



FOURTH 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 - 2003





U.S. Army Corps of Engineers

Detroit Lake on Oregon's North Santiam River, in the shadow of Mount Jefferson, is an example of the multiple uses of rivers and dams in the Columbia River Basin — recreation, flood control, and hydro-power generation.

EXECUTIVE SUMMARY

For Fiscal Year 2003, the Bonneville Power Administration reported total costs of \$506.8 million for its Columbia River Basin fish and wildlife activities. This brings the grand total, 1978-2003, to \$6.84 billion. That amount does not reflect \$1.02 billion Bonneville has received since 1995 for a portion of its expenditures to improve fish passage at dams. The credit, which is explained on page 6 of this report, effectively reduces the grand total to \$5.82 billion.

These costs, which were supplied to the Council by Bonneville and not independently verified by the Council, are detailed in the Appendix of this report.

- \$1,437,754,000 on fish and wildlife (\$140.7 million in 2003), which includes \$1,096,601,000 on anadromous fish projects; \$183,690,000 on resident fish (those that don't swim to the ocean); and \$157,463,000 on wildlife.
- \$16,500,000 (\$6.5 million in 2003) for "high priority" and "action plan" projects identified by Bonneville. The high-priority projects were intended to bring immediate benefits to all species listed for protection under the Endangered Species Act in advance of the 2000 NOAA Fisheries Biological Opinion on hydropower operations. Draft subbasin plans were submitted to the Council in May 2004 and, after public and scientific review, amended into the fish and wildlife program in late 2004 and early 2005. The "action plan" projects were intended to bring immediate benefits to ESA-listed salmon and steelhead, as well as other non-listed fish populations, that were affected by altered hydropower dam operations in the spring and early summer of 2001 to offset impacts caused by drought.

- \$634,100,000 (\$52.6 million in 2003) 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. Since 1997, Bonneville has funded these investments directly rather than reimbursed the Treasury for them.
- \$1,034,300,000 (\$56.7 million in 2003) in payments for bonds issued by Bonneville to pay for capital investments to improve fish passage at the dams.

The spending amounts in this report were supplied by the Bonneville Power Administration at the Council's request and were not independently verified by the Council or any other party.

- \$2,317,900,000 (\$171.1 million in 2003) for power purchases to replace hydropower that could not be generated because of legally required river operations that protect migrating fish but reduce hydropower generation.
- \$1,205,400,000 (\$79.2 million in 2003) in forgone revenue, the calculated value of hydropower that could not be sold because of river operations to assist fish passage and improve fish survival, such as water spills at the dams. Fish passage was not the only source of forgone revenue. See page 6 of this report.



Peter Lewellyn

The Western Meadowlark is one of the species whose habitat was affected by the construction and operation of hydropower 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. This is the Council's fourth annual report. It provides an update through Fiscal Year 2003 and also includes information on salmon and steelhead in the Columbia River Basin. Information in this report was supplied by Bonneville in response to requests from the Council.

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 the construction and operation of the hydropower system. The Act also directs the Administrator of the Bonneville Power Administration, the federal agency that sells electricity generated at 31 federal dams and one non-federal nuclear plant in the Columbia River Basin, to use the Bonneville fund in a manner consistent with the Council's program to protect, mitigate and enhance fish and wildlife.

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 recommends scientific research; habitat protection, including acquisitions and easements;¹ and construction projects to improve habitat and fish passage, and hatchery development and operation. The program 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.

In its 2000 Fish and Wildlife Program, the Council established a vision and biological objectives for the program. The vision is a Columbia River ecosystem that sustains an abundant, productive and diverse community of fish and wildlife, mitigating across the basin for the adverse effects of the hydrosystem and providing the benefits from fish and wildlife valued by the people of the region. Biological objectives describe the conditions that are needed to reach the vision, consistent with scientific principles. The pro-

¹ Habitat acquisitions are credited against identified habitat losses attributable to the construction of hydropower dams. The crediting unit is called a "Habitat Unit," which is a measure of both the quantity and quality of the acquired site and, thus, its suitability for targeted species. In 2004, the Council and Bonneville continued negotiations that began in 2003 over two important issues: 1) whether, and if so how, to change the formula for calculating habitat unit acquisitions against identified losses, and 2) whether Bonneville should use its capital borrowing authority to acquire habitat.

gram will fulfill the vision by achieving the biological objectives. The objectives are described in subsection C of the Basinwide Provisions section of the program, which is posted on the Council's website, www.nwcouncil.org.

Since 1996, the Council and Bonneville together have solicited projects to implement the program. The Council submits project proposals for review by the Columbia Basin Fish and Wildlife Authority,² the Independent Scientific Review Panel³ and the general public and then recommends projects to Bonneville for funding. The Council also requests NOAA Fisheries and the U.S. Fish and Wildlife Service to provide input on projects required to meet their Endangered Species Act obligations. CBFWA annually reports on project accomplishments. Reports for 2004 and 2005, "Columbia Basin Fish and Wildlife Program Rolling Provincial Review Implementation," are posted on the CBFWA website, www.cbfwa.org.

In May 2004, the Council received 59 draft sub-basin plans that were developed over nearly a two-year period by local entities, state and federal fish and wildlife agencies, and Indian tribes to assess environmental conditions and fish and wildlife populations in tributary subbasins throughout the Columbia River Basin. As the Council amends subbasin plans into the fish and wildlife program, they will be used to guide the solicitation, review and recommendation of projects to implement the program.

2 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.

3 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.

FISCAL YEAR 2003 EXPENDITURES, BY CATEGORY

Direct program expenditures

Direct program projects are those that are reviewed by the ISRP and CBFWA and then recommended to Bonneville by the Council.

For 2003, Bonneville reported direct-program costs of \$152.3 million.⁴ Habitat projects accounted for \$39.4 million or 25.9 percent of the total; fish production accounted for \$34.9 million or 22.9 percent; expenditures related to mainstem survival of fish in the Columbia and Snake rivers totaled \$3.6 million or 2.3 percent⁵; and fish harvest programs accounted for \$1.9 million, or 1.2 percent. Bonneville also reported direct program costs of \$32.6 million for research and evaluation, or 21.4 percent of the total; \$20.9 million or 13.7 percent for monitoring; \$6.4 million or 4.2 percent for regional coordination efforts related to the fish and wildlife program, such as the work of the Columbia Basin Fish and Wildlife Authority; and \$12 million or 7.9 percent for Bonneville's internal program support.

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.

In 2003, Bonneville's costs attributed to anadromous fish totaled \$105.3 million, spending on resident fish totaled \$22.7 million, and spending on wildlife totaled \$7.6 million. These total \$135.6 million, which is \$16.4 million less than the total. External fish and wildlife program support (\$4.4 million in 2003) includes costs such as data management, coordination and information to support all programs. Internal program support (\$12 million in 2003) includes contracts for program review and independent analysis of the program, and Bonneville's overhead and personnel costs.

Bonneville obligated \$152.3 million to fish and wildlife in 2003. Anadromous fish costs accounted for 69 percent of the total, resident fish expenditures accounted for 14.9 percent, external and internal program support accounted for 10.8 percent, and wildlife expenditures accounted for 5 percent.⁶

Power purchases

Measures in the Council's program and in the 2000 Biological Opinions on Hydropower Operations

4 Bonneville reported these amounts as "obligations," or planned spending amounts. Actual expenditures, detailed in Table 1 and 2, page 25, were lower.

5 These do not include expenditures on fish passage facilities at the federal dams, which are reported separately in the "reimbursable" category and are not funded through the Council's direct program.

6 Through the Council's program, wildlife losses attributable to construction of the dams were identified. Losses attributable to dam operations remain to be quantified. 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 result when inundation of reservoirs creates new habitat for certain species, are estimated and subtracted from total losses to calculate net losses. Bonneville estimates the development of the hydrosystem caused a total loss of 404,567 habitat units for all affected species. There were compensating habitat unit gains of 53,487, leaving a net loss of 351,080 habitat units. Bonneville reports that through Fiscal Year 2003, 160,145 habitat units have been acquired through acquisitions of habitat or habitat-protection agreements. An additional 11,285 habitat units have been acquired but not yet credited to losses for specific species. That leaves 190,935 habitat units left to mitigate, although the total could be higher to the extent mitigation exceeded losses in some areas. See Table 14C in the appendix of this report.

issued by NOAA Fisheries and the U.S. Fish and Wildlife Service can affect hydropower generation. These include river and dam operations to assist juvenile fish passage. To make up the lost generation when these operations occur, Bonneville often buys electricity from other suppliers. These purchases are part of Bonneville's larger wholesale power purchases. Bonneville buys power from other suppliers when the federal power system can't produce all the power Bonneville's customers need.

To determine how much of its power purchases to attribute to lost hydropower, Bonneville performs annual calculations of its total power purchases — one that includes the fish passage operations and one that does not. Bonneville attributes the difference in power purchases to the fish requirements and, therefore, identifies them as fish and wildlife cost. In 2003, Bonneville identified power purchases totaling \$171.1 million as fish and wildlife costs.

Forgone revenue

River and dam operations can result in lost income for Bonneville. The budget term for the lost income is forgone revenue. To determine forgone revenue, Bonneville calculates the net value of the hydropower revenues lost as a result of fish operations on an annual basis. Bonneville considers forgone revenue as a fish and wildlife cost. In 2003, Bonneville calculated forgone revenue of \$79.2 million.

Reduced hydropower generation is the primary cause of forgone revenue, but other uses of the river system also take water away from power generation. The dams of the Federal Columbia River Power System were authorized for multiple purposes in addition to hydropower. These include irrigation, navigation, recreation and, at some dams, flood control. Collectively the non-power uses of the dams account for 22.3 percent of their authorized purposes, and hydropower accounts for 77.7 percent.⁷

In the Northwest Power Act, Congress declared that anadromous fish “are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation” and that these fish “are dependent on suitable environmental conditions substantially obtainable from the management and operation” of dams on the Columbia River and its tributaries. In the Act, Congress also established a crediting system for Bonneville, which allows the agency to pay all of the costs of mitigating the impact of federal dam operations on fish and wildlife and then receive a credit against its annual debt-service payment to the U.S. Treasury for the 22.3 percent attributable to non-power uses. Bonneville takes credits in two categories of expenditures, the direct program and replacement power purchases. In 2003, Bonneville calculated a total credit of \$114.1 million. This brought to \$1.02 billion the amount of credit Bonneville has taken for fish-related expenses since 1995, when the credits first were taken.

⁷ The largest of the non-power uses is irrigation, which accounts for net water withdrawals from the Columbia/Snake river system of about 14.4 million acre-feet of water annually. According to a Council analysis, this volume of water, were it left in the river and used to generate hydropower instead of being withdrawn for irrigation, would yield about 625 average megawatts of electricity (that is, averaged across all 12 months) with a value of about \$145 million per year (this calculation assumes an annual average value for wholesale electricity of \$28 per megawatt-hour).

High-priority and action plan projects

In 2001, 2002, and 2003, Bonneville provided funding for what it determined to be “high priority” and “action plan” projects implemented to deliver on-the-ground, immediate biological benefits to threatened and endangered fish. “High priority” projects were intended to bring immediate benefits to species affected by hydropower and listed for protection under the Endangered Species Act. The intent was to “jump-start” implementation of the 2000 Biological Opinion and the Colum-

bia Basinwide Salmon Recovery Strategy. “Action plan” projects were intended to bring immediate benefit to anadromous fish — ESA-listed as well as unlisted species — directly affected by emergency hydropower operations that were imposed during the drought year of 2001. That year, Bonneville declared a power emergency, consistent with provisions in the 2000 Biological Opinion, and sharply reduced the amount of water spilled over dams during the spring and early summer salmon and steelhead migration period in order to keep water in reservoirs for power

generation. Most juvenile fish were barged downriver, but fish entering the river below McNary Dam cannot be collected for barge transportation. The reduced spill primarily affected these fish but also affected those from farther upriver that were not collected for transportation. In 2001, Bonneville allotted \$2.9 million to high-priority and action plan projects; in 2002, the amount was \$7.1 million, and in 2003 the amount was \$6.5 million.



U.S. Army Corps of Engineers

Lower Granite Dam, here spilling water to aid juvenile fish passage, is one of four federal dams on the lower Snake River

Endangered Species Act Status of Columbia River Basin Fish Populations

Species	Status	Date listed
Sockeye, Snake River	Endangered	1991
Chinook, Snake River Fall-run	Threatened	1992
Chinook, Snake River Spring/Summer-run	Threatened	1992
White Sturgeon, Kootenai River	Endangered	1994
Steelhead, Upper Columbia	Threatened	1997
Steelhead, Snake River Basin	Threatened	1997
Steelhead, Lower Columbia River	Threatened	1998
Bull Trout, Columbia Basin	Threatened	1998
Chinook, Lower Columbia River	Threatened	1999
Chinook, Upper Willamette River	Threatened	1999
Chinook, Upper Columbia River Spring-run	Endangered	1999
Chum, Columbia River	Threatened	1999
Steelhead, Upper Willamette	Threatened	1999
Steelhead, Middle Columbia River	Threatened	1999
Coho, Lower Columbia	Threatened	2004



Jeff Pierson

The Snake River canyon near Twin Falls, Idaho.

FISCAL YEAR 2003 SPENDING ISSUES

In these annual reports, the Council includes updated information on key issues related to funding and implementing the fish and wildlife program. Here is a brief review of current issues:

Budget formulation in response to Bonneville's financial crisis

In early December 2001, Bonneville Administrator Steve Wright told the Council Bonneville would increase spending to implement the program and the 2000 Biological Opinions during the current rate period to target an average of \$36 million per year in capital funding and \$150 million per year in expense spending.⁸ This would increase average annual spending targets from \$127 million to \$186 million. Wright said the target of \$150 million in planning for the expense part of the budget likely would yield an annual average of \$139 million in actual expenditures.

In 2002, however, Bonneville faced a financial crisis as the result of the West Coast energy crisis of 2001. The financial crisis arose from Bonneville's power purchases in 2000 and 2001, when wholesale power prices increased dramatically. In Fiscal Year 2001, Bonneville spent nearly \$3 billion on power purchases. Of that amount, Bonneville identified \$1.39 billion as attributable to fish and wildlife operations (power purchases and forgone revenues). The agency's cash reserves declined by more than \$800 million. In November 2002 Wright announced Bonneville faced a revenue gap of \$1.2 billion for the 2002-2006 rate period and, as a result, needed to reduce its expenditures. A month later Wright told the Council that Bonneville could spend no more

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than \$139 million, on average, to implement the direct program in Fiscal Year 2003 and for the remainder of the rate period.

In response, the Council worked with Bonneville and the Columbia Basin Fish and Wildlife Authority to develop spending estimates and caps for individual projects in the program and forwarded these to Bonneville in February 2003. In all, the Council recommended about \$34 million in fish and wildlife spending deferrals and reductions for the fiscal year. In order to ensure expenditures stayed within the cap, a detailed project spending tracking system and a funding reallocation system were developed to monitor spending and evaluate projects that were likely not to accrue their planned budget amounts. Money that had been approved but was not likely to be spent in the fiscal year was made available to projects that were severely affected by the 2003 decisions. In this way, expenditures were managed, projects were funded, and work was accomplished with expenditures of \$140.7 million.

Subbasin plans

In May 2004, culminating nearly two years of work, locally developed plans that will guide future

⁸ Actual spending was lower: \$140.7 million for the direct program and \$11.6 million in capital funding.

fish and wildlife projects in the Columbia River Basin were submitted to the Council for review. The draft plans for tributary subbasins of the Columbia River were funded by Bonneville and developed collaboratively by local landowners, state, federal and local governments, Indian tribes, and interest groups representing industries and environmental advocates.

A total of 59 draft subbasin plans were submitted to the Council. The draft plans were reviewed by the Council's Independent Scientific Review Panel (ISRP) and also made available for public review and comment. Those reviews ended August 12, and following the issue of draft amendments and further public comment the Council amended the plans into the fish and wildlife program late in the year and in early 2005. The plans will help guide the Council's decisions on which projects to recommend to Bonneville for funding, beginning with Fiscal Year 2006.

Each subbasin plan includes an assessment of environmental conditions, an inventory of existing and historic projects and past accomplishments, and a management plan for addressing problems and improving survival of species. The plans are designed to integrate local, state, federal and tribal goals for fish and wildlife recovery, including the Endangered Species Act.

Crediting wildlife habitat acquisitions against identified losses

The Council and Bonneville are continuing to discuss the issue of how to accurately credit acquired habitat for wildlife against identified habitat

losses. In 2004, the Council and Bonneville also continued working on a long-term financial plan for wildlife mitigation.

Wildlife habitat purchases can be expensive. Bonneville continues to use 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 standard for capitalizing wildlife habitat purchases was developed as part of the long-term financial plan, and Bonneville has used it for some projects.

Long-term funding agreement

In 2001, a five-year budget agreement among federal departments that established an annual average funding amount for the Council's program expired and was not renewed. In order to provide greater certainty to long-term funding of the program, the



Derek Dammann

River otter habitat was reduced by the construction and operating of hydropower dams, and is being restored through the Council's program.

Council, Bonneville and others are working to develop a memorandum of understanding that includes the Bonneville fish and wildlife funding commitment for the next several years, as well as agreement regarding rules for project review and funding and for program, project and budget management.

The Council has identified key issues that must be addressed in a new long-term funding agreement, including 1) integration of Northwest Power Act and ESA requirements through the Council's project review and recommendation process; 2) financial impacts of new ESA measures and others that may exceed available funding; 3) development of a methodology for determining the types of costs that will come with subbasin plans and what could be done with a given amount of money; and 4) which of Bonneville's costs should be included in the agreement (direct program, reimbursables, past capital investments) and how to allocate funds among them.

Plans for scientific research and monitoring and evaluation

For more than 20 years the Council has supported a diverse range of research efforts, and these have substantially advanced the state of scientific understanding of fish and wildlife restoration. In order to focus on key research needs, the Council drafted a Columbia River Basin Research Plan for the primary purpose of guiding the development of a research program that would be implemented through the fish and wildlife program (see Document 2004-13 on the Council's website, www.nwcouncil.org).

The draft plan, which the Council plans to complete early in 2005 following a public com-

ment period, is intended to assist policymakers and decisionmakers responsible for natural resource management within the Columbia River Basin. The plan also will provide useful guidance to planners, researchers, and project sponsors. The plan recognizes other research plans as important components of a potentially integrated regional research program and provides a framework for establishing linkages between existing and new research. The plan recommends research to be funded through the fish and wildlife program, as well as recommendations for research that will require collaborative, multi-party funding commitments by the Council and other entities with similar research mandates.

In a related matter, the Council also has supported the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). The purpose of PNAMP is to coordinate important scientific monitoring information at the appropriate scope needed to inform public policy and resource management decisions. Members of the partnership have included state, federal, and tribal personnel with a common interest in coordinating monitoring of various aspects of watershed conditions, fish populations, project effectiveness monitoring, and management of resulting data. Through a public, collaborative process involving state, federal and tribal fish and wildlife scientists, managers and policymakers, and interested members of the public, the Council and NOAA Fisheries will be promoting the development of a system to serve as a repository for high quality, reliable and verifiable information that would be available to a broad range of users, including fish and wildlife program managers, researchers, scientists and the general public. A goal is to make all of the relevant data accessible through single Internet queries.

Artificial production review

In 2004, the Council culminated several years' work and recommended changes in the way fish hatcheries are operated in the Columbia River Basin. The recommendations seek to reform hatchery operations so that in the future hatchery production and natural production of fish will be better integrated in order to increase the geographic range and genetic diversity of fish production while reducing risks to the survival of weak, naturally spawning runs.

Based on its review of all 227 hatcheries and hatchery programs in the basin, the Council developed three broad recommendations for public review and comment:

- The Council, NOAA Fisheries, and Bonneville should facilitate a regional discussion that clearly identifies basinwide goals and priorities for salmon and steelhead. The Council's subbasin planning is an appropriate process to design and implement long-term goals and priorities, and strategies to achieve them. This will reduce disparities among production policies of existing hatcheries.
- Agencies that oversee hatcheries should adopt prioritized criteria to reduce hatchery risk to weak, naturally spawning stocks through techniques such as 1) improving broodstock management; 2) integrating naturally spawning fish into hatchery broodstocks or reducing excessive straying of hatchery-bred fish; 3) improving fish passage; 4) preventing disease and 5) improving water quality. Each hatchery should have a plan for future activities based on its genetics management plan and

recommendations for fish production developed in the subbasin planning process.

- Each hatchery should be reviewed periodically to direct changes and assess progress toward goals and objectives for the facility.

