total Cost 30-Sep-10 ($)
15.	Lower Monumental Lock and Dam, WA	New Work Approp.	-	-	-	-	238,612,732
		Cost	-	-	-	-	238,612,732
		Maint. Approp.	8,950,072	8,776,940	9,589,170	7,504,066	205,919,445
		Cost	8,061,341	9,863,616	7,848,856	9,206,795	204,743,041
		Maint. ARRA Approp.	-	-	14,138,125	974,600	15,112,725
		Cost	-	-	66,396	7,902,262	7,968,658
16.	Lower Snake River Fish and Wildlife Compensation Plan WA, OR, and ID	New Work Approp.	850,000	375,000	1,435,000	1,417,000	241,103,000
		Cost	534,336	580,421	359,501	1,516,701	239,768,730
	(Contributed funds)	New Work Contrib.	-	-	-	-	223,965
		Cost	-	-	-	-	223,965
17.	McNary Lock and Dam, Lake Wallula, OR and WA	New Work Approp.	-	-	-	-	375,214,469
		Cost	-	-	-	-	375,214,469
		Maint. Approp.	15,639,490	13,534,382	14,793,392	17,502,145	451,009,307
		Cost	15,729,025	15,580,251	14,597,071	15,943,609	447,692,224
		Maint. ARRA Approp.	-	-	2,300,000	195,000	2,495,000
		Cost	-	-	119,748	1,495,895	1,615,643
	(Contributed funds)	Maint. Contrib.	-	-	-	-	43,707
		Cost	-	-	-	-	43,707
19.	Rural Idaho, ID, Environmental Infrastructure and Resource Protection and Development Program	New Work Approp.	3,200,000	3,814,000	4,350,000	3,288,000	21,183,900
		Cost	1,738,028	5,579,516	4,530,962	2,430,864	17,396,608
		New Work ARRA Approp.	-	-	8,447,500	292,500	8,740,000
		Cost	-	-	-	5,060,251	5,060,251

End Notes:

1/ Includes $750,000 under Category-Class-Subclass cod 70C, Continuing Resolution Authority (CRA) Supplemental.
2/ Includes $749,790 under Category-Class-Subclass cod 70C, CRA Supplemental.
3/ Includes $377,000 under Category-Class-Subclass cod 70C, CRA Supplemental.
4/ Includes $355,626 under Category-Class-Subclass cod 70C, CRA Supplemental.
5/ Includes $2,100,000 under Category-Class-Subclass cod 70B, War Supplemental.
6/ Includes $2,100,000 under Category-Class-Subclass cod 70B, War Supplemental.

TABLE 30-B		AUTHORIZING LEGISLATION	
See Section In Text	**Date Authorizing Act**	**Project and Work Authorized**	**Documents**
4.		**LITTLE WOOD RIVER, ID**	
	Nov 8, 2007	Rehabilitate the Gooding Channel project for flood control and ecosystem restoration.	Sec. 3057, PL 110-114
5.		**LUCKY PEAK LAKE, ID**	
	Jul 24, 1946	Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976	Second outlet for stream flow maintenance. De-authorized in 1990.	PL 94-587
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
6.		**MILL CREEK, WALLA WALLA, WA**	
	Jul 28, 1938 as amended	Off-stream storage project upstream from Walla Walla.	H. Doc. 578, 75th Cong., 3rd Session
	Aug 18, 1941	Channel improvement through Walla Walla; concrete-lined channel.	H. Doc. 719, 76th Cong. Sec. 377, PL 77-228, Cong. 3rd Session
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec. 118 PL 102-580 102nd Cong.
10.		**COLUMBIA RIVER FISH MITIGATION PROGRAM**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
11.		**DWORSHAK DAM AND RESERVOIR, ID**	
	Jul 3, 1958	Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
	Aug 15, 1963	Redesignation of project as Dworshak Dam and Reservoir.	PL 88-96
	Oct 23, 1962	Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were de-authorized in FY 1990. Unit 4 was de-authorized in FY 95.	PL 87-874
12.		**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
13.		**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
14.		**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

TABLE 30-B (Continued)		AUTHORIZING LEGISLATION	
See Section In Text	**Date Authorizing Act**	**Project and Work Authorized**	**Documents**
15.		**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
16.		**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
17.		**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 de-authorized on Nov 16, 1991.	H.R. 6, PL 99-662 Sec. 1001, PL 99-362
18.		**SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID**	
	Jun 13, 1902	Open-river navigation Riparian to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparian.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation, mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session

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

Project		
Dworshak Dam and Reservoir, ID (see Section 11 of text)	**SPILLWAY DAM**	
	Type of Construction	Concrete Gravity
	Completed	September 1974
	Maximum Capacity	150,500 cfs[1/]
	Crest Elevation	1,545 ft[2/]
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 56.4 ft
	Number	2
	POWERPLANT	
	Length	428 ft
	Generating Units:	
	Number Installed	3
	Rating, Each	2 @ 90,000 kW[3/] 1 @ 220,000 kW
	Total Capacity Installed	400,000 kW
	Space for Additional	3
	Rating, Each	3 @ 220,000 kW
	Total Potential Capacity	1,060,000 kW
	Maximum Structural Height	717 ft
	First Power-On-Line	March 1973
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	1,600 to 1,445 ft
	Maximum	1,605 ft
	Flood Control Storage	2,000,000 ac-ft[4/]
	Lake Length	53.6 mi[5/]
	Lake Water Surface Area at Elevation 1,600	17,090 ac[6/]
	Length of Shoreline	175 mi
Ice Harbor Lock and Dam, WA (see Section 12 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	675 ft
	Lift:	
	Minimum	97 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	16 ft
	Open to Navigation	May 1962
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1962
	Maximum Capacity	850,000 cfs
	Crest Elevation	391 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 52.9 ft
	Number	10

