

Third Annual Report to the Northwest Governors on Expenditures of the Bonneville Power Administration

to Implement the Columbia River Basin Fish and Wildlife Program
of the Northwest Power and Conservation Council

1978 - 2002



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Executive Summary

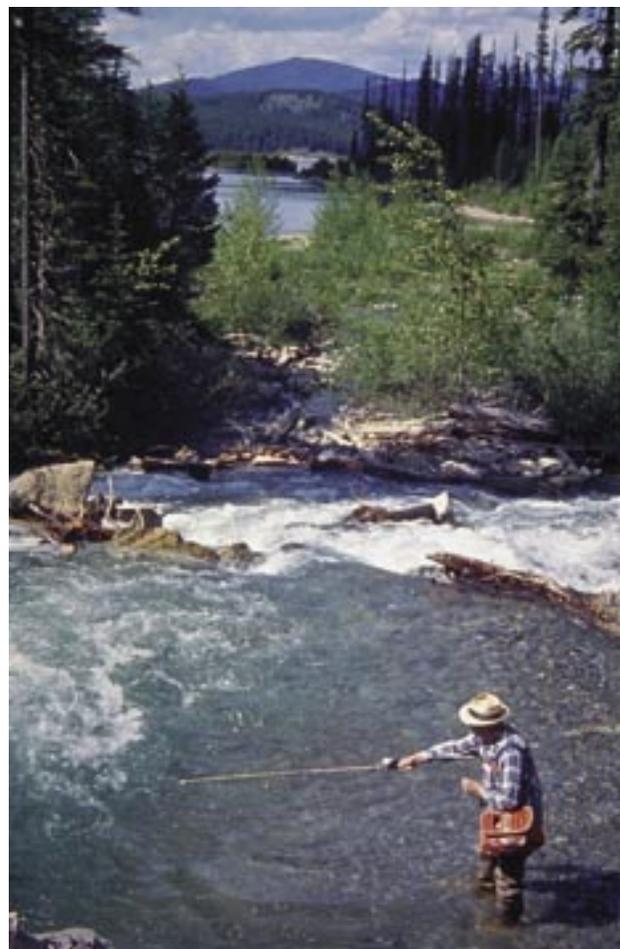
In Fiscal Year 2002, the Bonneville Power Administration spent a total of \$412.3 million including \$160.4 million in hydropower operations, on Columbia River Basin fish and wildlife. This brings the grand total of Bonneville's fish and wildlife expenditures, 1978-2002, to \$6,181,500,000.

These expenditures, which were provided to the Council by Bonneville and are detailed in Appendix A of this report, include:

- \$1.15 billion (\$137.1 million in 2002) for the Council's direct program.
- \$10 million (\$7.1 million in 2002) in one-time expenditures for "high priority" and "action plan" projects. The high-priority projects were intended to bring immediate benefits to all species listed for protection under the Endangered Species Act in advance of subbasin planning. The "action plan" projects were intended to bring immediate benefits to ESA-listed salmon and steelhead that were affected by altered hydropower dam operations in the spring and early summer of 2001.
- \$634 million (\$51.1 million in 2002) to reimburse the U.S. Treasury for the power-generation share of other federal agency costs to mitigate the impact of hydropower on fish and wildlife. Primarily these reimbursements are paid to the U.S. Army Corps of Engineers, Bureau

of Reclamation, and U.S. Fish and Wildlife Service for efforts to improve fish and wildlife survival apart from the Council's program, such as operation and maintenance of fish passage facilities and federal fish hatcheries.

- \$1.01 billion in fixed expenses (interest, amortization and depreciation) for bonds issued by Bonneville to the US Treasury, and for Corps and Reclamation appropriations that BPA repays to Treasury, to pay for both capital offsite mitigation in the region and for capital investments at the dams.
- \$2.27 billion (\$147.8 million in 2002) for power purchases to meet load requirements in response to required river operations that reduce hydropower generation.
- \$1.1 billion (\$12.6 million in 2002) in forgone revenue, the calculated value of hydropower that could not be sold because of required river operations to assist fish passage and improve fish survival, such as water spills at the dams.



Background

In July 1999, the Governors of Idaho, Montana, Oregon and Washington asked the Northwest Power and Conservation Council to begin reporting annually on expenditures of the Bonneville Power Administration to implement the Council's Columbia River Basin Fish and Wildlife Program.

All of the expenditure data in this report was provided by Bonneville and was not independently verified by the Council. Questions about the data should be directed to Bonneville.

This is the Council's third annual report. It provides an update of expenditures through Fiscal Year 2002 and also includes information on salmon and steelhead in the Columbia River Basin. For the last several years, adult fish returns have continued to be especially strong, well above recent 10-year averages.