APPENDIX A: GRAPHS

Figure 1: BPA Fish and Wildlife Cumulative Expenditures 1978-2003

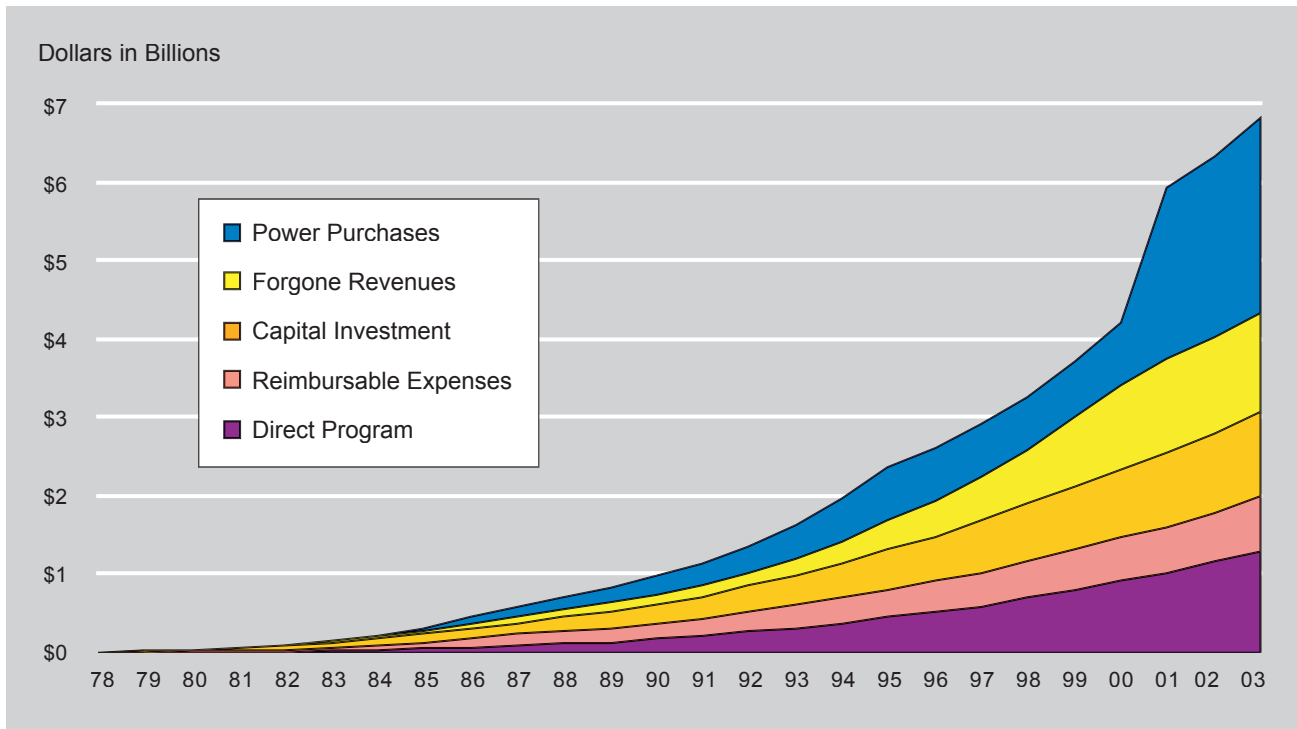


Figure 2: BPA Fish and Wildlife Total Annual Expenditures 1978-2003

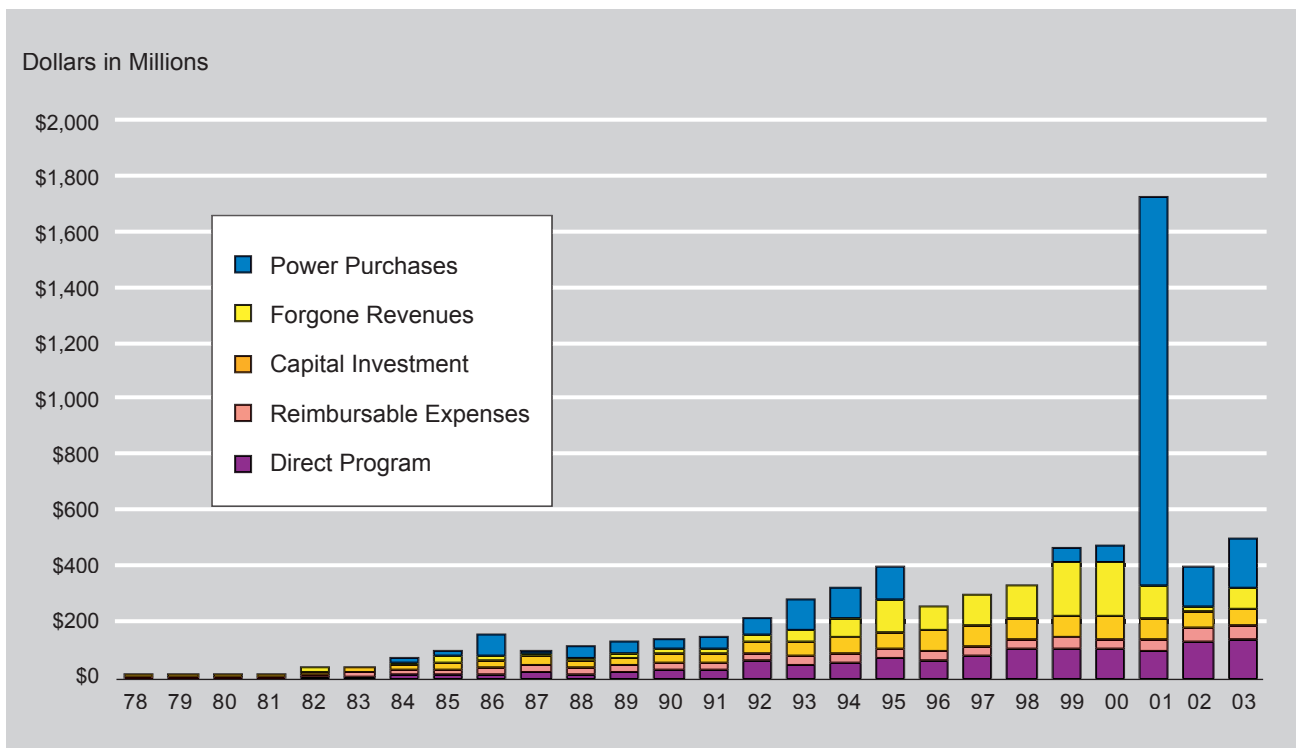


Figure 3: BPA Fish and Wildlife Obligations by Species 1978-2003

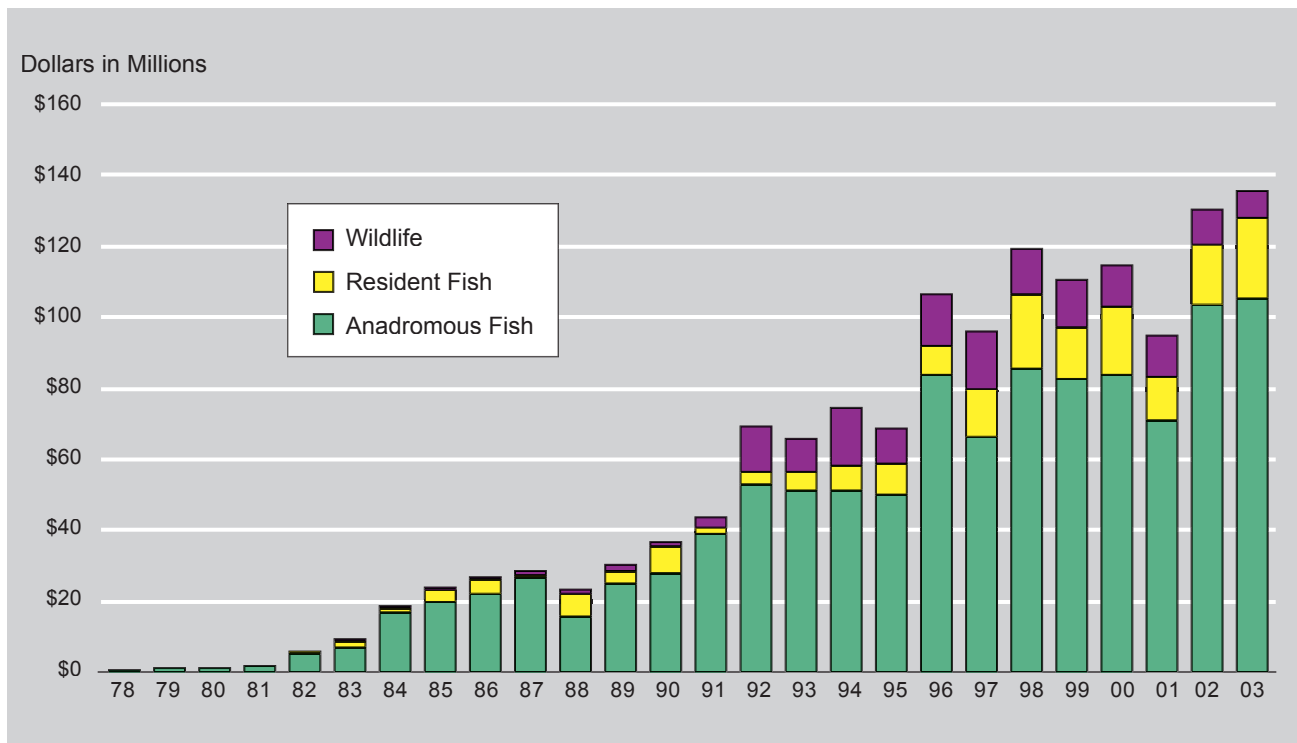


Figure 4: BPA Fish and Wildlife Obligations by General Purpose 2003

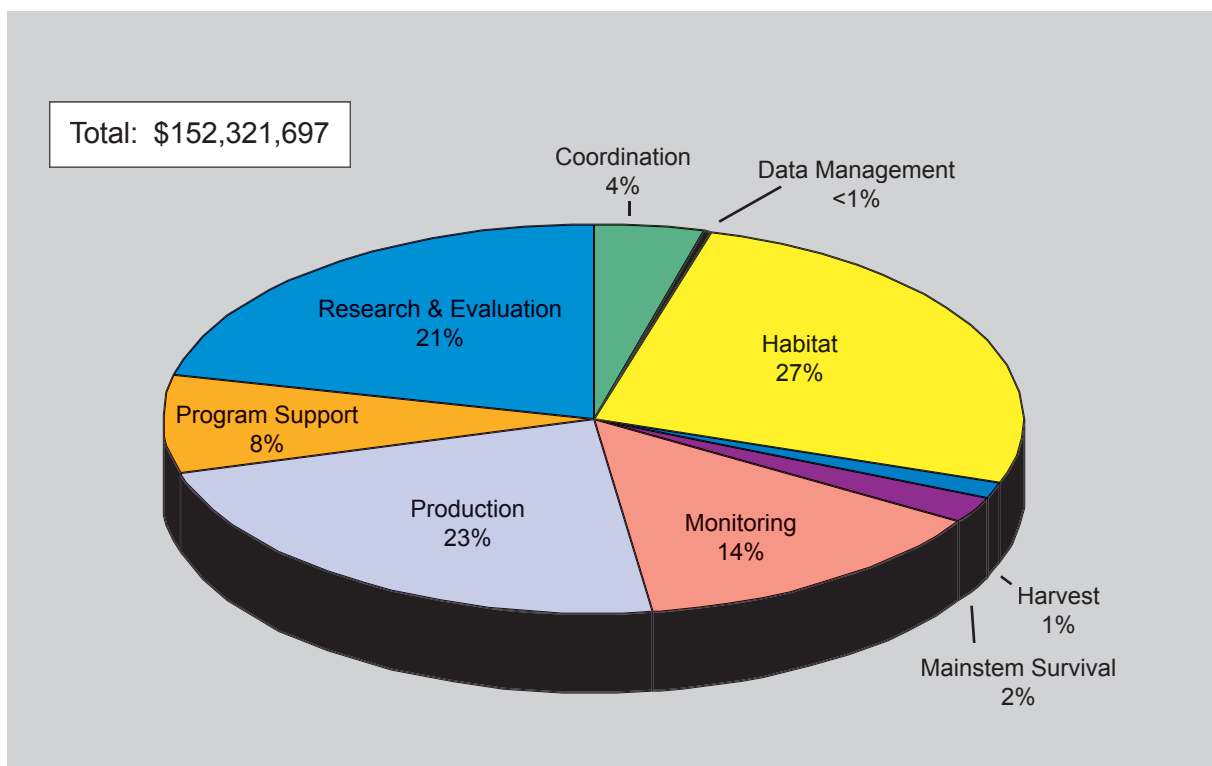


Figure 5: BPA Direct Program Budget, Obligations by Province 1978-2003

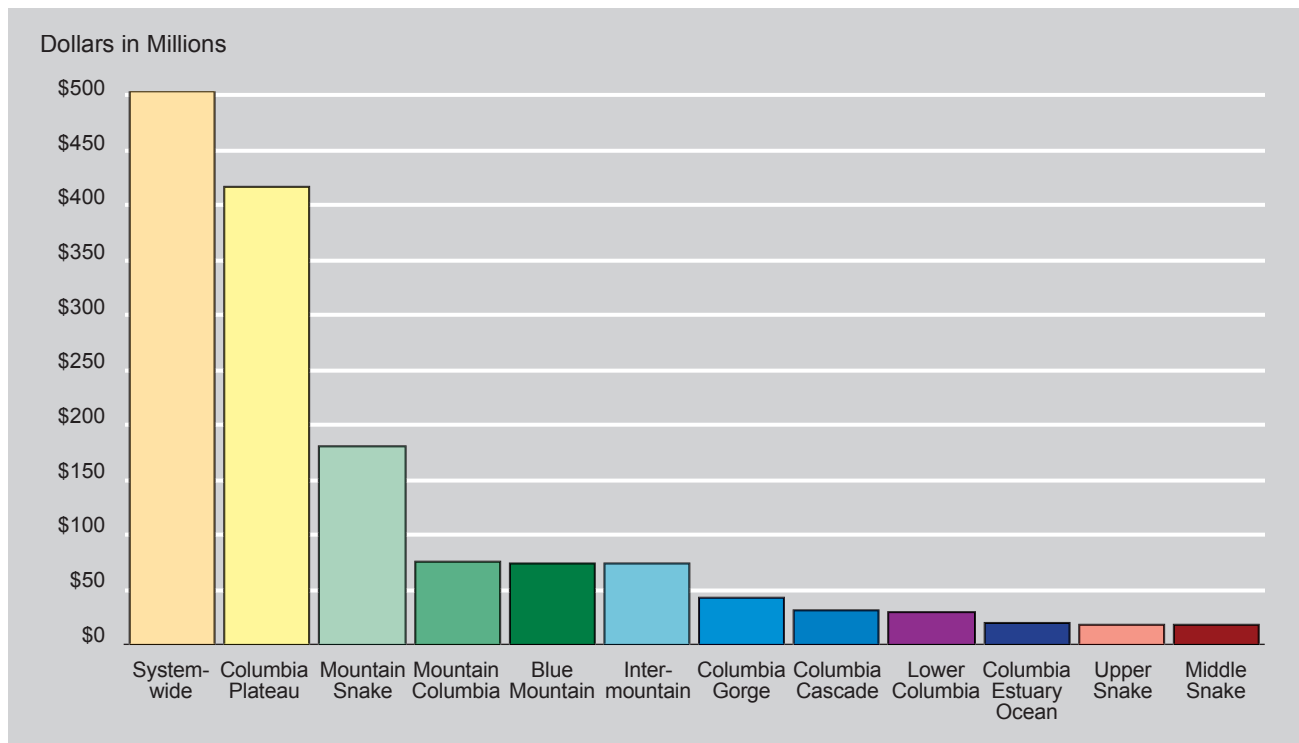


Figure 6: BPA Direct Program Budget, Obligations by Prime Contractor ¹ 1978-2003

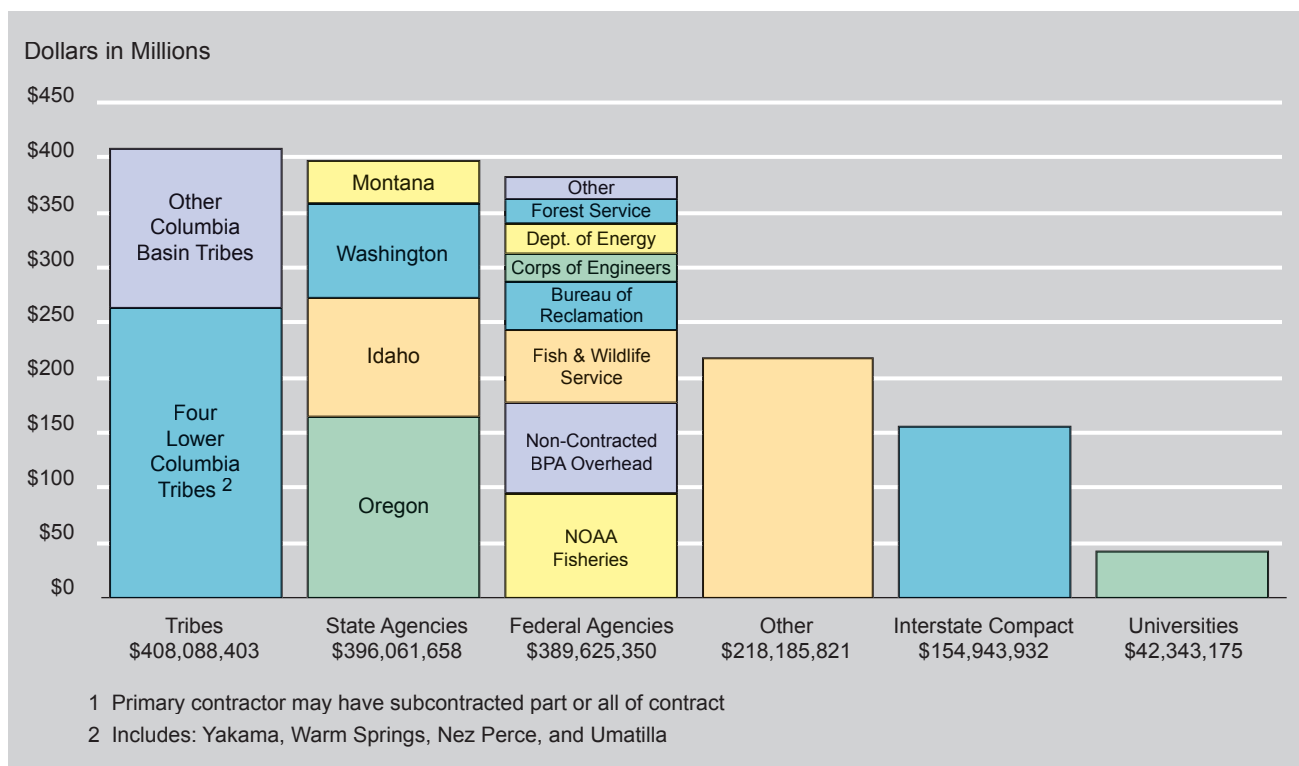
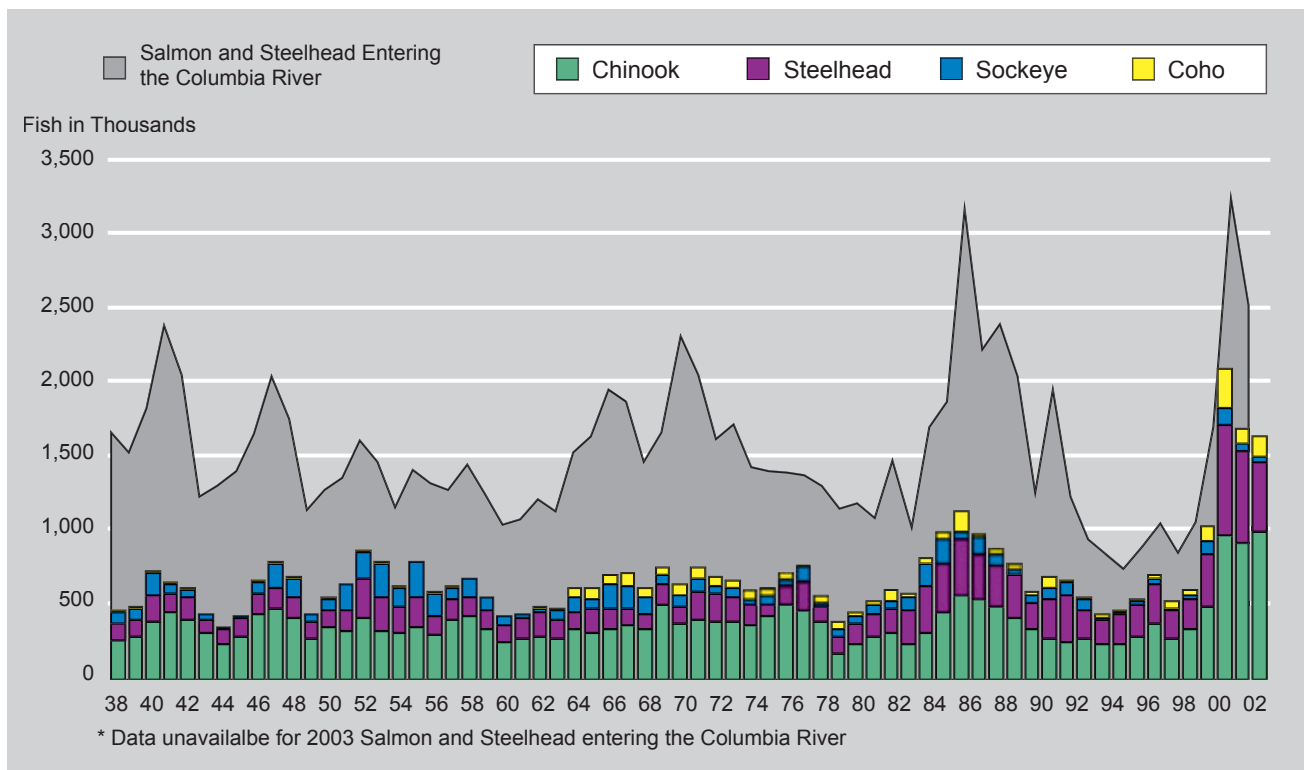