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

Project		
	POWERPLANT	
	Length	671 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	3 @ 90,000 kW 3 @ 111,000 kW
	Total Capacity Installed	603,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	December 1961
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	440 to 437 ft
	Maximum	446 ft
	Lake Length	31.9 mi
	Lake Water Surface Area at Elevation 440	8,375 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	80 mi
Little Goose Lock and Dam, WA (see Section 13 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	668 ft
	Lift:	
	Minimum	93 ft
	Average	98 ft
	Maximum	101 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1970
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1970
	Maximum Capacity	850,000 cfs
	Crest Elevation	581 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	March 1970

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

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

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

Project		
Lower Monumental Lock and Dam, WA (see Section 15 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 17 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	683 ft
	Lift:	
	Minimum	67 ft
	Average	75 ft
	Maximum	83 ft
	Minimum Water Depth Over Sills	15 ft
	Open to Navigation	November 1953

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

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

[1/] cubic feet per second
[2/] feet
[3/] kilowatt
[4/] acre-feet
[5/] miles
[6/] acres

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

TABLE 30-D **(SEE SECTION 18 OF TEXT)**

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2010 Approp.	New Work to September 30, 2010 Cost	Maintenance to September 30, 2010 Approp.	Maintenance to September 30, 2010 Cost	Percent Compl.	Constr. Started
Ice Harbor Lock and Dam							
Initial Project	$374,617,095	$172,587,480	$172,587,480	$262,066,087	$259,662,661	115	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	90,730,813	90,730,813	0	0	103	FY 91
Totals	500,364,372	300,980,570	300,980,570	262,066,087	259,662,661	112	
Little Goose Lock and Dam							
Initial Project	342,480,476	201,690,215	201,690,215	182,991,759	181,405,279	112	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	75,198,134	75,198,134	0	0	88	FY 89
Totals	488,930,283	337,830,156	337,830,156	182,991,759	181,405,279	106	
Lower Granite Lock and Dam							
Initial Project	555,186,593	353,803,981	353,803,981	279,723,975	272,462,945	113	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	40,063,996	40,063,996	0	0	68	FY 88
Totals	660,082,927	440,144,311	440,144,311	279,723,975	272,462,945	108	
Lower Monumental Lock and Dam							
Initial Project	339,994,773	186,951,361	186,951,361	221,032,170	212,711,699	118	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	83,149,923	83,149,923	0	0	92	FY 90
Totals	481,790,144	321,762,655	321,762,655	221,032,170	212,711,699	111	
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	2,131,202,339	1,400,752,305	1,400,752,305	946,219,924	926,648,517	109	
Previous Projects Pasco to Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	$2,131,602,489	$1,401,152,455	$1,401,152,455	$946,406,494	$926,835,087		

Table 30-E **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS (SEE SECTION 2 OF TEXT)**

Location	Project Name	Appropriation	Date Inspected
IDAHO			
Blackfoot River	Blackfoot #1 System P	ARRA	Jun-10
	Blackfoot #1 System Q	ARRA	Jun-10
Burnt River	Huntington	ARRA	Apr-10
Clearwater River	Cottonwood Church	ICW	Oct-10
	Culdesac	ARRA	Mar-10
	Kooskia MF	ARRA	May-10
	Kooskia SF	ARRA	May-10
	Lawyers Creek	ARRA	Mar-10
	Nez Perce	ICW	Sep-10
	Orofino	ARRA	Mar-10
	Orofino Creek	ARRA	Mar-10
	Slickpoo (St. Joseph)	ARRA	Mar-10
Little Wood River	Gooding Diversion	ARRA	Jun-10
Payette River	Emmett Sewage Lagoon	ARRA	Apr-10
Potlatch River	Bear Creek	ARRA	May-10
	Kendrick	ARRA	May-10
Salmon River	Tomanovich (City Section)	ARRA	Jun-10
Snake River	Heise Bridge	ICW	Aug-10
	Heise-Roberts - P	ARRA	Aug-10
	Heise-Roberts - Q	ARRA	Aug-10
	Heise-Roberts - R	ARRA	Aug-10
	Lyman Creek - P	ARRA	Jun-10
	Lyman Creek - Q	ARRA	Jun-10
OREGON			
Grande Ronde River	Union	ICW	Sep-10
Malheur River	Vale Sewage Lagoon	ARRA	Apr-10
	Vale Unit - P	ARRA	Apr-10
	Vale Unit - Q	ARRA	Apr-10
	Vale Unit - R	ARRA	Apr-10
Snake River	Annex	ICW	Sep-10

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS
Table 30-E Continued **(SEE SECTION 2 OF TEXT)**

Location	Project Name	Appropriation	Date Inspected
OREGON (Continued)			
Wallowa River	Weaver Bridge	ARRA	Apr-10
WASHINGTON			
Columbia River	Ezquatzel Coulee	ARRA	Feb-10
	Ezquatzel Coulee Side Drainage	ARRA	Feb-10
	Zintel Canyon	ICW	Sep-10
Palouse River	Colfax #1	ARRA	Aug-10
	Colfax #2	ARRA	Aug-10
Touchet River	Dayton - P	ARRA	Feb-10
	Dayton - Q	ARRA	Feb-10
	Waitsburg	ARRA	Mar-10
Tucannon River	Camp Wooten	ARRA	Mar-10
	Pomeroy #1	ICW	Sep-10
	Pomeroy #2	ICW	Sep-10
Walla Walla River	Mill Creek - P	ARRA	Jul-10
	Mill Creek - Q	ARRA	Jul-10
	Mill Creek Levee Extension	ARRA	Feb-10
Yakima River	West Richland	ARRA	Jun-10