The Northwest Power Act and the Northwest Power and Conservation Council

The Northwest Power Act of 1980, a federal law, authorized the states of Idaho, Montana, Oregon and Washington to form the Northwest Power and Conservation Council (it was known until 2003 as the Northwest Power Planning Council). The Act directs the Council to prepare a program to protect, mitigate and enhance fish and wildlife of the Columbia River Basin that have been affected by hydropower. The Act also

directs the Administrator of the Bonneville Power Administration, the federal agency that sells electricity generated at federal dams in the Columbia River Basin, to use the Bonneville fund in a manner consistent with the Council's program. The Council has amended its program periodically since 1982, when the first program was adopted. The current program was adopted in October 2000 and amended in July 2003 with a description of mainstem river conditions and tests of dam operations intended to protect all fish and wildlife that utilize mainstem rivers as habitat.

The Columbia River Basin Fish and Wildlife Program

The Council is a planning, policy-making and reviewing body. Consistent with the Northwest Power Act, the Council develops the fish and wildlife program and monitors its implementation. The program is implemented primarily by Bonneville but also by the region's fish and wildlife agencies and tribes, the U.S. Army Corps of Engineers, the Bureau of Reclamation and the Federal Energy Regulatory Commission and its licensees.

The program directs scientific research, habitat protection, including acquisitions and easements, construction projects to improve habitat and fish passage, hatchery development and operation, and also establishes certain reservoir elevations and flow requirements to protect anadromous and resident fish and their habitat. Other

measures call for using stored water to maintain appropriate water temperatures and protect streambeds.

The program addresses hydropower impacts on anadromous fish, resident fish and wildlife. Anadromous fish are those that spawn in freshwater, migrate to the Columbia River estuary as juveniles, spend their adult lives in the Pacific Ocean and then return to their freshwater birthplaces to spawn and die. Resident fish are those that live and migrate within freshwater rivers, streams and lakes.

Anadromous fish, primarily salmon and steelhead, once spawned as far inland as the headwaters of the Columbia River in British Columbia and Shoshone Falls in south central Idaho,

but their historic range was reduced by hydroelectric dams that did not include fish passage facilities. Today, the mainstem Columbia River is blocked by Chief Joseph Dam, the Snake River is blocked by Hells Canyon Dam and the North Fork Clearwater River is blocked by Dworshak Dam. The Council's fish and wildlife program directs numerous projects to improve spawning and rearing habitat for anadromous fish, both in the mainstem rivers and in tributaries. Between 1978 and 2002, Bonneville's spending on anadromous fish totaled \$1.04 billion (\$109.4 million in 2002).

The number of adult anadromous fish returning from the ocean to spawn in the Columbia River Basin was well above 10-year averages in 2001 and 2002.



There is no apparent single cause for the improved runs, but juvenile survival of these runs must have been high and ocean conditions must have been favorable. As shown in Figure 8, the North Pacific Ocean is entering a cool-water cycle, and that is good news for Columbia basin salmon and steelhead. Cool water tends to improve food production for salmon and steelhead. Observations at Columbia and Snake dams suggest that the percentage of naturally spawning fish, as compared to fish that were spawned in hatcheries, appears to be increasing among the adult runs, and that is another piece of good news. We report information on Columbia River salmon and steelhead runs in Figures 7 through 13.

Resident fish, which exist throughout the basin, also were affected by hydropower dams. The dams altered river

flows, inundated spawning and rearing areas and blocked natural migration patterns. Through the Council's program, resident fish are produced to compensate for losses of salmon and steelhead in areas permanently blocked by hydropower dams, and also to mitigate for impacts to native resident species. This is accomplished through the construction and operation of fish hatcheries, such as the trout and kokanee hatcheries in Lake Roosevelt behind Grand Coulee Dam, as well as habitat improvements to benefit native fish populations. These improvements provide important and valuable tribal subsistence and public recreational fisheries.

An effort also is being made to conserve the endangered white sturgeon in the Kootenai River in Idaho, in conjunction with fish and power agencies in British Columbia where sturgeon

spend a portion of their lives. This is one example of a project that addresses a transboundary species whose habitat crosses the border with British Columbia. We anticipate more transboundary projects will be funded or co-funded through the Council's program in the future as we continue to increase our collaboration with entities and people in British Columbia through planning activities in northwestern Montana and northern Idaho and Washington.

The Council finds that mitigation in areas blocked to salmon and steelhead by the development and operation of the hydropower system is appropriate, and flexibility in the approach utilized for mitigation is necessary. The Council's resident fish substitution policy calls for restoring native and resident fish species (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where original habitat conditions exist and where habitats can be feasibly restored. The policy also calls for taking actions to reintroduce anadromous fish into areas blocked by dams, such as above Chief Joseph and Grand Coulee dams, where feasible, and for administering and increasing opportunities for consumptive and non-consumptive resident fisheries for native, introduced, wild and hatchery-reared stocks that are compatible with the continued persistence of native resident fish species. This includes intensive fisheries within closed or isolated systems and recreational fisheries such as those in northeastern Washington and northwestern Montana.