Figure 7: Total Estimated Salmon and Steelhead Entering the Columbia River and Passing Bonneville Dam, 1938-2002*



**Figure 8: Ocean Temperature Cycles*
January 1900 - August 2004**

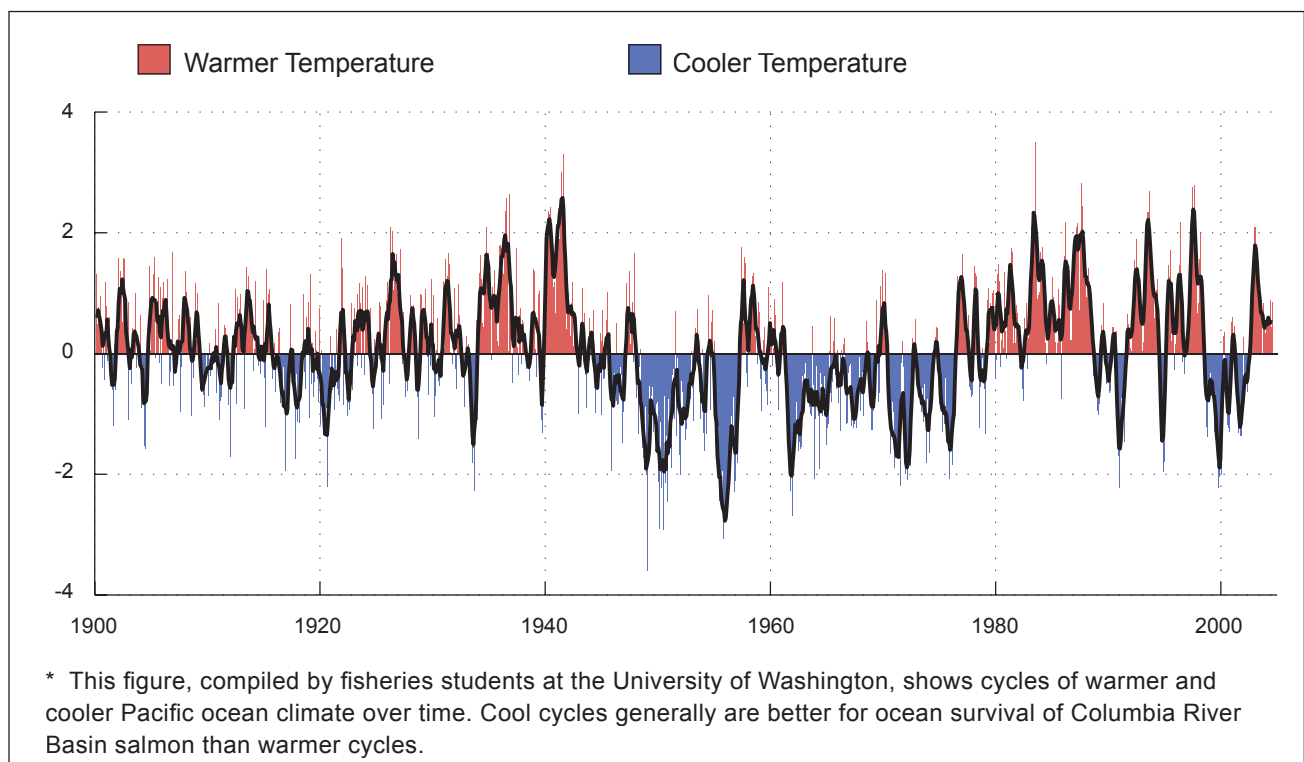


Figure 9: Spring and Summer Chinook Salmon Passing Bonneville Dam 1977-2003

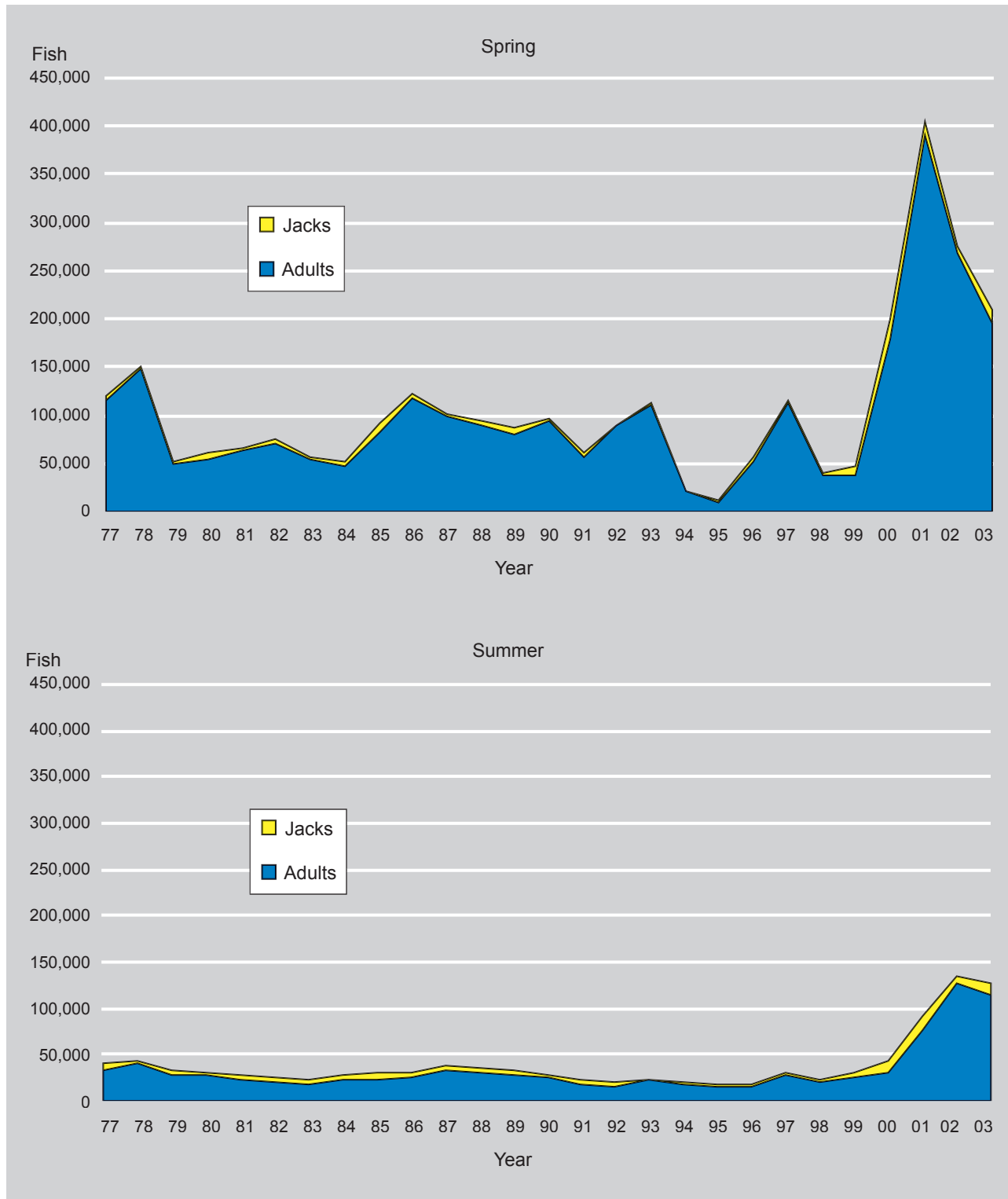


Figure 10: Estimated Inriver Juvenile Survival through the Hydrosystem 1966-1980, 1997-2003*

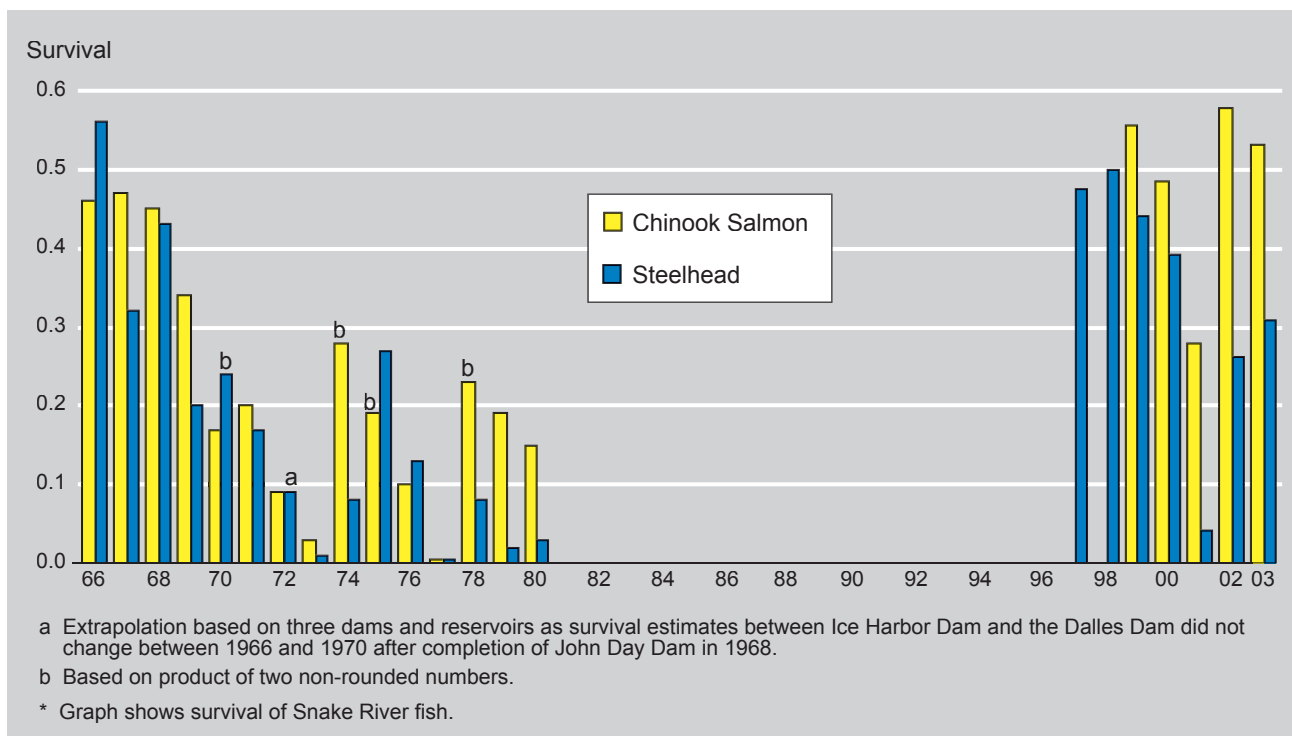
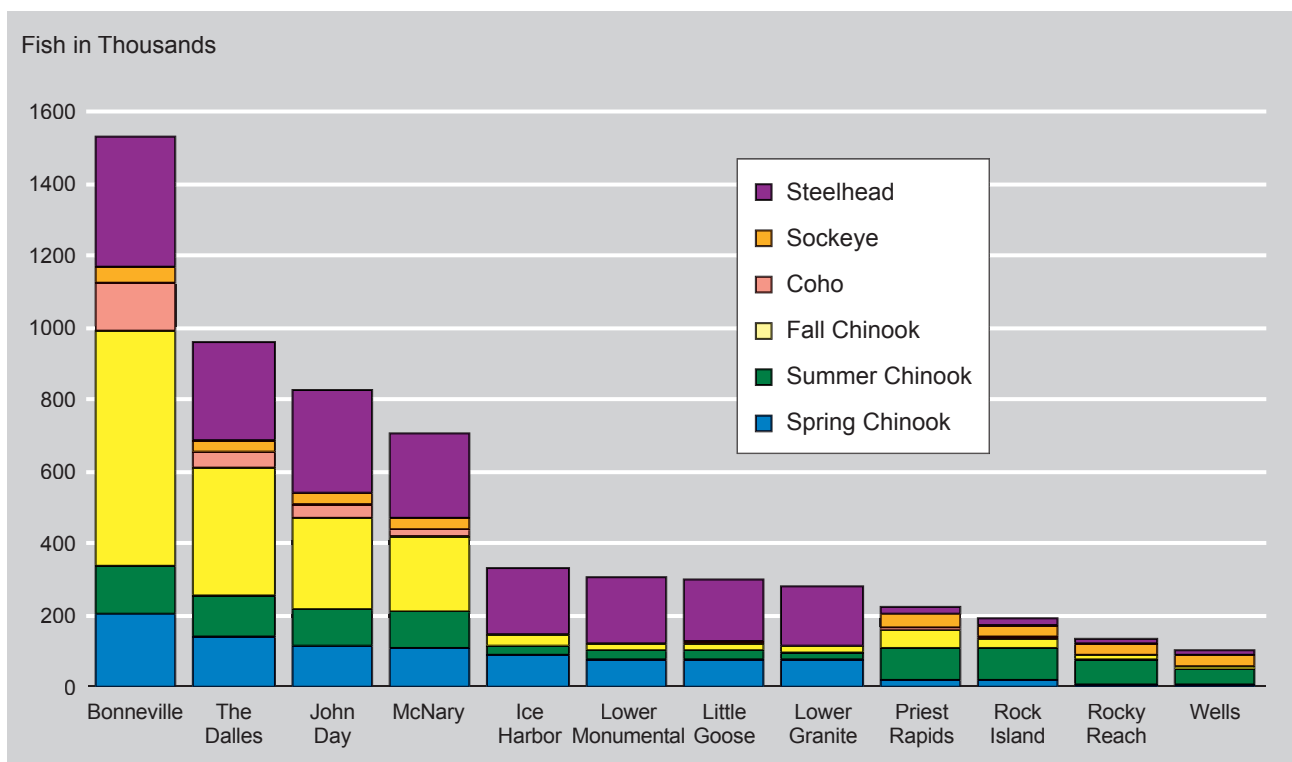
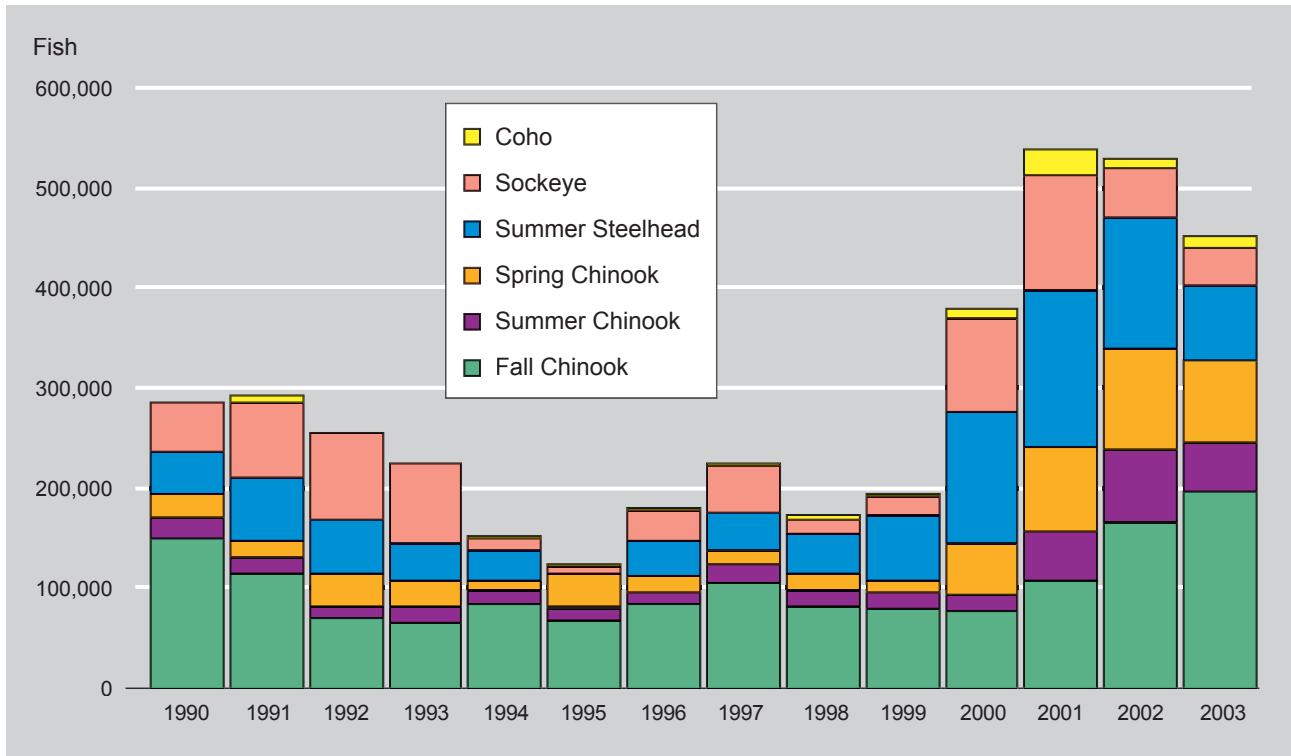


Figure 11: Where Do the Fish Go? Fish Counted at Each Mainstem Dam 2003



**Figure 12: Wild Fish Passing Bonneville Dam
1990-2003**



**Figure 13: Commercial Landings of Salmon and Steelhead from the Columbia River
1866-2002 (Data unavailable for 2003)**

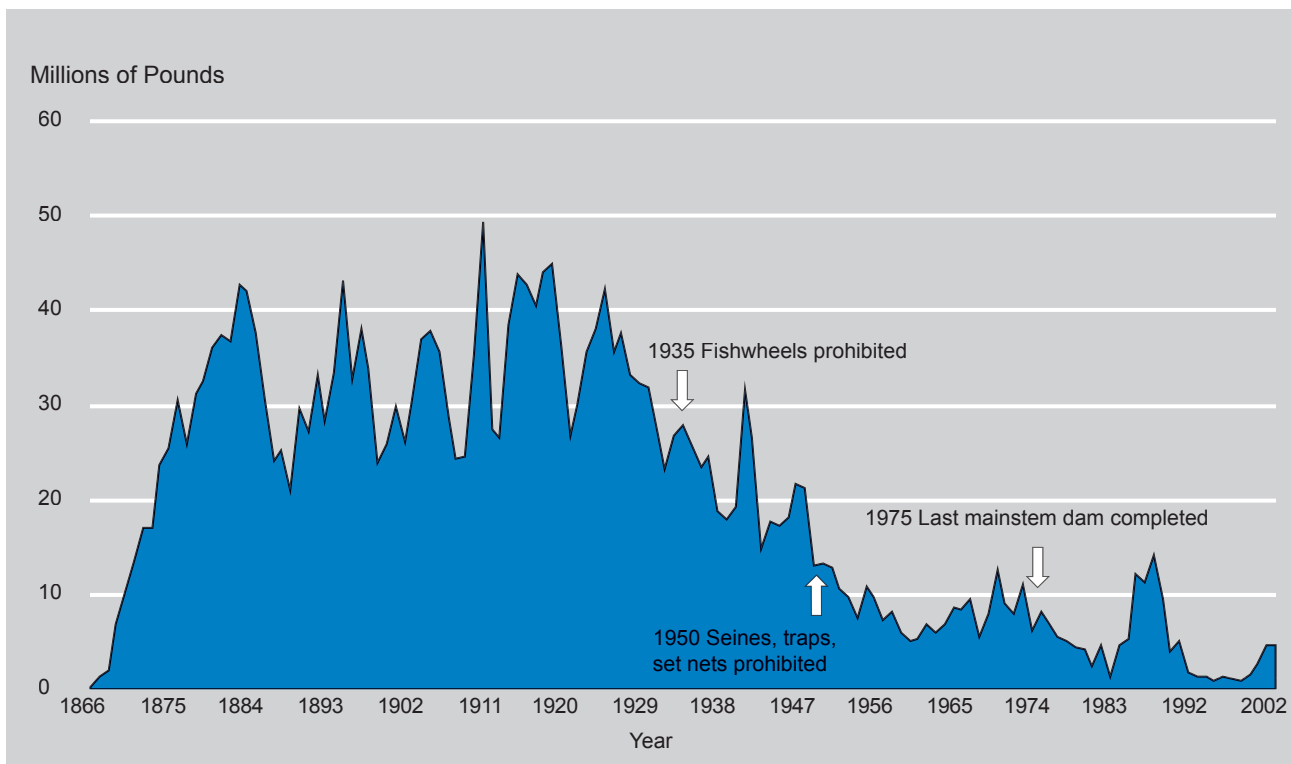


Figure 14: Wildlife Habitat Units: Lost & Acquired

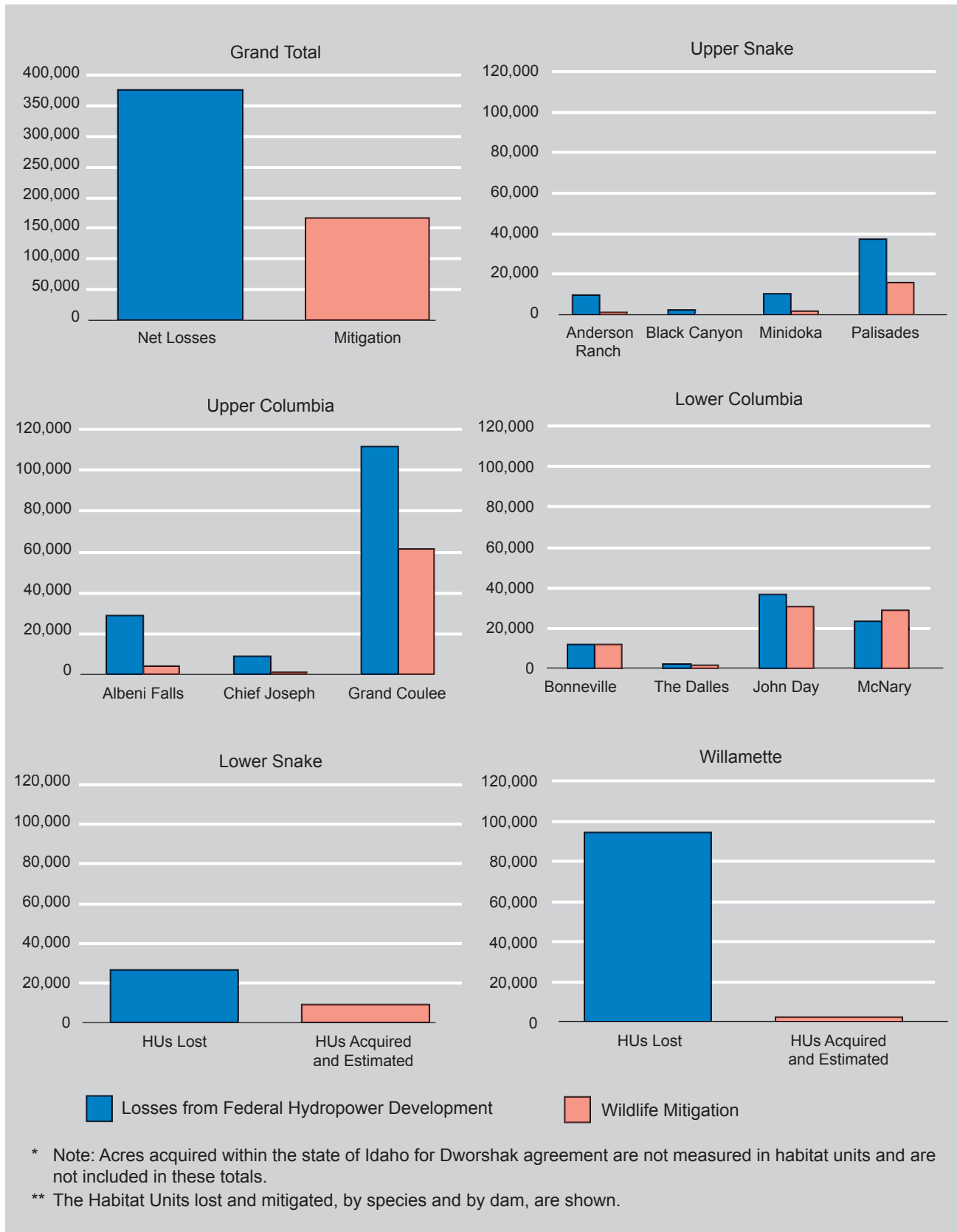


Figure 15: Wildlife Habitat Units Lost and Acquired, Species Most Affected

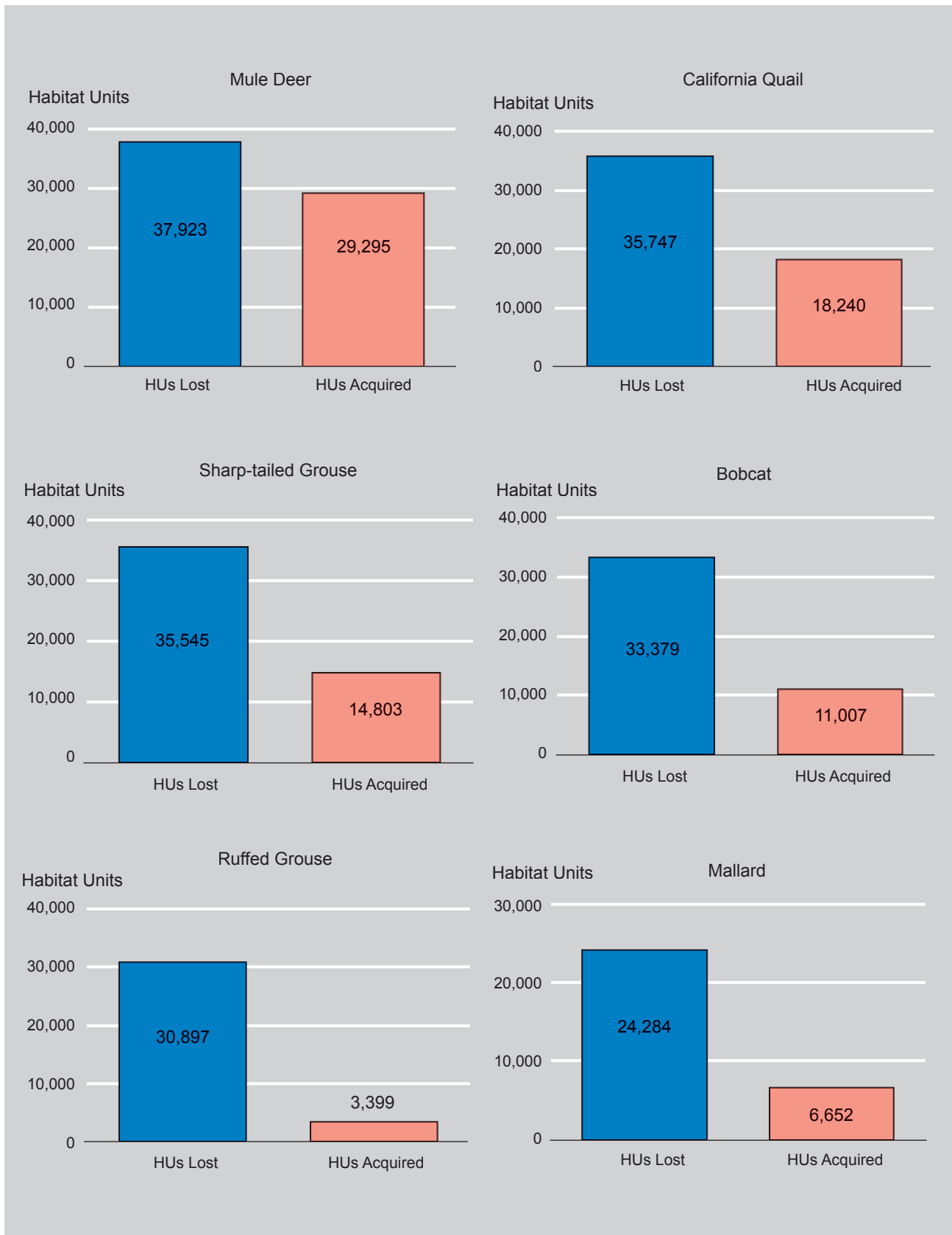
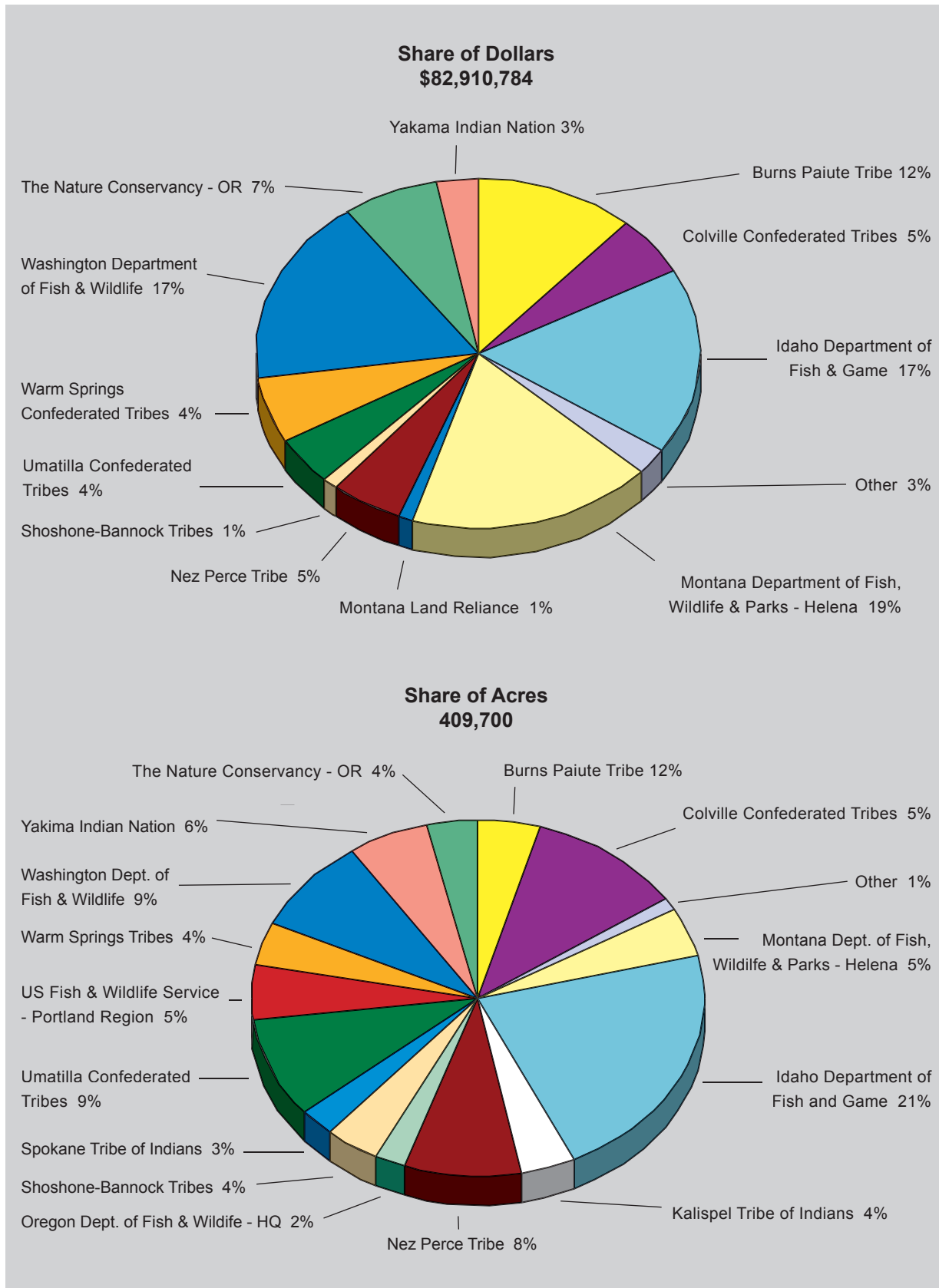
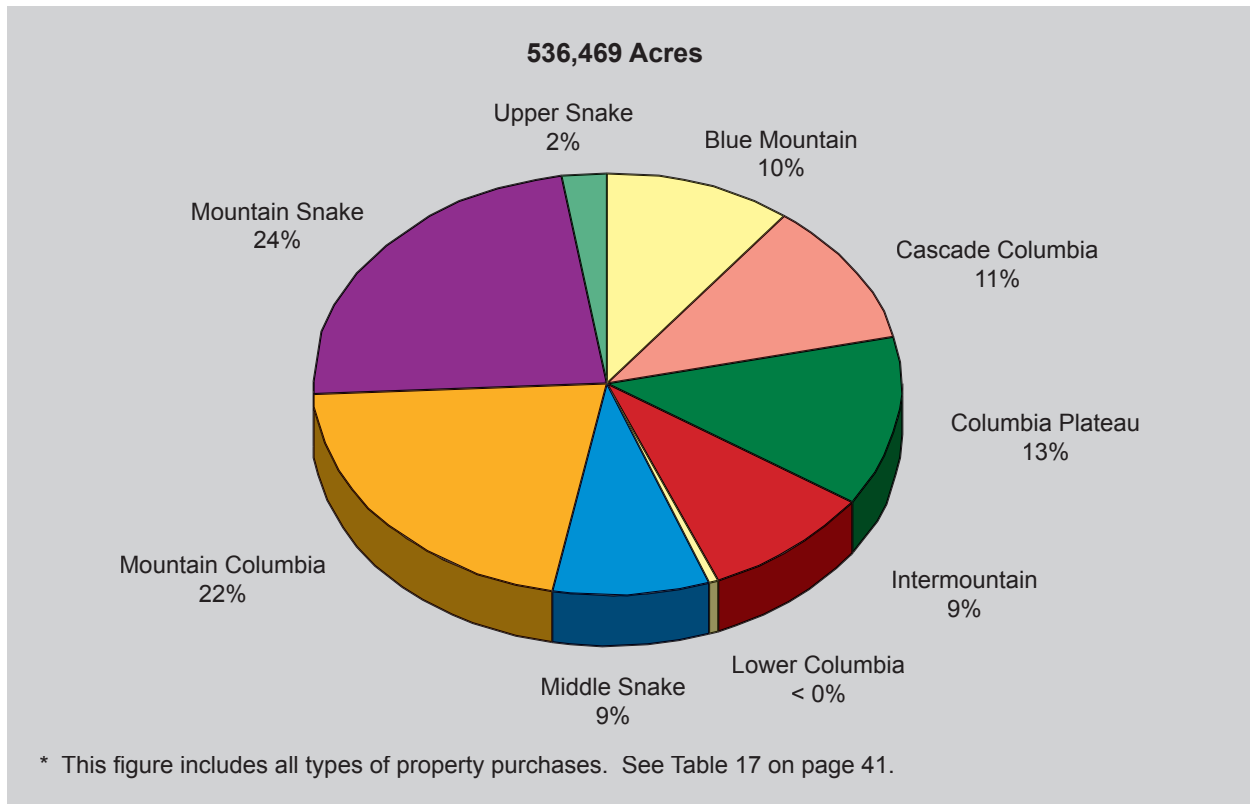


Figure 16: Wildlife Acres Protected and Share of Acquisition Costs by Entity



**Figure 17: Properties Purchased by BPA for Wildlife Purposes by Province*
1978-2002**



APPENDIX B: TABLES

Table 1 & 2 Cumulative and Total Annual Expenditures

	1978-1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Direct Program	\$2.3	\$2.3	\$4.6	\$9.1	\$19.6	\$15.9	\$19.6	\$22.2	\$18.8	\$23.0	\$32.8	\$33.0	\$67.0	\$49.6	\$55.9	\$71.4	\$68.5	\$82.2	\$104.9	\$108.2	\$108.2	\$101.1	\$137.1	\$140.7	\$1,298.0
Action Plan / High Priority																						\$2.9	\$7.1	\$6.5	\$16.5
Reimbursable	\$15.0	\$6.1	\$11.5	\$14.2	\$16.0	\$19.9	\$23.7	\$29.7	\$19.0	\$23.6	\$23.4	\$24.3	\$28.4	\$30.5	\$34.9	\$36.1	\$35.4	\$35.9	\$36.3	\$38.9	\$37.6	\$42.5	\$51.1	\$52.5	\$686.5
Fixed Expenses 1/	\$24.0	\$8.8	\$12.4	\$15.9	\$16.6	\$19.7	\$22.1	\$28.5	\$31.0	\$31.9	\$34.3	\$38.2	\$41.9	\$53.6	\$61.3	\$63.6	\$73.1	\$76.3	\$74.1	\$76.1	\$77.2	\$77.1	\$58.6	\$56.7	\$1,071.0
Subtotal	\$41.3	\$17.2	\$28.5	\$39.2	\$52.2	\$55.5	\$65.4	\$80.4	\$68.8	\$78.5	\$90.5	\$95.5	\$137.3	\$133.7	\$152.1	\$171.1	\$177.0	\$194.4	\$215.3	\$223.2	\$223.0	\$223.6	\$251.9	\$256.4	\$3,072.0
1996-2001 MOA Period Sub-total \$1,256.6																									
1/ Associated with Capital Investments																									
"River Ops"	1978-1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Power Purchases	\$0.0	\$0.0	\$0.0	\$0.0	\$12.0	\$17.0	\$74.0	\$11.0	\$40.0	\$40.0	\$40.0	\$40.0	\$59.0	\$104.0	\$111.7	\$7.1	\$0.0	\$0.0	\$5.4	\$47.6	\$64.8	\$1,389.6	\$147.8	\$171.1	\$2,489.0
Foregone Revenues	\$0.0	\$3.0	\$14.0	\$1.0	\$8.0	\$27.0	\$19.0	\$9.0	\$10.0	\$15.0	\$15.0	\$15.0	\$23.0	\$45.0	\$62.0	\$63.5	\$81.7	\$107.8	\$116.5	\$197.8	\$193.1	\$115.9	\$12.6	\$79.2	\$1,284.6
Subtotal	\$0.0	\$3.0	\$14.0	\$1.0	\$20.0	\$44.0	\$93.0	\$20.0	\$50.0	\$55.0	\$55.0	\$55.0	\$82.0	\$149.0	\$173.7	\$70.0	\$81.7	\$107.8	\$121.9	\$245.4	\$257.9	\$1,505.5	\$160.4	\$250.3	\$3,773.6
"River Ops" MOA Period Sub Total \$2,320.2																									
Grand Total	\$41.3	\$20.2	\$42.5	\$40.2	\$72.2	\$99.5	\$158.4	\$100.4	\$118.8	\$133.5	\$145.5	\$150.5	\$219.3	\$282.7	\$325.8	\$241.7	\$258.7	\$302.2	\$337.2	\$468.6	\$480.9	\$1,729.1	\$412.3	\$506.7	\$6,845.6

Dollars are in Millions
MOA Period Total \$3,576.8

* Tables 1 & 2, 3, 4, 5, 6A and 6B report Bonneville's spending on the Council's direct program. Where we report cumulative spending, the totals differ slightly among the tables. This is because the "direct program" total in Table 1 & 2 includes only expenses, and the totals in the other tables include both expenses and capital expenditures associated with direct-program projects.