As shown in Table 3 of Appendix A, between 1978 and 2002 Bonneville's

spending for resident fish totaled \$164,830,174 (\$16,802,480 in 2002).

Wildlife also were affected by the development of the Columbia River Basin hydropower system. In some areas, important floodplain and riparian habitats were inundated; in other places, fluctuating water levels caused by dam operations continually flood and expose the shoreline, creating barren vegetation zones that reduce foraging areas and expose wildlife to increased predation. Other activities related to the construction and operation of the hydropower system also affected wildlife, such as road construction, draining and filling of wetlands, stream channelization and ongoing dam operations.

Through the Council's program, wildlife losses attributable to construction of the dams were identified. Losses attributable to dam operations remain to be quantified. Mitigation for the losses is measured in terms of "habitat units" in order to account for habitat quantity (acres) as well as quality. When property is acquired for wildlife mitigation purposes, it is evaluated for its suitability to provide food, shelter and reproductive conditions for various species. This suitability is expressed in habitat units. Habitat units are calculated by multiplying a measure of habitat quality for a selected species by the area of available habitat.

The Council and Bonneville worked with the region's wildlife managers and Indian tribes to develop a system of crediting habitat acquisitions against the losses. Taken together, acquired and enhanced acres are counted as



mitigation against losses. Habitat unit gains, which can result when inundation of reservoirs creates new habitat for certain species, are estimated separately from losses. Bonneville estimates the development of the hydrosystem caused a total loss of 404,567 habitat units for all affected species. From this total, Bonneville subtracts habitat unit gains of 53,487 for a net loss of 351,080.

Habitat unit losses and acquisitions are presented in Figures 14A-D, 15, 16A and B and Figure 17, and corresponding tables in Appendix A. Bonneville reports that through Fiscal Year 2002, 160,145 habitat units were acquired through acquisitions of habitat or habitat-protection agreements. An additional 11,285 habitat units have been estimated for the property acquired but not yet credited to losses for specific species. Bonneville's wildlife spending from 1978 through 2002 totals \$149,642,366 (\$10.4 million in Fiscal Year 2002).

The Council and Bonneville are continuing to discuss how to accurately credit acquired habitat units against identified losses. In 2003, the Council and Bonneville began developing a long-term financial plan for wildlife. This discussion raised several issues that have yet to be resolved regarding crediting acquired habitat units against

identified losses. Wildlife habitat purchases can be expensive, and in the past Bonneville has used its capital borrowing authority to buy land when it is necessary for certain projects, such as construction of a fish hatchery. The Council has recommended that Bonneville use its borrowing authority to buy wildlife habitat, as well, in order to reduce the annual costs of these purchases. A policy for capitalizing wildlife habitat purchases is under discussion as part of the long-term financial plan.

Project Reviews and Subbasin Planning

Through an annual process since 1996, the Council and Bonneville solicit projects to implement the program. The Council submits project proposals for review by the Columbia Basin Fish and Wildlife Authority,¹ the Independent Scientific Review Panel² and the general public and then recommends projects to Bonneville for funding.

In 2003, the Council transitioned from an annual cycle for project review and recommendation to a three-year cycle and also worked with state and federal fish and wildlife agencies, Indian tribes and watershed-based citizen organizations to develop comprehensive plans for the tributary

subbasins of the Columbia River.³ Future project solicitations, review and recommendations will be based on these plans, which the Council anticipates completing and amending into the fish and wildlife program by 2005.

Two ways of reporting costs

Bonneville reports its fish and wildlife expenditures in two formats: 1) obligations: money that is committed to a particular purpose in a particular year, and 2) accruals: invoices received in a given year. Thus, an amount obligated in one year may be spent in installments over several years. For the figures in this report, Bonneville provided obligations for some expenses and accruals for others. Figures 1 and 2, total spending 1978-2002, and the corresponding table in Appendix A are reported as accruals. All of the other figures and tables are reported as obligations.

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- ¹ The Authority is an association of state and federal fish and wildlife agencies and the 13 Indian tribes in the Columbia River Basin. The Authority coordinates planning and implementation of fish and wildlife management issues among its members.
 - ² The Independent Scientific Review Panel was created by the Council in response to a 1996 amendment to the Northwest Power Act that called for greater scientific scrutiny and public accountability of expenditures through the Council's program. The 11 members of the Panel are nominated by the National Academy of Sciences and appointed by the Council.
 - ³ Subbasin plans are being developed for the purpose of identifying fish and wildlife mitigation needs and directing project solicitation, review and implementation.