Sources: (1978 - 1995) FY 2000 Congressional Budget / page 60
(1996 - 2001) MOA Reporting Template

Table 3 Obligations by Species, 1978-2003

Fiscal Year	Anadromous Fish	Resident Fish	Wildlife	Total
1984	\$16,675,925	\$1,263,895	\$589,066	\$18,528,886
1985	\$19,945,958	\$3,571,308	\$553,022	\$24,070,288
1986	\$22,208,357	\$3,779,463	\$1,009,667	\$26,997,487
1987	\$26,560,517	\$591,182	\$1,149,655	\$28,301,354
1988	\$15,848,972	\$6,389,391	\$1,040,601	\$23,278,964
1989	\$25,225,428	\$3,016,827	\$2,053,497	\$30,295,752
1990	\$27,737,779	\$7,795,641	\$1,058,418	\$36,591,838
1991	\$38,973,827	\$2,028,859	\$2,530,970	\$43,533,656
1992	\$53,119,662	\$3,550,209	\$12,847,109	\$69,516,980
1993	\$51,129,495	\$5,457,600	\$8,936,699	\$65,523,794
1994	\$51,044,466	\$7,072,137	\$16,090,951	\$74,207,554
1995	\$49,894,315	\$8,692,253	\$10,206,415	\$68,792,983
1996	\$83,789,352	\$7,962,544	\$14,815,773	\$106,567,669
1997	\$66,524,626	\$12,944,597	\$16,615,431	\$96,084,654
1998	\$85,533,382	\$20,991,620	\$12,675,870	\$119,200,872
1999	\$82,415,426	\$14,850,466	\$13,443,429	\$110,709,321
2000	\$83,662,243	\$19,598,122	\$11,491,168	\$114,751,533
2001	\$70,785,162	\$12,167,802	\$12,030,184	\$102,837,058*
2002	\$103,445,561	\$17,184,941	\$9,849,955	\$143,198,148*
2003	\$105,384,294	\$22,753,095	\$7,686,627	\$152,321,697*
Total	\$1,079,904,747	\$181,661,952	\$156,674,507	\$1,418,241,206

* Totals for 2001-03 include program support and other costs, as indicated below. These costs were not separately reported by Bonneville prior to 2001.

FY	External Program Support 1	BPA Program Support 2	Other 3
2001	\$967,123	\$5,640,244	\$1,246,543
2002	\$1,637,533	\$11,040,180	\$39,978
2003	\$4,456,294	\$12,041,387	

- 1 External Program Support includes tasks such as data management that support all programs
- 2 BPA Program Support includes contracted tasks such as program review and independent analysis, as well as BPA internal overhead such as personnel costs
- 3 Expenses not otherwise categorized

Source: Bonneville Power Administration

Table 4 Breakdown of Expenditures for Mainstem, Production, Habitat and Harvest - Excluding Action Plan and High Priority

General Purpose	FY 2000	FY 2001	FY 2002
Coordination	\$6,824,548	\$6,801,963	\$6,403,569
Data Management	\$29,541	\$151,777	\$236,896
Habitat	\$29,870,934	\$41,701,678	\$39,481,228
Harvest	\$852,032	\$1,311,073	\$1,957,397
Monitoring	\$14,372,273	\$18,282,822	\$20,930,630
Mainstem Survival	\$3,735,274	\$3,654,080	\$3,639,242
Production	\$21,083,822	\$35,551,536	\$34,939,205
Research and Evaluation	\$19,005,275	\$24,485,114	\$32,672,718
BPA Program Support	\$5,640,244	\$11,040,180	\$12,041,388
Other	\$1,423,115	\$217,925	\$19,424
Total	\$102,837,058	\$143,198,148	\$152,321,697

Source: Bonneville Power Administration

Table 5 Obligations by Province, fiscal year 2003

Province	1978-2003	2002	2003
Systemwide	\$503,764,310	\$35,810,192	\$41,021,491
Columbia Plateau	\$416,409,679	\$33,101,913	\$28,530,634
Mountain Snake	\$180,623,816	\$19,536,743	\$20,023,083
Mountain Columbia	\$75,327,251	\$4,441,868	\$8,040,476
Blue Mountain	\$73,771,093	\$7,963,366	\$9,399,860
Intermountain	\$73,069,933	\$12,352,769	\$12,884,976
Columbia Gorge	\$43,191,782	\$6,007,220	\$6,487,780
Columbia Cascade	\$31,745,224	\$5,197,172	\$3,454,315
Lower Columbia	\$30,195,727	\$4,713,797	\$4,205,860
Columbia Estuary/Ocean	\$20,223,769	\$512,348	\$3,289,408
Upper Snake	\$18,477,549	\$783,608	\$1,064,601
Middle Snake	\$17,807,541	\$1,696,993	\$1,877,824
Total	\$1,484,607,673	\$132,117,990	\$140,280,309
Program Support	\$45,102,815	\$11,040,180	\$12,041,388
Other	\$39,978	\$39,978	

Source: Bonneville Power Administration

Table 6A Obligations by Prime Contractor - 1978-2003

Contractor Type	Prime Contractor	1979-2003	Contractor Type	Prime Contractor	1979-2003
FEDERAL	NATIONAL MARINE FISHERIES SVC	\$95,598,756	TRIBE	NEZ PERCE TRIBE	\$99,519,023
	NON-CONTRACTED BPA OVERHEAD	\$81,073,070		YAKAMA INDIAN NATION	\$92,718,908
	FISH & WILDLIFE SERVICE	\$67,327,459		UMATILLA CONFEDERATED TRIBES	\$43,702,854
	BUREAU OF RECLAMATION	\$43,876,998		COLVILLE CONFEDERATED TRIBES	\$33,987,128
	CORPS OF ENGINEERS	\$25,829,517		WARM SPRINGS TRIBES	\$27,943,322
	DEPARTMENT OF ENERGY	\$25,641,979		SHOSHONE-BANNOCK TRIBES	\$19,115,967
	FOREST SERVICE	\$23,494,414		SPOKANE TRIBE OF INDIANS	\$18,971,281
	OTHER	\$20,047,080		KOOTENAI TRIBE OF IDAHO	\$16,999,125
	US GEOLOGICAL SURVEY	\$6,736,076		KALISPEL TRIBE OF INDIANS	\$13,457,196
	TOTAL	\$389,625,350		COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION	\$11,688,832
	OREGON DEPARTMENT OF FISH & WILDLIFE	\$160,471,794		COEUR D'ALENE TRIBE OF IDAHO	\$10,395,990
STATE	OREGON STATE POLICE - FISH & WILDLIFE	\$3,480,952		SHOSHONE-PAIUTE TRIBES	\$8,207,766
	OREGON WATER TRUST	1,004,400		BURNS PAIUTE TRIBE	\$7,142,732
	OREGON DEPARTMENT OF ENERGY	\$193,707		SALISH AND KOOTENAI TRIBES	\$4,213,432
	OREGON DEPARTMENT OF TRANSPORTATION	\$106,422		POINT NO POINT TRIBE	\$11,960
	OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY	149,131		TULALIP TRIBE	\$4,988
	OREGON DEPARTMENT OF PARKS & RECREATION	\$5,000		KLAMATH TRIBE	\$4,512
	Subtotal	165,411,406		CHEHALIS INDIAN TRIBE	\$2,082
	IDAHO DEPARTMENT OF FISH & WILDLIFE	100,225,461		SQUAXIN ISLAND TRIBE	\$1,304
	IDAHO SOIL & WATER CONSERVATION COMMISSION	6,136,507	INTERSTATE COMPACT	TOTAL	\$408,088,403
	IDAHO OFFICE OF SPECIES CONSERVATION	\$154,140	UNIVERSITY	PACIFIC STATES MARINE FISHERIES COMMISSION	\$154,943,932
	Subtotal	106,516,108	OTHER	University	\$42,343,175
	WASHINGTON DEPARTMENT OF FISH & WILDLIFE	75,679,777		Private/Other	\$128,455,935
	WASHINGTON DEPARTMENT OF ECOLOGY	4,985,456		Local/Semi governmental	\$44,955,904
	WASHINGTON WILDLIFE COALITION MEMBERS	\$3,445,738		COLUMBIA BASIN FISH & WILDLIFE FDN	\$18,517,212
	WASHINGTON STATE CONSERVATION COMMISSION	\$694,411		Not Specified (Land)	\$13,163,259
	WASHINGTON DEPARTMENT OF ECOLOGY	\$542,633		Utility	\$11,709,653
	WASHINGTON STATE ENERGY OFFICE	\$242,857		NATIONAL FISH & WILDLIFE FOUNDATION	\$1,383,858
	WASHINGTON DEPARTMENT OF TRANSPORTATION	\$101,700		TOTAL	\$218,185,821
	WASHINGTON DEPARTMENT OF NATURAL RESOURCES	\$5,000		GRAND TOTAL	\$1,609,248,338
	Subtotal	\$85,697,573			
	MONTANA DEPARTMENT OF FISH & WILDLIFE	\$31,067,777			
	MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS	\$7,368,794			
	Subtotal	\$38,436,570			
	TOTAL	\$396,061,658			

Source: Bonneville Power Administration

Table 6B Expenditures of Direct BPA funds by contractor, * 1996-2003

Contractor	Total	Contractor	Total
PACIFIC STATES MARINE FISHERIES COMMISSION	\$101,821,926	US DOE RICHLAND OPERATIONS OFC	\$2,231,902
NEZ PERCE TRIBE	\$85,482,795	MWH AMERICAS INC	\$2,226,153
OREGON DEPARTMENT OF FISH & WILDLIFE-HQ	\$75,464,126	CONTRACTOR UNKNOWN TO EMIS	\$2,167,074
YAKAMA NATION	\$73,352,087	ESSA TECHNOLOGIES LTD.	\$2,156,632
IDAHO DEPARTMENT OF FISH & GAME	\$58,563,079	UNDERWOOD CONSERVATION DISTRICT	\$2,116,100
WASHINGTON DEPARTMENT OF FISH & WILDLIFE	\$49,073,644	NATURE CONSERVANCY - MONTANA	\$2,056,330
NATIONAL MARINE FISHERIES SERVICE - SEATTLE OFFICE	\$34,772,746	PACIFIC POWER & LIGHT/UECA	\$1,994,000
UMATILLA CONFEDERATED TRIBES	\$32,831,784	CLATSOP ECONOMIC DEVELOPMENT COMMITTEE	\$1,822,530
WARM SPRINGS TRIBES	\$25,678,560	CITY OF YAKIMA	\$1,793,077
COLVILLE CONFEDERATED TRIBES	\$20,877,239	KITTITAS-YAKIMA RES CONS & DEV	\$1,666,998
COLUMBIA BASIN FISH & WILDLIFE FOUNDATION	\$18,055,522	US DOI GEOLOGICAL SURVEY	\$1,647,692
BONNEVILLE POWER ADMINISTRATION - FISH AND WILDLIFE PROGRAM SUPPORT	\$16,848,350	U.S. FOREST SERVICE	\$1,639,797
NATT MCDUGALL COMPANY	\$15,876,408	ASOTIN COUNTY CONSERVATION DISTRICT	\$1,634,666
US FISH AND WILDLIFE SERVICE - PORTLAND REGION	\$15,104,215	MONTANA FISH, WILDLIFE & PARKS / CONFEDERATED SALISH-KOOTENAI TRIBES	\$1,606,434
NATIONAL MARINE FISHERIES SERVICE - PORTLAND OFFICE	\$14,860,289	USFS - PACIFIC NW RESEARCH STATION	\$1,577,145
SPOKANE TRIBE of INDIANS	\$13,265,695	IDAHO STATE CONSERVATION COMMISSION	\$1,495,304
BONNEVILLE POWER ADMINISTRATION - TRANSMISSION BUSINESS LINE	\$11,860,217	YAKIMA CO-OP	\$1,479,863
KOOTENAI TRIBE of IDAHO	\$11,775,575	BIOANALYSTS INC (D. CHAPMAN)	\$1,462,464
IMPERO CONSTRUCTION COMPANY	\$10,716,321	LEMHI SOIL & WATER CONSERVATION DISTRICT	\$1,399,599
UNIVERSITY OF WASHINGTON	\$10,118,570	CONFEDERATED SALISH-KOOTENAI TRIBES	\$1,373,280
NATIONAL BIOLOGICAL SERVICE / USFWS - NATIONAL FISH RESEARCH CENTER - SEATTLE FISHPRO, INC.	\$9,844,736	OREGON STATE UNIVERSITY / CUMULATIVE RISK INITIATIVE	\$1,360,009
US BUREAU OF RECLAMATION - PACIFIC NW REGION (BOISE)	\$9,688,126	COLUMBIA COUNTY SOIL & WATER CONSERVATION DISTRICT	\$1,331,566
MONTGOMERY WATSON	\$9,686,763	US BUREAU OF RECLAMATION (WA)	\$1,205,799
COEUR D'ALENE TRIBE of IDAHO	\$9,549,413	USGS - BIOLOGICAL RESOURCES DIVISION - COLUMBIA RIVER RESEARCH LAB	\$1,204,305
NORTHWEST POWER AND CONSERVATION COUNCIL	\$9,399,776	COLUMBIA RIVER INTER-TRIBAL	\$1,186,067
KALISPEL TRIBE of INDIANS	\$9,067,662	WASHINGTON STATE UNIVERSITY	\$1,159,755
SHOSHONE-BANNOCK TRIBES	\$8,658,352	NEZ PERCE SOIL & WATER CONSERVATION DISTRICT	\$1,151,484
USDE - BATTELLE PACIFIC NORTHWEST LABORATORY - (RICHLAND)	\$8,232,547	WALLOWA COUNTY SOIL & WATER CONSERVATION DISTRICT	\$1,136,870
US ARMY CORPS OF ENGINEERS - PORTLAND DISTRICT	\$7,367,824	NATIONAL FISH & WILDLIFE FOUNDATION	\$1,106,904
SHOSHONE-PAIUTE TRIBES	\$7,145,479	PAULSEN ENVIRONMENTAL RESEARCH	\$1,120,624
BURNS PAIUTE TRIBE	\$6,727,318	PORTLAND GENERAL ELECTRIC	\$1,081,849
CUSTER SOIL & WATER CONSERVATION DISTRICT	\$6,345,398	WASCO COUNTY SOIL & WATER CONSERVATION DISTRICT	\$1,077,590
MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS - HELENA	\$5,697,907	HARZANORTHWEST INC	\$1,010,802
CH2M HILL - NORTHWEST INC.	\$5,043,703	US FISH AND WILDLIFE SERVICE - DENVER REGION	\$978,033
WASHINGTON DEPT OF ECOLOGY	\$4,996,546	US FISH AND WILDLIFE SERVICE - AHSAHKA	\$937,531
COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION	\$4,932,208	CASCADE PACIFIC RESOURCE	\$906,018
PACIFIC NORTHWEST ELECTRIC POWER	\$4,389,258	UNION COUNTY SOIL & WATER CONSERVATION DISTRICT	\$898,371
MONTANA FISH, WILDLIFE & PARKS	\$3,762,155	POMEROY SOIL & WATER CONSERVATION DISTRICT	\$894,873
DEPT OF FISHERIES & OCEANS (CANADIAN)	\$3,622,330	PACIFIC POWER & LIGHT COMPANY	\$885,792
DIGITAL ANGEL CORPORATION	\$3,553,461	OREGON WATER TRUST	\$878,078
CONCORD CONSTRUCTION, INC	\$3,540,383	SANDPOINT TITLE INSURANCE INC	\$860,356
US DOI FISH & WILDLIFE SERVICE	\$3,517,529	USFS - WALLOWA-WHITMAN NATIONAL FOREST - LA GRANDE DISTRICT,	\$838,422
UMATILLA ELECTRIC COOP ASSOCIATION	\$3,321,609	USFS - FLATHEAD NATIONAL FOREST	\$837,468
IDAHO SOIL & WATER CONSERVATION COMMISSION	\$3,253,585	MOSS-ADAMS ADVISORY SERVICES	\$819,207
IDAHO DEPARTMENT OF FISH & GAME / KALISPEL	\$2,861,571	INTERMOUNTAIN COMMUNICATIONS	\$817,131
OREGON STATE UNIVERSITY	\$2,848,394	LAKE ROOSEVELT DEVELOPMENT ASSOCIATION	\$808,204
SLAYDEN CONSTRUCTION INC	\$2,582,316	S. P. CRAMER & ASSOCIATES	\$806,021
USFWS - FISHERIES PROGRAM OFFICE	\$2,561,689	US DEPARTMENT OF ENERGY - OAK RIDGE NATIONAL LABORATORY	\$790,817
WESTLAND IRRIGATION DISTRICT	\$2,479,891	US FISH AND WILDLIFE SERVICE - FISH ASST. VANCOUVER	\$775,613
UNIVERSITY of IDAHO	\$2,395,048	S CENTRAL WASHINGTON RESOURCE CONSERVATI	\$387,228
US GEOLOGICAL SURVEY	\$2,314,513	KITTITAS COUNTY WATER PURVEYORS	\$730,000
DESTRON - FEARING	\$2,254,524	JEFFERSON COUNTY SOIL & WATER CONSERVATION DISTRICT	\$695,980
		WALLA WALLA BASIN WATERSHED COUNCIL	\$656,387

Table 6B Expenditures of Direct BPA funds by contractor 1996-2003 (continued)

Contractor	Total		
CLEARWATER FOCUS WATERSHED PROGRAM	\$641,749	ESD105	\$232,500
WALLA WALLA COUNTY SOIL AND WATER CONSERVATION DISTRICT	\$624,166	COLUMBIA CONSERVATION DISTRICT	\$222,352
IDAHO DEPARTMENT OF FISH & GAME / KOOTENAI	\$610,923	Contractor	Total
US BUREAU OF RECLAMATION - YAKIMA	\$680,303	MARKS & MARKS	\$218,020
WY-EAST RESOURCE CONSERVATION & DEVELOPMENT COUNCIL	\$579,972	RESOURCE CONSERVATION & DEVELOPMENT	\$217,584
LEWIS SOIL & WATER CONSERVATION DISTRICT	\$575,320	US FISH AND WILDLIFE SERVICE - (LONGVIEW WA)	\$214,203
US SMALL BUSINESS ADMINISTRATION	\$573,849	USFS - PACIFIC NW REGION (6) - PORTLAND	\$213,180
USFS - UMATILLA NATIONAL FOREST	\$534,198	NSRI	\$206,669
EASTERN OREGON STATE COLLEGE	\$521,423	WALLOWA PUBLIC WORKS DEPARTMENT	\$206,426
MILLER ECOLOGICAL CONSULTANTS	\$507,552	US ARMY CORPS OF ENGINEERS - NORTHWEST DIVISION	\$204,998
US DOI BUREAU OF RECLAMATION	\$493,150	UNION COUNTY PUBLIC WORKS DEPARTMENT	\$203,650
WALLA WALLA COUNTY CONSERVATION DISTRICT	\$474,928	MOBRAND BIOMETRIC, INC.	\$201,415
US GEOLOGICAL SURVEY - BIOLOGICAL RESOURCES DIVISION	\$468,198	CRATE'S POINT	\$200,000
USFS - G. PINCHOT NAT. FOREST - MT ADAMS RANGER DIST., WIND RIVER DIV.	\$444,891	KENNETH STINSON, LATAH SOIL AND WATER CONSERVATION DISTRICT	\$200,000
CANADA DEPARTMENT OF FISHERIES & OCEANS	\$434,800	NORTON-ARNOLD & COMPANY	\$196,214
TICOR TITLE INSURANCE COMPANY	\$430,000	COLUMBIA SOIL & WATER CONSERVATION DISTRICT	\$196,036
EDUCATIONAL SERVICES DISTRICT #105 (YAKIMA)	\$427,427	LATAH SOIL & WATER CONSERVATION DIST	\$193,274
KINTAMA RESEARCH CORPORATION	\$423,899	COLE & WEBER	\$188,237
RESEARCH INTO ACTION	\$414,555	LEMHI IRRIGATION DISTRICT	\$182,938
HES	\$412,682	USFWS - CRESTON NATIONAL FISH HATCHERY	\$181,088
M-F WATER CONTROL DISTRICT	\$400,000	UNIVERSITY of MONTANA	\$180,539
USFS - MT. HOOD NATIONAL FOREST	\$391,000	WALLOWA COUNTY	\$175,060
BIOMARK INC.	\$384,762	US ARMY CORE OF ENGINEERS - WALLA WALLA DIST	\$165,938
SYNERGY CONSULTING INC	\$378,631	LOWER COLUMBIA RIVER ESTUARY PARTNERSHIP	\$163,280
WASHINGTON TROUT	\$378,082	GOLDEN PACIFIC HOMES	\$160,000
PER LTD.	\$376,374	UNISYS CORPORATION	\$157,254
WASHINGTON WATER TRUST	\$142,867	IDAHO OFFICE OF SPECIES CONSERVATION	\$154,140
JEFF KUECHLE	\$360,691	GILLIAM SOIL AND WATER CONSERVATION DISTRICT	\$152,672
IRZ CONSULTING LLC	\$351,529	KRUGEL & ASSOCIATES	\$152,000
RICHARD HINRICHSEN	\$344,480	WHEELER SOIL AND WATER CONSERVATION DISTRICT	\$150,610
STEPHEN H. SMITH FISHERIES CONSULTING, INC.	\$340,057	OREGON DEPT OF ENVIRONMENTAL QUALITY - BUSINESS OFFICE	\$149,131
USFS - INTERMOUNTAIN REGION (4) - OGDEN	\$336,000	OXARC	\$143,340
ALLIANCE TITLE & ESCROW CORP	\$133,260	USFS - NEZ PERCE NATIONAL FOREST	\$142,878
CITY OF SCAPPOOSE	\$328,212	TEASDALE ENVIRONMENTAL	\$138,294
DONNA SILVERBERG	\$314,533	MORROW COUNTY SOIL AND WATER CONSERVATION DISTRICT	\$137,899
UNION COUNTY	\$303,102	KATHLEEN A CONCANNON	\$136,672
ENVIRONMENTAL SCIENCE ASSOCIATES	\$296,082	JEAN EDWARDS	\$135,711
USFS - MT HOOD NATIONAL FOREST - HOOD RIVER RANGER DISTRICT	\$295,917	ARCHAEOLOGICAL & HISTORICAL SERVICE	\$127,894
THE NATURE CONSERVANCY - OR	\$291,370	LAKE ROOSEVELT FORUM	\$127,058
ROCKY MOUNTAIN RESEARCH STATION	\$284,479	SHAPIRO & ASSOCIATES INC	\$120,983
WASHINGTON STATE CONSERVATION COMMISSION.	\$283,800	BCI MINISTRY ENVIRONMENT LAND AND PARKS	\$117,449
FIRST AMERICAN TITLE CO	\$283,359	MONUMENT SOIL & WATER CONSERVATION DISTRICT	\$116,500
KITTITAS COUNTY CONSERVATION DISTRICT	\$270,293	ENERGY NEWSDATA INC	\$114,600
NEZ TRIBAL TRIBAL FISHERIES/WATERSHED PROGRAM	\$266,829	PACIFIC WATERSHED INSTITUTE	\$112,620
US DOI NW BIOLOGICAL SCIENCE CENTER	\$253,199	ADVANCED TELEMETRY SYSTEMS INC	\$104,027
FISHER FISHERIES LTD	\$241,176	RHI MANAGEMENT RESOURCES	\$103,266
EASTERN WASHINGTON UNIVERSITY - ARCHAEOLOGY & HISTORY DEPARTMENT	\$240,303	FOSTER WHEELER ENVIRONMENTAL CO	\$101,955
SHERMAN SOIL & WATER CONSERVATION DISTRICT	\$238,197	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION	\$101,700
DSCONSULTING		JAMES J ANDERSON MD	\$100,000
		US DEPT OF JUSTICE	\$100,000

* Contracts under \$100,000 are not listed.

Source: Bonneville Power Administration

Table 7A Salmon and Steelhead passing Bonneville Dam, 1938-2003

These dam counts can not be utilized for year to year comparison of abundance or population size without evaluating and quantifying the effects of facility modifications, dam operations, dam modifications, upstream development, fisheries, hatchery production, counting schedules, counting techniques, between-dam counting discrepancies, counting station modification, fishway modifications, fallback and dam passage efficiencies.

Yearly totals of all fish passing Bonneville Dam 1938-1976

Year	Chinook	Steelhead	Sockeye	Coho	Year	Chinook	Steelhead	Sockeye	Coho
1938	271,799	107,003	75,040	15,185	1977	464,865	193,437	99,829	19,408
1939	286,236	121,922	73,382	14,383	1978	394,590	104,431	18,436	52,590
1940	391,573	185,161	148,805	11,870	1979	176,292	114,010	52,627	45,328
1941	461,443	118,087	65,741	17,911	1980	245,518	129,254	58,882	22,052
1942	401,998	151,345	55,464	12,401	1981	285,650	159,270	56,037	30,510
1943	313,123	92,131	39,845	2,547	1982	322,809	157,640	50,219	73,832
1944	240,763	100,521	15,071	4,207	1983	244,476	218,419	100,542	15,178
1945	297,488	120,144	9,501	791	1984	323,346	315,795	152,540	29,332
1946	445,743	142,548	74,354	3,897	1985	454,753	326,194	165,928	55,529
1947	480,377	135,444	171,139	11,174	1986	571,189	376,752	58,099	130,786
1948	419,555	139,062	131,541	4,081	1987	547,409	300,335	116,956	27,628
1949	277,697	119,285	51,444	1,004	1988	494,028	279,277	79,721	39,617
1950*	357,375	114,087	77,993	10,151	1989	416,170	287,802	41,884	39,243
1951*	331,788	140,689	169,428	5,201	1990	340,798	183,011	49,581	24,764
1952	420,879	260,990	184,645	7,768	1991	274,644	274,535	76,482	65,508
1953	332,479	223,914	235,215	13,018	1992	256,271	314,963	84,993	18,151
1954 ¹	320,947	176,260	130,107	4,062	1993	277,657	188,377	80,182	11,732
1955 ²	359,853	198,411	237,748	3,725	1994	243,450	161,978	12,678	22,795
1956 ³	300,917	131,116	156,418	6,127	1995	240,017	202,478	8,771	12,034
1957 ⁴	403,286	139,183	82,915	4,675	1996	296,635	205,213	30,252	18,747
1958 ⁵	426,419	131,437	122,389	3,673	1997	383,133	258,385	47,008	27,267
1959 ⁶	345,028	129,026	86,560	2,695	1998	280,944	185,094	13,218	49,920
1960 ⁷	256,049	113,676	59,713	3,268	1999	343,176	206,488	17,875	45,152
1961 ⁸	281,980	139,719	17,111	3,456	2000	491,928	351,493	93,398	97,127
1962 ⁹	286,625	164,025	28,179	14,788	2001	970,774	748,011	114,946	266,307
1963 ¹⁰	278,560	129,418	60,319	12,658	2002	925,452	624,248	49,610	95,289
1964 ¹¹	344,422	117,252	99,856	53,602	2003	996,660	478,644	39,291	133,874
1965 ¹²	317,957	166,453	55,125	76,032					
1966	340,111	143,661	156,661	71,891					
1967	366,237	121,872	144,158	96,488					
1968	341,154	106,974	108,207	63,488					
1969	507,543	140,782	59,636	49,378					
1970	384,780	113,510	70,762	80,116					
1971	405,702	193,966	87,447	75,989					
1972	394,456	185,886	56,323	65,932					
1973	398,635	157,823	58,979	54,609					
1974	366,759	137,054	43,837	60,955					
1975	425,566	85,540	58,212	58,307					
1976	507,773	124,177	43,611	53,150					

* Fish counting discontinued for annual winter maintenance on November 29, 1950.

- 1 Fish counting initiated Feb. 28, 1954 and discontinued Nov. 27, 1954
- 2 Fish counting initiated Feb. 28, 1955 and discontinued Nov. 29, 1955
- 3 Fish counting initiated March 1, 1956 and discontinued Dec. 1, 1956
- 4 Fish counting initiated March 1, 1957 and discontinued Nov. 30, 1957
- 5 Fish counting initiated March 2, 1958 and discontinued Nov. 30, 1958
- 6 Fish counting initiated March 1, 1959 and discontinued Nov. 28, 1959
- 7 Fish counting initiated March 1, 1960 and discontinued Nov. 30, 1960
- 8 Fish counting initiated March 1, 1961 and discontinued Nov. 30, 1961
- 9 Fish counting initiated March 1, 1962 and discontinued Nov. 30, 1962
- 10 Fish counting initiated March 1, 1963 and discontinued Nov. 30, 1963
- 11 Fish counting initiated March 1, 1964 and discontinued Nov. 28, 1964
- 12 Fish counting initiated March 28, 1965 and discontinued Nov. 30, 1965

Source: 1938 - 1976: Annual Fish Passage Reports - Corps of Engineers
1977 - 2003: Corps of Engineers, Fish Passage Center

Table 7B Minimum Numbers (in Thousands) of Salmon and Steelhead, Including Jacks, Entering the Columbia River Basin, 1938-2002*

Year	Chinook			Sockeye	Coho 2/ Chum 3/	Steelhead			Total
	Chinook		Steelhead			Steelhead		Total	
	Spr.1/ Sum.	Fall				Winter 4/ Summer	Summer		
1938	118.4	122.7	582.2	168.0	271.9	157.0	—	249.6	1,669.8
1939	155.5	191.8	550.3	124.8	184.2	96.3	—	232.0	1,534.9
1940	97.6	112.7	742.9	196.0	164.4	102.8	—	422.8	1,839.2
1941	129.0	106.5	1,175.7	173.6	131.5	340.1	—	336.8	2,393.2
1942	87.9	94.8	979.0	94.5	83.8	425.5	—	297.2	2,062.7
1943	133.8	57.0	600.9	73.4	80.9	78.7	—	216.0	1,240.7
1944	78.4	67.1	709.8	24.6	174.2	22.6	—	232.3	1,309.0
1945	118.8	52.6	711.7	10.9	204.6	48.3	—	288.4	1,415.3
1946	199.3	72.0	831.9	101.1	121.5	72.7	—	268.0	1,666.5
1947	251.8	86.3	903.6	335.3	176.2	40.7	—	261.8	2,055.7
1948	173.3	86.9	899.2	143.2	134.5	85.6	—	240.1	1,762.8
1949	178.3	57.8	550.5	52.6	100.7	44.7	—	162.5	1,147.1
1950	146.1	69.3	588.6	112.6	125.9	58.9	—	179.0	1,280.4
1951	259.0	116.4	385.6	203.7	112.4	46.1	—	244.5	1,367.7
1952	319.8	114.5	323.0	318.9	126.3	28.9	—	383.1	1,614.5
1953	342.4	95.0	257.3	260.0	61.3	22.9	76.8	361.3	1,477.0
1954	237.4	114.8	231.9	180.0	37.4	28.5	49.8	289.5	1,169.3
1955	317.1	147.6	281.5	245.0	64.3	10.7	56.0	298.8	1,421.0
1956	297.9	195.2	312.7	202.0	64.4	4.7	51.2	200.7	1,328.8
1957	307.8	207.0	276.6	147.8	55.1	4.2	54.8	229.6	1,282.9
1958	268.5	187.5	393.2	313.3	24.2	8.3	48.4	211.2	1,454.6
1959	198.2	169.8	296.0	270.7	21.2	5.5	61.0	231.6	1,254.0
1960	175.2	142.6	246.1	179.1	47.7	3.0	56.5	199.8	1,050.0
1961	203.8	129.2	252.3	60.2	112.4	3.1	94.4	227.9	1,083.3
1962	255.4	108.0	290.6	42.9	184.7	5.7	78.7	251.7	1,217.7
1963	219.0	100.0	265.1	79.9	161.9	3.0	79.4	228.8	1,137.1
1964	247.2	97.0	372.2	104.9	453.9	3.2	79.9	178.6	1,536.9
1965	241.9	82.1	399.2	55.2	519.0	1.5	120.3	227.3	1,646.5
1966	236.1	74.8	347.8	174.8	785.9	3.1	133.1	208.6	1,964.2
1967	240.5	100.7	385.0	180.2	694.2	2.1	111.5	167.3	1,881.5
1968	199.5	89.4	346.3	134.8	423.9	0.6	122.5	161.2	1,478.2
1969	295.0	106.2	471.0	75.8	463.4	1.1	66.8	191.2	1,670.5
1970	252.7	72.9	532.2	95.4	1,079.0	1.2	134.5	157.0	2,324.9
1971	266.9	89.5	488.6	150.5	648.7	1.1	169.2	248.5	2,063.0
1972	353.3	77.5	338.3	123.3	362.6	2.4	113.0	257.8	1,628.2
1973	326.1	48.9	562.1	61.3	422.8	1.8	90.9	217.0	1,730.9
1974	224.1	34.0	357.1	43.8	534.0	1.2	77.7	168.9	1,440.8
1975	176.1	44.4	525.9	58.2	437.7	0.8	62.0	105.4	1,410.5
1976	165.5	42.1	563.7	43.7	384.1	1.5	55.4	147.8	1,403.8
1977	239.6	41.4	449.3	99.8	199.0	0.8	112.1	238.5	1,380.5
1978	241.8	43.6	395.6	18.4	382.7	1.9	77.1	154.5	1,315.6
1979	126.2	34.5	356.2	52.6	330.7	0.3	114.1	146.3	1,160.9

* Data is unavailable for 2003.

Source: Fish Passage Center

1/ Counting began at Bonneville Dam on May 7, 1938. Estimates for tributary runs below Bonneville Dam are not included for 1938-45.

2/ Commercial catch and dam counts only, 1938-59.

3/ Commercial catch numbers only, 1938-49.

4/ Abundance index.

() indicates estimate.

Table 9 Spring and Summer Chinook Passing Bonneville Dam, 1977-2003

Year	Spring Chinook		Summer Chinook	
	Adults	Jacks	Adults	Jacks
1977	115,551	3,957	34,083	6,940
1978	147,680	2,183	39,730	4,593
1979	48,638	2,824	27,742	6,475
1980	53,100	7,887	26,952	4,113
1981	62,827	2,182	22,363	4,566
1982	70,011	6,033	20,129	6,485
1983	54,898	1,940	18,046	5,412
1984	46,870	4,272	22,321	6,127
1985	83,113	7,851	23,898	5,455
1986	118,371	4,963	26,300	4,820
1987	98,573	3,234	33,033	4,674
1988	90,532	4,214	31,315	5,209
1989	81,267	5,992	28,786	4,185
1990	94,014	2,090	24,983	3,038
1991	57,346	3,889	18,897	3,056
1992	88,425	2,157	15,063	4,182
1993	110,820	1,352	22,045	1,571
1994	20,169	397	17,631	1,900
1995	10,194	2,375	15,030	2,030
1996	51,493	4,687	16,034	1,960
1997	114,000	963	27,939	1,926
1998	38,342	775	21,433	2,678
1999	38,669	8,691	26,169	4,022
2000	178,302	21,259	30,598	13,386
2001	391,367	14,172	76,156	14,723
2002	268,813	6,477	127,436	7,952
2003	195,671	14,258	114,808	13,358

Adult Passage (ladder) count data from the Army Corps of Engineers.
Source: Fish Passage Center

Table 10 Estimated Irriver Juvenile Survival through the Hydrosystem, 1966-1980, 1997-2004

Year	Chinook Salmon		Steelhead	
	1966-1980	1997-2004	1966-1980	1997-2004
1966	0.46	0.15	0.56	0.03
1967	0.47		0.32	0.47
1968	0.45		0.43	0.50
1969	0.34	0.56	0.20	0.44
1970	0.17	0.49	0.24	0.39
1971	0.20		0.17	
1972	0.09		0.09a	
1973	0.03		0.01	
1974	0.28b		0.08	
1975	0.19b		0.27	
1976	0.10		0.13	
1977	0.01		0.01	
1978	0.23b		0.08	
1979	0.19		0.02	
Year	Mid-Columbia Snake	Mid-Columbia Snake	Mid-Columbia Snake	Mid-Columbia Snake
2001	NA	0.28	NA	0.04
2002	0.75	0.58	NA	0.26
2003	0.77	0.53	0.7	0.31
2004	0.62	0.40	0.5	na

There is a gap in this information between 1981 and 1997. Prior to 1993, survival studies based on observations of freeze brands on juvenile fish were considered unreliable, and further studies were put off until PIT tag data became available that year. Between 1993 and 1997, PIT tag detectors were installed only at Snake River dams, and so systemwide survivals for those years were mathematical expansions of the Snake River observations. Beginning in 1997, with additional PIT tag detection equipment available, systemwide survival observations were possible and the mathematical expansions no longer were used.

a Extrapolation based on three dam and reservoirs as survival estimates between Ice Harbor Dam and The Dalles Dam did not change between 1966 and 1970 after completion of John Day Dam in 1968.

b Based on product of two non-rounded numbers

Source: NOAA Fisheries

Table 11 Where do the Fish Go? Fish Counted at Each Mainstem Dam, 2001-2003

Dam	Spring Chinook		Summer Chinook		Fall Chinook		Coho		Sockeye		Steelhead	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Bonneville	275,290	206,268	135,388	128,166	512,488	658,064	92,960	133,870	49,610	39,291	478,907	361,412
The Dalles	185,046	142,729	118,812	111,931	279,252	353,405	12,785	45,374	40,554	34,176	387,920	273,172
John Day	142,290	111,642	110,969	105,615	194,472	249,810	9,259	38,577	41,915	35,417	391,084	286,176
McNary	133,229	106,673	116,755	104,948	167,037	208,982	3,176	19,830	39,177	32,037	286,451	230,418
Ice Harbor	87,033	86,190	29,044	25,343	21,536	31,664	232	1,431	60	37	203,929	186,474
Lower Granite	77,157	78,904	24,112	20,559	17,816	20,213	369	1,265	51	11	208,303	180,672
Lower Monumental	77,841	77,947	25,429	22,307	21,376	22,851	148	1,104	45	14	212,194	176,541
Little Goose	79,047	76,096	17,877	17,877	17,061	20,918	121	864	38	23	198,817	166,046
Priest Rapids	34,279	18,792	97,781	86,837	28,338	54,804	1,447	5,216	47,882	36,551	15,806	17,652
Rock Island	24,844	17,634	90,041	88,401	14,839	26,132	1,592	5,869	44,319	34,779	15,196	17,509
Rocky Reach	10,160	4,666	75,911	69,362	11,918	13,980	425	993	12,372	30,355	11,718	13,641
Wells	7,626	4,702	63,007	46,391	6,099	8,253	135	168	10,587	28,977	9,246	9,963

Source: Fish Passage Center.

Table 14A Wildlife Accounting by Species and Dam

Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed	Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed
Albani Falls	Bald Eagle (breeding)	4508	301	4207	6.68%	Bonneville WA	Black-capped Chickadee	511	429	82	83.95%
Albani Falls	Bald Eagle (wintering)	4365	314	4051	7.19%	Bonneville WA	Canada Goose	1222	1112	110	91.00%
Albani Falls	Black-capped Chickadee	2286	117	2169	5.12%	Bonneville WA	Great Blue Heron	2150	607	1543	28.23%
Albani Falls	Canada Goose	4699	1161	3538	24.71%	Bonneville WA	Lesser Scaup	0	0	0	0.00%
Albani Falls	Mallard	5985	227	5758	3.79%	Bonneville WA	Mink	811	1687	-876	208.01%
Albani Falls	Muskrat	1756	82	1674	4.67%	Bonneville WA	Spotted Sandpiper	1383	0	1383	0.00%
Albani Falls	Redhead Duck	3379	0	3379	0.00%	Bonneville WA	Yellow Warbler	82	40	42	48.78%
Albani Falls	White-tailed Deer	1680	30	1650	1.79%	Bonneville WA	All Species	6159	3875	2284	62.92%
Albani Falls	Yellow Warbler	0	59	-59	0.00%	Chief Joseph	Bobcat	401	132	269	32.92%
Albani Falls	All Species	28658	2291	26367	7.99%	Chief Joseph	Canada Goose	213	10	203	4.69%
Anderson Ranch	Black-capped Chickadee	890	0	890	0.00%	Chief Joseph	Lesser Scaup	0	0	0	0.00%
Anderson Ranch	Blue Grouse	1980	0	1980	0.00%	Chief Joseph	Lewis Woodpecker	286	141	145	49.30%
Anderson Ranch	Common Snipe	0	889	-889	0.00%	Chief Joseph	Mink	920	137	783	14.89%
Anderson Ranch	Mallard	1048	81	967	7.73%	Chief Joseph	Mule Deer	1992	409	1583	20.53%
Anderson Ranch	Mink	1732	0	1732	0.00%	Chief Joseph	Ring-necked Pheasant	239	0	239	0.00%
Anderson Ranch	Mule Deer	2689	0	2689	0.00%	Chief Joseph	Sage Grouse	1179	554	625	46.99%
Anderson Ranch	Peregrine Falcon	0	0	0	0.00%	Chief Joseph	Sharp-tailed Grouse	2290	14	2276	0.61%
Anderson Ranch	Ruffed Grouse	919	0	919	0.00%	Chief Joseph	Spotted Sandpiper	1255	10	1245	0.80%
Anderson Ranch	Western Meadowlark	0	74	-74	0.00%	Chief Joseph	Yellow Warbler	58	26	32	44.83%
Anderson Ranch	Yellow Warbler	361	3	358	0.83%	Chief Joseph	All Species	8833	1433	7400	16.22%
Anderson Ranch	All Species	9619	1047	8572	10.88%	Cougar	American Dipper	285	0	285	0.00%
Big Cliff	Bald Eagle	0	0	0	0.00%	Cougar	Bald Eagle	0	0	0	0.00%
Big Cliff	Beaver	50	0	50	0.00%	Cougar	Beaver	189	182	7	96.30%
Big Cliff	Black-tailed Deer	81	0	81	0.00%	Cougar	Black Bear	1856	0	1856	0.00%
Big Cliff	Common Merganser	11	0	11	0.00%	Cougar	Black-tailed Deer	1192	0	1192	0.00%
Big Cliff	Osprey	0	0	0	0.00%	Cougar	Cougar	1472	0	1472	0.00%
Big Cliff	Pileated Woodpecker	71	0	71	0.00%	Cougar	Harlequin duck	282	0	282	0.00%
Big Cliff	River Otter	38	0	38	0.00%	Cougar	Osprey	0	0	0	0.00%
Big Cliff	Roosevelt Elk	81	0	81	0.00%	Cougar	Pileated Woodpecker	1938	0	1938	0.00%
Big Cliff	Ruffed Grouse	81	0	81	0.00%	Cougar	River Otter	189	0	189	0.00%
Big Cliff	All Species	413	0	413	0.00%	Cougar	Roosevelt Elk	1484	0	1484	0.00%
Black Canyon	Black-capped Chickadee	0	0	0	0.00%	Cougar	Ruffed Grouse	293	0	293	0.00%
Black Canyon	Canada Goose	214	0	214	0.00%	Cougar	Spotted Owl	1774	0	1774	0.00%
Black Canyon	Mallard	270	0	270	0.00%	Cougar	Waterfowl	0	0	0	0.00%
Black Canyon	Mink	652	1	651	0.15%	Cougar	Yellow Warbler	170	25	145	14.71%
Black Canyon	Mule Deer	242	53	189	21.90%	Cougar	All Species	11124	207	10917	1.86%
Black Canyon	Ring-necked Pheasant	260	0	260	0.00%	Detroit	Bald Eagle	0	0	0	0.00%
Black Canyon	Sharp-tailed Grouse	532	0	532	0.00%	Detroit	Beaver	715	0	715	0.00%
Black Canyon	Yellow Warbler	0	3	-3	0.00%	Detroit	Black-tailed Deer	3061	0	3061	0.00%
Black Canyon	All Species	2170	57	2113	2.63%	Detroit	Common Merganser	0	0	0	0.00%
Bonneville OR	Black-capped Chickadee	511	189	322	36.99%	Detroit	Osprey	0	0	0	0.00%
Bonneville OR	Canada Goose	1222	0	1222	0.00%	Detroit	Pileated Woodpecker	1156	0	1156	0.00%
Bonneville OR	Great Blue Heron	2150	388	1762	18.05%	Detroit	River Otter	882	0	882	0.00%
Bonneville OR	Lesser Scaup	0	0	0	0.00%	Detroit	Roosevelt Elk	2210	0	2210	0.00%
Bonneville OR	Mink	811	0	811	0.00%	Detroit	Ruffed Grouse	3028	0	3028	0.00%
Bonneville OR	Spotted Sandpiper	1383	2	1381	0.14%	Detroit	Spotted Owl	246	0	246	0.00%
Bonneville OR	Yellow Warbler	82	11	71	13.41%	Detroit	All Species	11298	0	11298	0.00%
Bonneville OR	All Species	6159	590	5569	9.58%						

Table 14A Wildlife Accounting by Species and Dam (continued)

Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed	Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed
Dexter	American Dipper	119	0	119	0.00%	Green Peter	Osprey	0	0	0	0.00%
Dexter	Bald Eagle	0	0	0	0.00%	Green Peter	Pileated Woodpecker	710	0	710	0.00%
Dexter	Beaver	832	0	832	0.00%	Green Peter	River Otter	575	0	575	0.00%
Dexter	Black-tailed Deer	1078	0	1078	0.00%	Green Peter	Roosevelt Elk	3997	0	3997	0.00%
Dexter	California quail	664	0	664	0.00%	Green Peter	Ruffed Grouse	3264	0	3264	0.00%
Dexter	Greater Scaup	0	0	0	0.00%	Green Peter	All Species	16432	0	16432	0.00%
Dexter	Mink	832	0	832	0.00%	Hills Creek	American Dipper	200	0	200	0.00%
Dexter	Osprey	0	0	0	0.00%	Hills Creek	Bald Eagle	0	0	0	0.00%
Dexter	Red Fox	508	0	508	0.00%	Hills Creek	Beaver	326	955	-629	292.94%
Dexter	Ring-necked Pheasant	332	0	332	0.00%	Hills Creek	Black Bear	2958	66	2892	2.23%
Dexter	Ruffed Grouse	701	0	701	0.00%	Hills Creek	Black-tailed Deer	2912	259	2653	8.89%
Dexter	Western Gray Squirrel	284	0	284	0.00%	Hills Creek	Cougar	2381	110	2271	4.62%
Dexter	Wood Duck	644	0	644	0.00%	Hills Creek	Harlequin duck	269	0	269	0.00%
Dexter	Yellow Warbler	654	0	654	0.00%	Hills Creek	Osprey	0	0	0	0.00%
Dexter	All Species	6648	0	6648	0.00%	Hills Creek	Pileated Woodpecker	3201	0	3201	0.00%
Foster	Bald Eagle	0	0	0	0.00%	Hills Creek	River Otter	384	0	384	0.00%
Foster	Beaver	245	0	245	0.00%	Hills Creek	Roosevelt Elk	3203	106	3097	3.31%
Foster	Black-tailed Deer	890	0	890	0.00%	Hills Creek	Ruffed Grouse	468	0	468	0.00%
Foster	Osprey	0	0	0	0.00%	Hills Creek	Spotted Owl	2977	0	2977	0.00%
Foster	Ring-necked Pheasant	385	0	385	0.00%	Hills Creek	Waterfowl	0	0	0	0.00%
Foster	River Otter	340	0	340	0.00%	Hills Creek	Yellow Warbler	210	0	210	0.00%
Foster	Roosevelt Elk	652	0	652	0.00%	Hills Creek	All Species	19489	1496	17993	7.68%
Foster	Ruffed Grouse	853	0	853	0.00%	John Day OR	Black-capped Chickadee	435	0	435	0.00%
Foster	Wood Duck	179	0	179	0.00%	John Day OR	California quail	3162	0	3162	0.00%
Foster	All Species	3544	0	3544	0.00%	John Day OR	Canada Goose	4005	0	4005	0.00%
Grand Coulee	Black-capped Chickadee	0	2	-2	0.00%	John Day OR	Great Blue Heron	1593	0	1593	0.00%
Grand Coulee	Blue Grouse	0	954	-954	0.00%	John Day OR	Lesser Scaup	0	0	0	0.00%
Grand Coulee	Bobcat	0	8	-8	0.00%	John Day OR	Mallard	3700	0	3700	0.00%
Grand Coulee	Canada Goose (nesting)	74	0	74	0.00%	John Day OR	Mink	719	7	712	0.97%
Grand Coulee	Downy Woodpecker	0	1495	-1495	0.00%	John Day OR	Mule Deer	0	5966	-5966	0.00%
Grand Coulee	Great Blue Heron	0	4500	-4500	0.00%	John Day OR	Spotted Sandpiper	1593	0	1593	0.00%
Grand Coulee	Mallard	0	2	-2	0.00%	John Day OR	Western Meadowlark	2530	8070	-5540	318.97%
Grand Coulee	Mink	0	24	-24	0.00%	John Day OR	Yellow Warbler	543	14	529	2.58%
Grand Coulee	Mourning Dove	9316	1001	8315	10.74%	John Day OR	All Species	18280	14057	4223	76.90%
Grand Coulee	Mule Deer	27133	17172	9961	63.29%	John Day WA	Black-capped Chickadee	435	677	-242	155.63%
Grand Coulee	Pigmy Rabbit	0	1246	-1246	0.00%	John Day WA	California quail	3162	4581	-1419	144.88%
Grand Coulee	Riparian Forest	1632	200	1432	12.25%	John Day WA	Canada Goose	4005	2742	1263	68.46%
Grand Coulee	Riparian Shrub	27	0	27	0.00%	John Day WA	Great Blue Heron	1593	1691	-98	106.15%
Grand Coulee	Ruffed Grouse	16502	2908	13594	17.62%	John Day WA	Lesser Scaup	0	0	0	0.00%
Grand Coulee	Sage Grouse	2746	7432	-4686	270.65%	John Day WA	Mallard	3700	3083	617	83.32%
Grand Coulee	Sharp-tailed Grouse	32723	14789	17934	45.19%	John Day WA	Mink	719	1430	-711	198.89%
Grand Coulee	Western Meadowlark	0	286	-286	0.00%	John Day WA	Spotted Sandpiper	1593	0	1593	0.00%
Grand Coulee	White-tailed Deer	21632	9064	12568	41.90%	John Day WA	Western Meadowlark	2530	1927	603	76.17%
Grand Coulee	Yellow Warbler	0	129	-129	0.00%	John Day WA	Yellow Warbler	543	667	-124	122.84%
Grand Coulee	All Species	111785	61212	50573	54.76%	John Day WA	All Species	18280	16798	1482	91.89%
Green Peter	Bald Eagle	0	0	0	0.00%	Lookout Point	American Dipper	350	0	350	0.00%
Green Peter	Band-tailed Pigeon	3487	0	3487	0.00%	Lookout Point	Bald Eagle	0	0	0	0.00%
Green Peter	Beaver	381	0	381	0.00%	Lookout Point	Beaver	1739	0	1739	0.00%
Green Peter	Black-tailed Deer	3997	0	3997	0.00%	Lookout Point	Black-tailed Deer	4043	0	4043	0.00%
Green Peter	Common Merganser	21	0	21	0.00%	Lookout Point	California quail	1937	0	1937	0.00%

Table 14A Wildlife Accounting by Species and Dam (continued)

Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed	Dam	Wildlife Species	HUs Lost	HUs Acquired	HUs Remaining	Percent Completed
Lookout Point	Common Merganser	95	0	95	0.00%	McNary WA	Spotted Sandpiper	1090	0	1090	0.00%
Lookout Point	Mink	1586	0	1586	0.00%	McNary WA	Western Meadowlark	2775	1130	1645	40.72%
Lookout Point	Osprey	0	0	0	0.00%	McNary WA	Yellow Warbler	263	396	-133	150.57%
Lookout Point	Pileated Woodpecker	1614	0	1614	0.00%	McNary WA	All Species	18834	22041	-3207	117.03%
Lookout Point	Red Fox	2082	0	2082	0.00%	Minidoka	Bald Eagle (wintering)	0	89	-89	0.00%
Lookout Point	Ring-necked Pheasant	1654	0	1654	0.00%	Minidoka	Mallard	0	0	0	0.00%
Lookout Point	Roosevelt Elk	3668	0	3668	0.00%	Minidoka	Marsh Wren	0	0	0	0.00%
Lookout Point	Ruffed Grouse	2457	0	2457	0.00%	Minidoka	Mule Deer	3413	1632	1781	47.82%
Lookout Point	Spotted Owl	714	0	714	0.00%	Minidoka	Redhead Duck	0	0	0	0.00%
Lookout Point	Western Gray Squirrel	1070	0	1070	0.00%	Minidoka	River Otter	2993	0	2993	0.00%
Lookout Point	Wood Duck	1124	0	1124	0.00%	Minidoka	Sage Grouse	3755	0	3755	0.00%
Lookout Point	Yellow Warbler	1321	0	1321	0.00%	Minidoka	Western Grebe	0	0	0	0.00%
Lookout Point	All Species	25454	0	25454	0.00%	Minidoka	Yellow Warbler	342	0	342	0.00%
Lower Snake	Black-capped Chickadee	0	1014	-1014	0.00%	Minidoka	All Species	10503	1721	8782	16.39%
Lower Snake	California quail	20508	1936	18572	9.44%	Palisades	Bald Eagle (breeding)	5941	3329	2612	56.03%
Lower Snake	Canada Goose	2040	7	2033	0.34%	Palisades	Bald Eagle (wintering)	18565	6974	11591	37.57%
Lower Snake	Downy Woodpecker	365	238	127	65.21%	Palisades	Black-capped Chickadee	1358	480	878	35.35%
Lower Snake	Mallard (nesting)	0	365	-365	0.00%	Palisades	Canada Goose	805	388	417	48.20%
Lower Snake	Mink	0	48	-48	0.00%	Palisades	Mallard	2622	998	1624	38.06%
Lower Snake	Mule Deer	2647	1456	-1456	0.00%	Palisades	Mink	2276	653	1623	28.69%
Lower Snake	Ring-necked Pheasant	0	49	2598	1.85%	Palisades	Mule Deer	2454	2607	-153	106.23%
Lower Snake	Sage Grouse	0	45	-45	0.00%	Palisades	Peregrine Falcon	0	0	0	0.00%
Lower Snake	Song Sparrow	288	1060	-772	368.06%	Palisades	Ruffed Grouse	2331	491	1840	21.06%
Lower Snake	Western Meadowlark	0	2207	-2207	0.00%	Palisades	Yellow Warbler	558	160	58	22.28%
Lower Snake	Yellow Warbler	927	436	491	47.03%	Palisades	All Species	37070	16080	20990	43.38%
Lower Snake	All Species	26775	8861	17914	33.09%	The Dalles OR	Black-capped Chickadee	91	0	91	0.00%
McNary OR	Black-capped Chickadee	0	1202	-1202	0.00%	The Dalles OR	Canada Goose	220	0	220	0.00%
McNary OR	Blue Grouse	408	408	-408	0.00%	The Dalles OR	Great Blue Heron	213	0	213	0.00%
McNary OR	California quail	1263	1448	-185	114.65%	The Dalles OR	Lesser Scaup	0	0	0	0.00%
McNary OR	Canada Goose	697	0	697	0.00%	The Dalles OR	Mink	165	0	165	0.00%
McNary OR	Downy Woodpecker	75	845	-770	1126.67%	The Dalles OR	Spotted Sandpiper	267	0	267	0.00%
McNary OR	Great Blue Heron	0	39	-39	0.00%	The Dalles OR	Western Meadowlark	124	0	124	0.00%
McNary OR	Mallard (nesting)	1392	93	1299	6.68%	The Dalles OR	Yellow Warbler	85	0	85	0.00%
McNary OR	Mallard (wintering)	0	0	0	0.00%	The Dalles OR	All Species	1165	0	1165	0.00%
McNary OR	Mink	250	145	105	58.00%	The Dalles WA	Black-capped Chickadee	91	272	-181	298.90%
McNary OR	Spotted Sandpiper	273	20	253	7.33%	The Dalles WA	Canada Goose	220	734	-514	333.64%
McNary OR	Western Meadowlark	694	1981	-1287	285.45%	The Dalles WA	Great Blue Heron	213	111	102	52.11%
McNary OR	Yellow Warbler	66	284	-218	430.30%	The Dalles WA	Lesser Scaup	0	0	0	0.00%
McNary OR	All Species	4710	6465	-1755	137.26%	The Dalles WA	Mink	165	410	-245	248.48%
McNary WA	Black-capped Chickadee	0	3178	-3178	0.00%	The Dalles WA	Spotted Sandpiper	267	158	109	59.18%
McNary WA	Blue Grouse	0	137	-137	0.00%	The Dalles WA	Western Meadowlark	124	58	66	46.77%
McNary WA	California quail	5051	10275	-5224	203.43%	The Dalles WA	Yellow Warbler	85	156	-71	183.53%
McNary WA	Canada Goose	2787	2323	464	83.35%	The Dalles WA	All Species	1165	1899	-734	163.00%
McNary WA	Downy Woodpecker	301	1757	-1456	583.72%	Total		404567	160130	244437	
McNary WA	Great Blue Heron	0	117	-117	0.00%						
McNary WA	Mallard (nesting)	5567	1803	3764	32.39%						
McNary WA	Mallard (wintering)	0	0	0	0.00%						
McNary WA	Mink	1000	925	75	92.50%						

Source: Bonneville Power Administration

Table 14B Wildlife Habitat Units Lost, Acquired and Estimated, by Dam Group

Dam Group	Dam	HUs Lost	Total HUs Acquired & Estimated*	Percent Completed
Lower Columbia	Bonneville	12318	12251	99.5%
Lower Columbia	John Day	36560	30855	84.4%
Lower Columbia	McNary	23544	29234	124.2%
Lower Columbia	The Dalles	2330	1899	81.5%
		74752	74239	99.3%
Lower Snake	Four Lower Snake Dams	26775	8861	33.1%
Upper Columbia	Albani Falls	28658	4188	14.6%
Upper Columbia	Chief Joseph	8833	1433	16.2%
Upper Columbia	Grand Coulee	111785	61553	55.1%
		149276	67174	45.0%
Upper Snake	Anderson Ranch	9619	1047	10.9%
Upper Snake	Black Canyon	2170	57	2.6%
Upper Snake	Minidoka	10503	1833	17.5%
Upper Snake	Palisades	37070	16080	43.4%
		59362	19017	32.0%
Willamette	Big Cliff	413	32	7.7%
Willamette	Cougar	11124	307	2.8%
Willamette	Detroit	11298	58	0.5%
Willamette	Dexter	6648	150	2.3%
Willamette	Foster	3544	96	2.7%
Willamette	Green Peter	16432	0	0.0%
Willamette	Hills Creek	19489	1496	7.7%
Willamette	Lookout Point	25454	0	0.0%
		94402	2139	2.3%
	Grand Total	404567	171430	42.4%

* Estimated HUs are those not yet credited by Bonneville against losses.

Source: Bonneville Power Administration

Table 14C Wildlife Habitat Units Lost, Gained*, Acquired, Estimated**, and Total by Dam or Area

Dam	HUs Lost	HUs Gained*	HUs Acquired	HUs Estimated**	Total Acquired & Estimated** HUs
Albani Falls	28,658	171	2,306	1,882	4,188
Anderson Ranch	9,619	0	1,047	0	1,047
Big Cliff	413	40	0	32	32
Black Canyon	2,170	76	57	0	57
Bonneville OR	6,159	1,335	590	0	590
Bonneville WA	6,159	1,335	3,875	7,786	11,661
Chief Joseph	8,833	1,440	1,433	0	1,433
Cougar	11,124	1,637	207	100	307
Detroit	11,298	3,233	0	58	58
Dexter	6,648	1,214	0	150	150
Foster	3,544	926	0	96	96
Grand Coulee	111,785	0	61,212	341	61,553
Green Peter	16,432	4,742	0	0	0
Hills Creek	19,489	853	1,496	0	1,496
John Day OR	18,280	7,199	14,057	0	14,057
John Day WA	18,280	7,199	16,798	0	16,798
Lookout Point	25,454	2,636	0	0	0
Lower Snake	26,775	0	8,861	0	8,861
McNary OR	4,710	2,749	6,465	0	6,465
McNary WA	18,834	10,995	22,041	728	22,769
Minidoka	10,503	5,129	1,721	112	1,833
Palisades	37,070	0	16,080	0	16,080
The Dalles OR	1,165	289	0	0	0
The Dalles WA	1,165	289	1,899	0	1,899
Total	404,567	53,487	160,145	11,285	171,430

* Gained HUs are those that resulted from inundation and created habitat for some species.

** Estimated HUs are those not yet credited by Bonneville against losses.

Source: Bonneville Power Administration

Table 14D BPA Expenditures for Individual Wildlife Tracts

WL Site	Tract	Acres Protected	Purchase Cost	Purchase Type	WL Site	Tract	Acres Protected	Purchase Cost	Purchase Type
Albeni Falls Wildlife Mitigation	Strong Property	255	\$850,000	Fee Title	McCoy Lake Watershed	Harris Property	180	\$194,940	Fee Title
Blue Creek Winter Range	Abrahamson Property (A 322)	78	\$42,237	Fee Title	McCoy Lake Watershed	Kenworthy Property	40	\$60,000	Fee Title
Blue Creek Winter Range	Blue Creek Land Swap	701	\$812,000	Exchange	McCoy Lake Watershed	McCrea Property (A 401 A)	35	\$19,530	Fee Title
Boise River WMA	Krueger	166	\$332,500	Fee Title	McCoy Lake Watershed	People Living God Prop.	440	\$498,000	Fee Title
Boundary Creek WMA	Boundary Creek	1,405	\$672,885	Fee Title	Muddy Cr / Marys River	Muddy Cr / Marys River	222	\$387,500	Fee Title
Burlington Bottoms	Burlington Bottoms	417	\$700,000	Fee Title	Pend Oreille Wetlands (Kalispel)	Pend Oreille Wetlands I	436	\$427,185	Fee Title
Canby Landing	Canby Property	23	\$250,000	Fee Title	Pend Oreille Wetlands (Kalispel)	Pend Oreille Wetlands II	164	\$199,500	Fee Title
Col R Estuary Islands	Crimms Island	427	\$430,000	Fee Title	Perkins Lake	Perkins Lake Tract	98	\$200,000	Fee Title
Deer Parks WMU	Allen	81	\$283,800	none/unknown	Pine Creek	Pine Creek	24,304	\$3,200,000	Fee Title
Deer Parks WMU	Beaver/Dick (Kinghorn 1)	310	\$465,000	Fee Title	Precious Lands WMA	Precious Lands	15,325	\$4,250,524	Fee Title
Deer Parks WMU	Boyle Ranch	2,556	\$5,200,000	Fee Title	Rainwater Ranch	Rainwater Ranch	8,678	\$4,085,550	Fee Title
Deer Parks WMU	Horkley	128	\$336,000	none/unknown	Rudeen	Rudeen	2,450	\$1,700,000	Fee Title
Deer Parks WMU	Menan (Kinghorn 2)	140	\$220,350	Fee Title	Sage Flat	Sage Flat	8,380	\$1,526,057	Mix
Denny Jones	Denny Jones Ranch	6,385	\$1,700,000	Fee Title	Scotch Creek WA	Scotch Creek	4,290	\$9,000	Fee Title
Fox Creek	Kiefler Property	40	\$64,000	Fee Title	Scotch Creek WA	Scotch Creek	320	\$295,291	Fee Title
Fox Creek	Smith Property	160	\$320,000	Fee Title	Scotch Creek WA	Tunk	2,563	\$1,282,000	Fee Title
Goose Haven Lake	Bader	648	\$800,324	none/unknown	Soda Hills WMA	Soda Hills	42	\$172,955	Fee Title
Helsgate	Berg	6,300	\$2,000,000	Fee Title	Sorenson	Sorenson	9	\$110,000	Fee Title
Helsgate	Bill Kuenhe	4,814	\$2,275,000	Fee Title	Steigenwald Lake NWR	Bliss	27	\$139,000	Fee Title
Helsgate	Colville Allotments	80	\$21,746	Fee Title	Steigenwald Lake NWR	Burlington Northern	90	\$594,000	Fee Title
Helsgate	Covington	129	\$68,000	Fee Title	Steigenwald Lake NWR	James	191	\$872,852	Fee Title
Helsgate	Friedlander	60	\$47,116	Fee Title	Swanson Lakes	Nelson	792	\$191,889	Exchange
Helsgate	Graves	2,700	\$657,403	Fee Title	Swanson Lakes	Swanson Lakes	14,939	\$3,071,856	Fee Title
Helsgate	Henry Kuehne	4,860	\$3,000,000	Fee Title	Tacoma/Timble WMA	Lower Trimble Creek	450	\$506,000	Fee Title
Helsgate	Hinman	770	\$139,608	Fee Title	Tacoma/Timble WMA	Tacoma Creek	437	\$535,000	Fee Title
Helsgate	Nespelem Bend	517	\$95,000	Fee Title	Tacoma/Timble WMA	Upper Trimble Creek	303	\$304,500	Fee Title
Helsgate	Redford Canyon	221	\$175,000	Fee Title	Tex Creek WMA	Quarter Circle	2,135	\$260,000	Fee Title
Helsgate	Sand Hills	1,394	\$575,000	Fee Title	The Pend Oreille WMA	Abeni Cove	70	\$126,208	Fee Title
Helsgate	Sand Hills	5,937	\$2,260,625	Fee Title	The Pend Oreille WMA	Carter Island	96	\$288,000	Fee Title
Iskuilpa	Iskuilpa	800	\$310,000	Easement	The Pend Oreille WMA	Cocolalla Lake	98	\$290,500	Fee Title
Kruse Pine Creek Easement	Pine Creek (Kruse)	940	\$265,000	Mix	The Pend Oreille WMA	Denton Slough	17	\$44,000	Fee Title
Ladd Marsh	Ladd Marsh	716	\$313,000	Mix	The Pend Oreille WMA	Derr Creek (Henderson Ranch)	240	\$511,000	Fee Title
Little Pend Oreille NWR	Kaniksua Addition	200	\$275,707	Fee Title	The Pend Oreille WMA	Pack River (McMahon)	30	\$42,500	Fee Title
Little Pend Oreille NWR	Weir	1,700	\$2,000,000	Fee Title	The Pend Oreille WMA	Rapid Lightning (Ginter)	110	\$219,900	Fee Title
Logan Valley	Logan Valley	92	\$102,200	Lease	The Pend Oreille WMA	Trout Creek (Hunter Ranch)	216	\$875,500	Fee Title
Lower Yakima Wetlands	Buena	80	\$79,000	Easement	The Pend Oreille WMA	Westmond Lake	65	\$118,000	Fee Title
Lower Yakima Wetlands	Knight Property	417	\$830,000	Easement	Thurston	Thurston	54	\$121,275	Easement
Lower Yakima Wetlands	Lateral A	733	\$167,725	Mix	Trout Creek Peninsula	Wheeler Peninsula Tract	112	\$155,000	Fee Title
Lower Yakima Wetlands	Mosebar	1,110	\$331,150	Mix	Tualatin River NWR	Oleson Tract 1	132	\$577,908	Mix
Lower Yakima Wetlands	North Satus	193	\$89,250	Easement	Tualatin River NWR	Oleson Tract 2	100	\$859,210	Mix
Lower Yakima Wetlands	Old Goldendale	81	\$91,000	Lease	Vancouver Lowlands	Vancouver Lowlands (Shillapoo)	612	\$1,740,657	Fee Title
Lower Yakima Wetlands	S Barkes Rd.	4,474	\$975,750	Mix	Wanaket	Wanaket (Conforth Ranch)	2,817	\$1,042,976	Fee Title
Lower Yakima Wetlands	Satus	280	\$229,875	Mix	Wellpint Mtn WA	Wynecoop (A 67B)	80	\$83,000	Fee Title
Lower Yakima Wetlands	South Campbell	361	\$120,000	Mix	Whitney	Whitney	54	\$121,680	Easement
Lower Yakima Wetlands	Toppinsh	770	\$395,750	Easement	Willow Creek	Willow Creek	329	\$1,058,000	Easement
Lower Yakima Wetlands	Wapato	160	\$147,175	Lease	Windy Bay	Ramsey	147	\$300,000	none/unknown
Lower Yakima Wetlands	West Satus	74	\$148,720	Fee Title	Winterfeld Easement	Winterfeld	422	\$225,000	Easement
McCoy Lake Watershed	Etue Property	74	\$148,720	Fee Title	Zumwalt Prairie	Camp Creek Ranch	27,000+	\$1,959,500	Easement

Source: Bonneville Power Administration

Table 15 Wildlife Habitat Units Lost and Acquired, Species Most Affected

Wildlife Species	HUs Lost	HUs Acquired	HUs Net	Percent Completed	Redhead Duck	3,379	0	3,379	0.00%
Mule Deer	37,923	29,295	8,628	77.25%	Red Fox	2,590	0	2,590	0.00%
California quail	35,747	18,240	17,507	51.03%	Blue Grouse	1,980	1,499	481	75.71%
Sharp-tailed Grouse	35,545	14,803	20,742	41.65%	Wood Duck	1,947	0	1,947	0.00%
Bald Eagle	33,379	11,007	22,372	32.98%	Muskrat	1,756	82	1,674	4.67%
Ruffed Grouse	30,897	3,399	27,498	11.00%	Riparian Forest	1,632	200	1,432	12.25%
Mallard	24,284	6,652	17,632	27.39%	Western Gray Squirrel	1,354	0	1,354	0.00%
White-tailed Deer	23,312	9,094	14,218	39.01%	American Dipper	954	0	954	0.00%
Canada Goose	22,423	8,477	13,946	37.80%	Downy Woodpecker	741	4,335	-3,594	585.02%
Black-tailed Deer	17,254	259	16,995	1.50%	Harlequin duck	551	0	551	0.00%
Roosevelt Elk	15,295	106	15,189	0.69%	Bobcat	401	140	261	34.91%
Mink	12,638	5,467	7,171	43.26%	Lewis Woodpecker	286	141	145	49.30%
Mourning Dove	9,316	1,001	8,315	10.74%	Common Merganser	127	0	127	0.00%
Spotted Sandpiper	9,104	190	8,914	2.09%	Song Sparrow	108	1,060	-952	981.48%
Western Meadowlark	8,777	15,373	-6,596	175.15%	Riparian Shrub	27	0	27	-
Pileated Woodpecker	8,690	0	8,690	0.00%	Common Snipe	0	889	-889	-
Great Blue Heron	7,912	7,453	459	94.20%	Greater Scaup	0	0	0	-
Sage Grouse	7,680	8,031	-351	104.57%	Lesser Scaup	0	0	0	-
Black-capped Chickadee	6,608	7,560	-952	114.41%	Marsh Wren	0	0	0	-
Yellow Warbler	6,510	2,409	4,101	37.00%	Osprey	0	0	0	-
Spotted Owl	5,711	0	5,711	0.00%	Peregrine Falcon	0	0	0	-
Ring-necked Pheasant	5,517	49	5,468	0.89%	Pigmy Rabbit	0	1,246	-1,246	-
River Otter	5,401	0	5,401	0.00%	Waterfowl	0	0	0	-
Black Bear	4,814	66	4,748	1.37%	Western Grebe	0	0	0	-
Beaver	4,477	1,137	3,340	25.40%	Total	404,567	159,770	244,617	39.49%
Cougar	3,853	110	3,743	2.85%					
Band-tailed Pigeon	3,487	0	3,487	0.00%					

* HUs acquisitions exceed losses for these species. Therefore, negative numbers represent excess habitat units.

Source: Bonneville Power Administration

Table 16A BPA wildlife acres protected by agency

Agency Name	Acres Protected
Montana Department of Fish, Wildlife and Parks - Helena	70,386.00
Washington Department of Fish & Wildlife	69,540.00
Idaho Department of Fish & Game	68,934.00
Burns Paiute Tribe	46,462.00
Confederated Tribes of the Warm Springs Indian Reservation	24,304.00
Colville Confederated Tribes	21,845.00
Nez Perce Tribe	20,198.00
Confederated Tribes of the Umatilla Indian Reservation	17,432.00
Yakama Indian Nation	12,142.00
Montana Land Reliance	5,041.00
Shoshone-Bannock Tribes	5,013.00
USFS - Flathead National Forest	2,383.00
Kalispel Tribe of Indians	2,225.00
Spokane Tribe of Indians	1,828.00
Oregon Department of Fish & Wildlife- Hq	1,752.00
US Fish and Wildlife Service - Portland Region	1,892.00
The Nature Conservancy - OR	27,329.00
Kootenai Tribe of Idaho	210.00
The Nature Conservancy - MT	107.00
US Fish and Wildlife Service - Denver Region	80.00
Flathead Land Trust	60.00
Total	399,163.00

Source: Bonneville Power Administration

Table 16B BPA wildlife acquisition costs by agencies

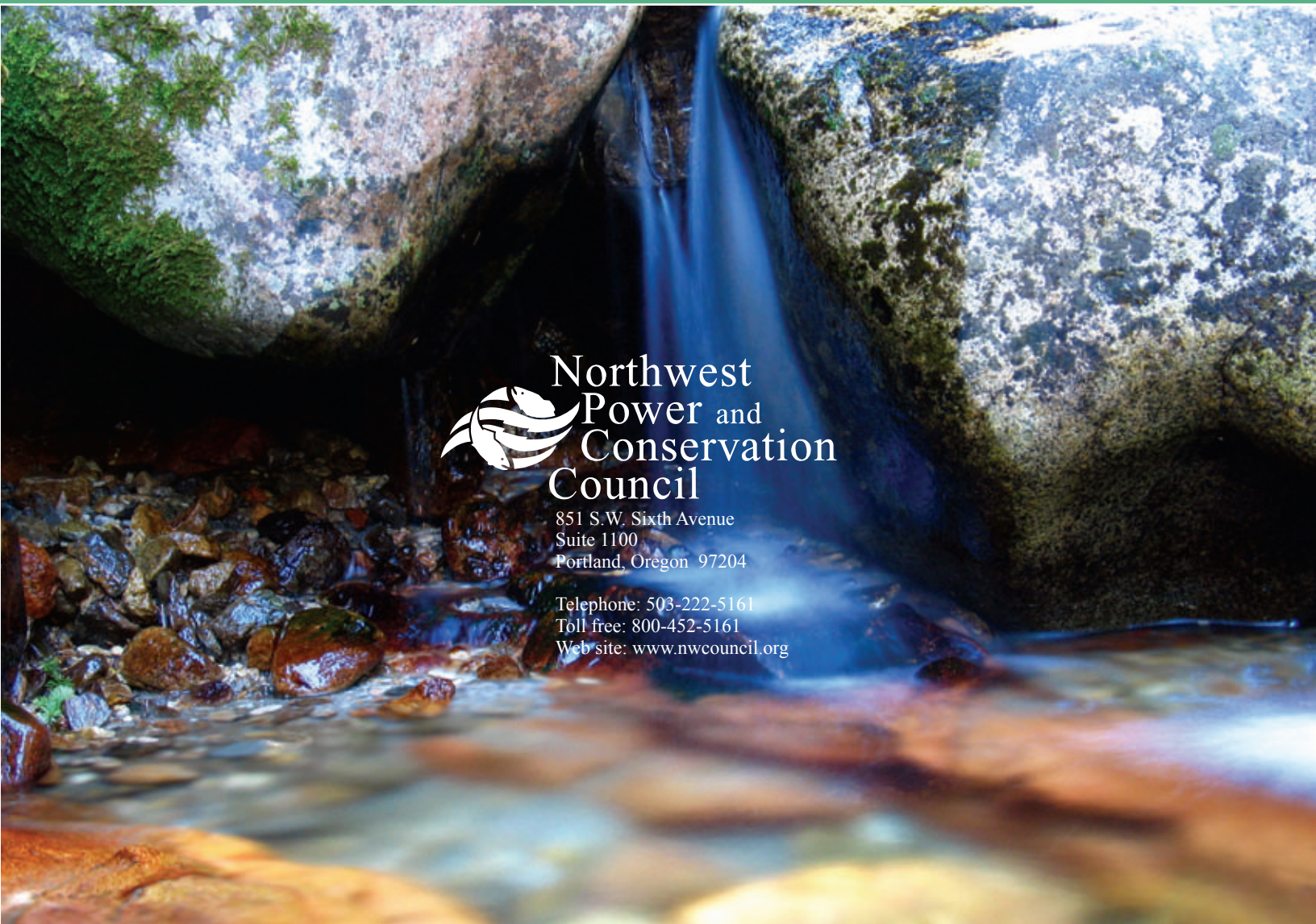
Agency Name	Cost
Idaho Department of Fish & Game	17,844,110
Colville Confederated Tribes	9,053,873
Confederated Tribes of the Umatilla Indian Reservation	7,389,151
Washington Department of Fish & Wildlife	6,993,415
Nez Perce Tribe	6,721,939
Yakama Indian Nation	4,761,800
US Fish and Wildlife Service - Portland Region	4,171,677
Montana Department of Fish, Wildlife and Parks - Helena	3,728,583
Burns Paiute Tribe	3,700,000
Confederated Tribes of the Warm Springs Indian Reservation	3,200,000
Shoshone-Bannock Tribes	2,982,000
Kalispel Tribe of Indians	3,322,185
Spokane Tribe of Indians	2,242,427
Oregon Department of Fish & Wildlife- Hq	2,018,410
The Nature Conservancy - OR	3,017,500
USFS - Flathead National Forest	416,000
Kootenai Tribe of Idaho	355,000
Montana Land Reliance	100,059
US Fish and Wildlife Service - Denver Region	5,000
Flathead Land Trust	3,598
The Nature Conservancy - MT	2,200
Total	82,028,927

Source: Bonneville Power Administration

Table 17 Properties Purchased by BPA for wildlife purposes, 1978-2003

Province	Subbasin	Site	Acres Protected	Purchase Type	Province	Subbasin	Site	Acres Protected	Purchase Type
Blue Mountain	Grande Ronde	Ladd Marsh	940	Mix	Lower Columbia	Willamette	Burlington Bottoms	417	Fee Title
	Grande Ronde	Precious Lands WMA	15,325	Fee Title		Willamette	Canby Landing	23	Fee Title
	Grande Ronde	Rainwater Ranch	8,678	Fee Title		Willamette	Muddy Cr / Marys River	222	Fee Title
	Grande Ronde	Wanaket	2,817	Fee Title		Willamette	Sorenson	42	Fee Title
	Grande Ronde	Zumwalt Prairie/Camp Crk Ranch	27,000	Easement		Willamette	South Pasture	0	none/unknown
Columbia Estuary	Columbia Estuary	Crim's Island	427	Fee Title	Willamette	Thurston	54	Easement	
Cascade Columbia	Columbia Upper Middle/Okanogan	Sage Flat WA	8,380	Mix	Willamette	Tualatin River NWR	232	Mix	
	Okanogan	Columbia Basin Wetlands	100	Fee Title	Willamette	Whitney	54	Easement	
	Okanogan	Scotch Creek WA	11,910	Fee Title	Willamette	Willow Creek	329	Easement	
	Okanogan	Sunnyside	1,280	Lease					
	Okanogan	Wenas WA	30,053	Lease					
Columbia Plateau	Columbia Lower Middle	Columbia Basin Wetlands	100	Fee Title	Mountain Columbia	Clark Fork	The Pend Oreille WMA	942	Fee Title
	Columbia Lower Middle	Wanaket	2,817	Fee Title		Flathead	Hungry Horse Mitigation	37,595	Easement
	Crab	Swanson Lakes	792	Exchange		Flathead	Hungry Horse Mitigation	1,289	Exchange
	Crab	Swanson Lakes	14,999	Fee Title		Flathead	Hungry Horse Mitigation	113	Fee Title
	John Day	Pine Creek	24,304	Fee Title		Flathead	Hungry Horse Mitigation	1,094	Mix
	Umatilla	Iskuulpa	5,937	Fee Title		Flathead	Hungry Horse Mitigation	0	Enhancement only
	Walla Walla	Rainwater Ranch	8,678	Fee Title		Flathead	Hungry Horse Mitigation	0	none/unknown
	Yakima	Lower Yakima Wetlands	1,460	Easement		Flathead	Hungry Horse Mitigation	4,514	Partnerships
	Yakima	Lower Yakima Wetlands	613	Lease		Flathead/Kootenai	Hungry Horse Mitigation	33,217	Easement
	Yakima	Lower Yakima Wetlands	10,069	Mix		Flathead	Libby Dam Mitigation	235	Exchange
Intermountain	Coeur D'Alene/Pend Oreille	Lower Yakima Wetlands	0	none/unknown	Flathead	Libby Dam Mitigation	0	Enhancement only	
	Columbia Upper/San Poi	The Pend Oreille WMA	942	Fee Title	Flathead	Libby Dam Mitigation	0	none/unknown	
	Columbia Upper	Hellsgate	21,845	Fee Title	Flathead	Libby Dam Mitigation	1,405	Fee Title	
	Columbia Upper	Hellsgate	0	Enhancement	Kootenai	Boundary Creek WMA	235	Exchange	
	Columbia Upper	Lake Roosevelt Peregrine Falcon	0	Enhancement	Kootenai	Libby Dam Mitigation	0	Enhancement only	
	Pend Oreille	Carey Creek	117	Fee Title	Kootenai	Libby Dam Mitigation	0	none/unknown	
	Pend Oreille	Little Pend Oreille NWR	200	Fee Title					
	Pend Oreille	Little Pend Oreille NWR	716	Mix					
	Pend Oreille	Pend Oreille Wetlands (Kaispel)	600	Fee Title					
	Pend Oreille	Perkins Lake	98	Fee Title					
	Pend Oreille	Priest River	63	Fee Title					
	Pend Oreille	Tacomna/Trimble WMA	1,190	Fee Title					
	Pend Oreille	Trout Creek Peninsula	112	Fee Title					
	Pend Oreille	Strong Property	255	Fee Title					
	San Poi	Hellsgate	0	Enhancement					
Spokane	Blue Creek Winter Range	701	Exchange						
Spokane	Blue Creek Winter Range	78	Fee Title						
Spokane	Fox Creek	200	Fee Title						
Spokane	McCoy Lake Watershed	769	Fee Title						
Spokane	Weilpinit Mtn WA	80	Fee Title						
Lower Columbia	Columbia Lower	Steigerwald Lake NWR	317	Fee Title	Grand Total			586,844	
	Columbia Lower	Vancouver Lowlands	612	Fee Title					
	Sandy	Sandy River Delta	0	Enhancement					

Source: Bonneville Power Administration



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